

vCloud Usage Meter 3.6 User's Guide

vCloud Usage Meter 3.6



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

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About This User's Guide

The *VMware vCloud Usage Meter User's Guide* provides information about installing, configuring, and using VMware® vCloud® Usage Meter.

Intended Audience

This guide is intended for service provider administrators with access privileges to manage vCloud Usage Meter. These individuals must be familiar with data center operations.

Related Documentation

In addition to this guide, see the following documentation for vCloud Usage Meter and VMware Cloud Provider Program:

- *vCloud Usage Meter Release Notes* - contains information about the new features and issues fixed in the latest release
- *vCloud Usage Meter API Reference* - contains information about the vCloud Usage Meter REST APIs
- *VMware Cloud Provider Program Guide* - contains information about the VMware Cloud Provider Program and the service provider reporting requirements
- *VMware Cloud Provider Program Product Usage Guide* - contains information about the VMware products available for service providers and the usage points for each product

Note You can download the VMware Cloud Provider Program Guides at <http://www.vmware.com/partners/service-provider/>

VMware Technical Publications Glossary

VMware Technical Publications provides a glossary of terms that might be unfamiliar to you. For definitions of terms as they are used in VMware technical documentation, go to <http://www.vmware.com/support/pubs>.

Updated Information

This *vCloud Usage Meter 3.6 User's Guide* is updated with each release of the product or when necessary.

This table provides the update history of the *vCloud Usage Meter 3.6 User's Guide*.

Revision	Description
7 MAR 2018	<ul style="list-style-type: none">■ Added topic Configure an NTP Server in vCloud Usage Meter.■ Renamed topic <i>Configuring an IP Pool for vCloud Usage Meter</i> to Configuring a Network Protocol Profile for vCloud Usage Meter.■ Updated the information in the following topics:<ul style="list-style-type: none">■ TCP Port Configuration■ Metering vRealize Operations Manager■ Add Horizon DaaS
3 JAN 2018	<ul style="list-style-type: none">■ Updated the prerequisites section of topic Add NSX Manager.
18 DEC 2017	<ul style="list-style-type: none">■ Updated the title of topic Reset the vCloud Usage Meter Root Password.■ Added Change the vCloud Usage Meter usgmtr Password and Change the vCloud Usage Meter Root Password topics.■ Updated the information in the following topics:<ul style="list-style-type: none">■ Configuring Email Settings■ Unlock Usgmtr Account■ Chapter 4 Upgrading vCloud Usage Meter■ Migrate Data to vCloud Usage Meter 3.6.1■ Metering vRealize Operations Manager■ Add Horizon DaaS■ Product Consumption Reports

Revision	Description
7 SEP 2017	<ul style="list-style-type: none">■ Renamed <i>vCloud Air Network</i> to VMware Cloud Provider Program.■ Renamed chapter <i>Managing Settings</i> to Chapter 5 Configuring vCloud Usage Meter.■ Renamed chapter <i>Managing Metering</i> to Chapter 6 Preparing vCloud Usage Meter for Metering.■ Renamed chapter <i>Troubleshooting vCloud Usage Meter</i> to Chapter 9 vCloud Usage Meter Administration.■ Reorganized chapters Chapter 7 Managing Customers and Rules, Chapter 8 Managing Product Consumption Reports, and Chapter 9 vCloud Usage Meter Administration.■ Added topics Error Management and Reset the vCloud Usage Meter Root Password.■ Updated the information in the following topics:<ul style="list-style-type: none">■ vCenter Server Operational Requirements■ Chapter 4 Upgrading vCloud Usage Meter■ Migrate Data to vCloud Usage Meter 3.6.1■ Configure Service Provider Details■ Configuring Email Settings■ Add vCenter Server■ Add vCloud Director■ License Sets and Billing Categories■ Generate a Product Consumption Report■ Back up the vCloud Usage Meter Database■ Technical Support
13 JUL 2017	Initial release.

Introduction to vCloud Usage Meter

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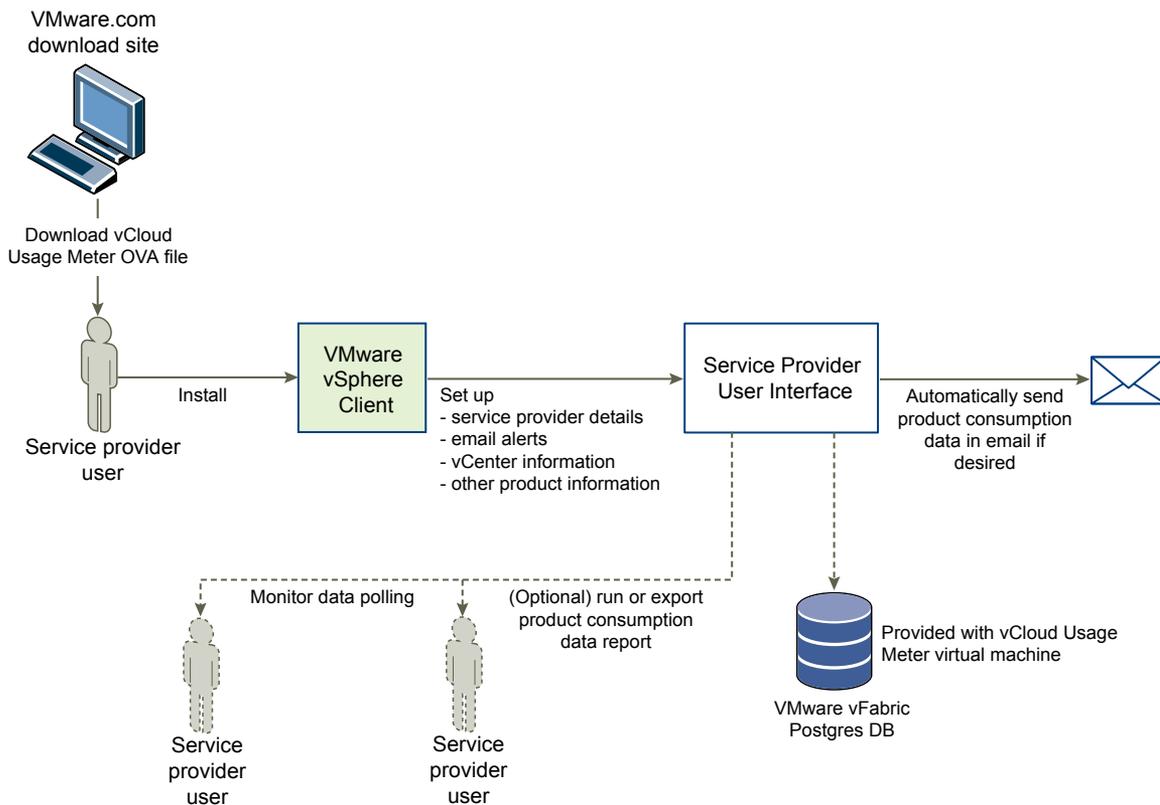
vCloud Usage Meter is virtual appliance that is installed on a vCenter Server instance.

vCloud Usage Meter meters, collects product consumption data, and generates reports for products that are part of the VMware VMware Cloud Provider Program bundles.

Service providers send the data reported in the monthly reports to their VMware VMware Cloud Provider Program aggregator for diagnostic purposes.

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

Figure 2-1. Service Provider Workflow



Accessing vCloud Usage Meter After Installation

After you install vCloud Usage Meter, there are several methods for accessing settings and data.

Table 2-1. Access Methods

Access Method	Description
Virtual machine console	Provides access to configuration settings.
Web application	Provides menus, tabs, and pages to manage settings, metering, and reports.
Java Management Extensions (JMX) service	Provides access to internal data such as database size, customer count, customer rules count.
REST API	Provides access to the vCloud Usage Meter REST API for external clients such as portals, scripts, and other applications. See the <i>vCloud Usage Meter API Reference</i> .

About Data Collections

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

- Collected data from the VMware vSphere[®] host includes DNS name, RAM (physical memory), and license type.
- Collected data from the virtual machine includes the VMware vCenter[®] name, hostname, allocated and billing vRAM (virtual memory), CPU, instance universal unique identifier (UUID), and location in the vSphere inventory.
- Collected data from products includes billing vRAM, storage, and other metrics specific to the product.

vCloud Usage Meter stores collected data in the VMware[®] vFabric[™] Postgres database of the virtual appliance itself.

About Customer and Rule Management

vCloud Usage Meter enables you to add, edit, delete, export, and import customers that use service provider resources. After you create customers, you create rules allowing you to associate vCenter Server objects with a customer's cloud infrastructure. Customer and rule management enables monthly customer product consumption reporting and also aids in planning, billing, general account management, dispute resolution.

With customer rules, you gain granular control of a vCenter Server inventory, where you can link objects in the inventory from as high as the vCenter Server down to the individual unique ID for a virtual machine or IP address.

About Reports

vCloud Usage Meter allows the end user to generate various reports to monitor and track resource consumption. You can generate and browse a report at any time, and can export it as a tab-separated file text file or as a ZIP file. You can also set up vCloud Usage Meter to automatically generate sets of reports and email them to an aggregator.

Installing vCloud Usage Meter

vCloud Usage Meter is a virtual appliance that you install by using vSphere Web Client. Installation of the virtual appliance includes verifying access on the appropriate TCP ports, setting the time zone and passwords, and configuring your network.

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

To avoid configuration problems and ensure accurate metering of products, the vCloud Usage Meter time must be synchronized with other product hosts. A best practice is to use the same NTP server for the vCloud Usage Meter host and the metered products hosts.

To upgrade from previous versions, see [Chapter 4 Upgrading vCloud Usage Meter](#).

This chapter includes the following topics:

- [vCenter Server Operational Requirements](#)
- [TCP Port Configuration](#)
- [Install vCloud Usage Meter](#)
- [Configuring a Network Protocol Profile for vCloud Usage Meter](#)
- [Change the Time Zone](#)
- [Configure an NTP Server in vCloud Usage Meter](#)
- [Configure the Web Application Password](#)

vCenter Server Operational Requirements

To collect accurate usage data, vCloud Usage Meter requires specific configuration of the metered vCenter Server instances.

Lookup Service

The vCloud Usage Meter appliance connects to the single sign-on server (lookup service) before connecting to a vCenter Server. If the lookup service does not reside on the same vCenter Server, enter the IP address of the single sign-on server when registering your vCenter Server in the vCloud Usage Meter Web application. The vCloud Usage Meter assumes that the default port number of the lookup service is 7444.

If you do not meet the vCenter Server requirement, all vCenter Server collections fail with the following error message in the **Monitor** tab of the Web application: vCenter Server connection failed. Please make sure that vCenter Server SSO service is up, and it is NTP configured.

vCenter Server Clusters

Service providers normally host customer and administrative virtual machines on a single vCenter Server. 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 segregation between customer and administrative virtual machines. The best practice is to create a dedicated cluster for both types. For example, create a *Customer* cluster to host all customer VMs and a *Management* cluster to host all VMs vital to the service provider business operations. The separation of VMs based on their function ensures that vCloud Usage Meter reports do not contain usage data for mixed customer and administrative VMs.

ESXi Licenses

After you create dedicated clusters for VMs based on their functions, you must assign proper ESXi licenses to the cluster hosts. Select **VCPP** license for both *Customer* and *Management* clusters. For more information, see [License Sets and Billing Categories](#) and [Manage Billing Categories](#).

TCP Port Configuration

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

Table 3-1. Configuration of TCP Ports for vCloud Usage Meter

Port	Source	Target	Purpose
443	vCloud Usage Meter	vCenter Server	vSphere API. If default value does not work, you can change it.
8443	Client browser	vCloud Usage Meter	Used for the Web application.
9003	Jconsole or custom JMX client	vCloud Usage Meter	Used for Java Management Extensions (JMX).

Table 3-1. Configuration of TCP Ports for vCloud Usage Meter (Continued)

Port	Source	Target	Purpose
9007	vCloud Usage Meter	Site Recovery Manager 5.x	Used for invoking APIs on the server.
9086	vCloud Usage Meter	Site Recovery Manager 6.x	Used for all Site Recovery Manager management traffic.

Install vCloud Usage Meter

Use the vSphere Web Client to install the vCloud Usage Meter virtual appliance.

Prerequisites

- Download the vCloud Usage Meter OVA installation file from the product page and save it locally.
- Verify that you have access and sufficient privileges to deploy an OVA with the vSphere Web Client.

Procedure

- 1 In the vSphere Web Client, navigate to **Hosts and Clusters**.
- 2 Choose a target host or cluster for your vCloud Usage Meter and right-click it in the vSphere Web Client Navigator.
- 3 Select **Deploy OVF Template** from the drop-down menu.
- 4 In the Deploy OVF Template dialog box, specify the location of the saved OVA file, and click **Next**.
- 5 Verify the OVF Template details and click **Next**.
- 6 Accept the end-user license agreement.
- 7 Specify the name and target location for the appliance.
- 8 Select the installation target resource in which to run the vCloud Usage Meter.
You can choose a cluster, a host, a vApp, or a resource pool.
- 9 Select a location 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 installed template.
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* and *usgmtr* accounts.

Note Keep a record of the *root* password. The password cannot be recovered, but can be changed. See [Reset the vCloud Usage Meter Root Password](#) for instructions about changing the vCloud Usage Meter *root* password.

12 Review the information in the **Ready to complete** dialog box and click **Finish**.

Wait for the process to complete.

What to do next

If you selected fixed for the IP allocation policy, configure a Network Protocol Profile for vCloud Usage Meter. See [Configuring a Network Protocol Profile for vCloud Usage Meter](#).

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.

Configuring a Network Protocol Profile for vCloud Usage Meter

When you install 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 assigned networks have an associated network protocol profile. If not, the vCloud Usage Meter virtual machine 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 IPv4 configuration.

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

Change the Time Zone

The vCloud Usage Meter virtual machine time is not synchronized at OVF deployment, which can cause time reporting inconsistencies in your collections. You can change the time zone in the vCloud Usage Meter virtual machine console.

Important If you are migrating data from older vCloud Usage Meter versions, the time zone of the new vCloud Usage Meter appliance must match the time zone of the old instance to avoid report discrepancies.

A best practice to avoid connection timeout problems is to synchronize the vCloud Usage Meter with the time of the metered products.

Prerequisites

Verify that the vCloud Usage Meter virtual machine is powered on.

Procedure

- 1 In the vSphere Web Client, start the vCloud Usage Meter remote console.
- 2 Select **Set Timezone** and press Enter.
- 3 Change your time zone.

- 4 Log in as root.
- 5 Type `service tomcat restart` to restart the Tomcat service.
- 6 Type `exit` to return to the virtual machine console.

Configure an NTP Server in vCloud Usage Meter

To avoid configuration issues and ensure accurate metering of products, configure the vCloud Usage Meter host to use the same NTP server that products being metered are using.

Prerequisites

Verify that you have a password to log in to the vCloud Usage Meter console as **root**.

Procedure

- 1 Log in to the vCloud Usage Meter console as *root*.
- 2 To configure an NTP server, you edit the `/etc/ntp.conf` file. Open the `/etc/ntp.conf` file for edit, by running the following command.

```
vi /etc/ntp.conf
```
- 3 Add the NTP server entries in the file in the following format.

```
server your_NTP_server_IP_address_or_name
```
- 4 Save the changes and close the `/etc/ntp.conf` file.
- 5 Restart the NTP service by running the following command.

```
service ntpd restart
```
- 6 Verify the NTP server details by running the following command.

```
ntpq -p
```
- 7 Enable the NTP service by running the following command.

```
chkconfig ntpd on
```

Configure the Web Application Password

Configure your Web application password and note the URL so you can provide credentials to your users.

Prerequisites

Verify that the vCloud Usage Meter virtual machine is powered on.

Verify that you have installed VMware Remote Console (VMRC). For more information about the VMRC, see [About VMware Remote Console](#) in the *VMware vSphere 6.5 Documentation Center*.

Procedure

- 1 Locate the vCloud Usage Meter virtual machine in the vSphere Web Client Navigator and select it.

- 2 Go to the **Summary** tab.
- 3 Right-click the virtual machine and select **Open Console**.
- 4 **Select one of the console connection types.**
 - To connect to the virtual machine console using a web browser, select **Web Console**. A best practice is to use the **Web Console** connection.
 - To connect to the virtual machine console using a standalone remote console application, select **VMware Remote Console**.
- 5 Log in with **usgmttr** user name and the password that was configured at installation and press Enter.
- 6 To create your Web application password, at the prompt, type **webpass** and press Enter.
- 7 Type a Web application password and press Enter.

Note Keep a record of the Web Application password.

- 8 Type **exit** to return to the virtual machine console.

What to do next

- Note the URL for accessing the vCloud Usage Meter Web application that appears in the console.
- Use **admin** as user name and the password configured for **webpass** to log in to the Web application.

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Upgrading vCloud Usage Meter

vCloud Usage Meter 3.6.1 is installed as a new appliance. After you install and configure the vCloud Usage Meter 3.6.1 appliance, you can optionally migrate data from vCloud Usage Meter 3.5.0.0, 3.6.0.0, and 3.6.0.1.

To upgrade to vCloud Usage Meter 3.6.1, you can deploy and configure a new appliance. Alternatively, you can deploy a new vCloud Usage Meter 3.6.1 appliance and migrate configuration and collected consumption data from a vCloud Usage Meter 3.5.0.0, 3.6.0.0, or 3.6.0.1 appliance.

If you are migrating from vCloud Usage Meter 3.5.0.0, you must accept the legal agreement that is displayed when you first log in to the vCloud Usage Meter Web application.

If you are migrating from vCloud Usage Meter 3.6.0.0 or 3.6.0.1 and have already accepted the legal agreement, you do not need to accept it again after you complete the migration to vCloud Usage Meter 3.6.1.

Regardless if you migrated data, or deployed and configured a new appliance, run both vCloud Usage Meter appliances for at least two months. Use the vCloud Usage Meter 3.6.1 for reporting. Then 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.

Migrate Data to vCloud Usage Meter 3.6.1

You can migrate data from vCloud Usage Meter 3.5.0.0, 3.6.0.0, or 3.6.0.1 to your vCloud Usage Meter 3.6.1 appliance.

vCloud Usage Meter 3.6.1 is installed as a new appliance. You can migrate the configuration data, which includes all data displayed on the **Manage** page, and the collected measurements data from vCloud Usage Meter 3.5.0.0, 3.6.0.0, or 3.6.0.1.

Prerequisites

- Back up or take a snapshot of the source vCloud Usage Meter appliance from which you are migrating. For more information, see [Back up the vCloud Usage Meter Database](#).
- Verify that you have the TCP host name or IP address and *usgmr* password of the source vCloud Usage Meter appliance.

Procedure

- 1 Log in to the source vCloud Usage Meter console as *root*.
- 2 Turn on 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 3.6.1 console as *usgmtr*.
- 4 To migrate data to the target vCloud Usage Meter 3.6.1 appliance, run the following command.

```
migrateum <hostname>
```

Important This operation overwrites the local vCloud Usage Meter data.

The *<hostname>* is the TCP host name or IP address of the source vCloud Usage Meter appliance that you are migrating data from.

The *migrateum* command uses *ssh* and *scp* to export the database from the source system and copy it and the keystore files to vCloud Usage Meter 3.6.1. You are prompted one time for the *usgmtr* password of the source vCloud Usage Meter appliance. Confirm that you want to migrate vCloud Usage Meter data.

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

- 5 In the source vCloud Usage Meter console, disable the *sshd* service by running the following command.

```
service sshd stop
```

The password for the vCloud Usage Meter 3.6.1 Web application is the same as the password of the source system. You can change it by using the *webpass* command. All trusted self-signed VMware product certificates you accepted on the source vCloud Usage Meter are copied to vCloud Usage Meter 3.6.1. You can run the *migrateum* script more than one time.

Important

- To retrieve additional certificates and validate product connectivity, after migrating configuration and measurements data, click **Edit** and **Save** for each product in the **Manage > Products** page of the Web application.
 - To ensure that vCloud Usage Meter 3.6.1 is working correctly, run the new appliance in parallel with the source system for at least two months.
-

What to do next

If you have not configured an outgoing email server in the vCloud Usage Meter 3.5.0.0 Web application, the **Email Alerts**, **Products**, **Reports**, **Collections**, **API**, and **LDAP** tabs in the **Manage** page of the Web application are disabled. To enable all tabs, configure an outgoing email server in the vCloud Usage Meter 3.6.1 Web application. For more information, see [Configure Outgoing Email Server](#).

If you have vCenter Server instances that use an external Platform Service Controller (PSC), enter the additional PSC information in vCloud Usage Meter. For more information about configuring PSC, see [Add vCenter Server](#).

Configuring vCloud Usage Meter

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You can configure vCloud Usage Meter to determine how you receive information about product consumption. This includes setting email alerts, managing access to vCloud Usage Meter, and setting collecting times that do not conflict with your server operations.

When you configure vCloud Usage Meter, you provide information about you as a service provider. vCloud Usage Meter uses that information to report consumption data.

You can configure several settings:

- You can send metering alerts to email addresses that you provide.
- You can set up LDAP authentication to manage who can use the application.
- You can also adjust collection timing, in order to avoid conflicts with other server operations.

This chapter includes the following topics:

- [Configure Service Provider Details](#)
- [Configuring Email Settings](#)
- [Configure a Proxy Server](#)
- [About Automatic Reporting](#)
- [Configure Collection Settings](#)
- [Manage Reports](#)
- [Provide API Access](#)
- [Configure LDAP Authentication](#)

Configure Service Provider Details

After accepting the legal agreement for using vCloud Usage Meter, you must configure your contact details as a service provider. The service provider details appear in vCloud Usage Meter reports.

Procedure

- 1 In the Web application, navigate to **Manage > Provider**.

2 Enter the service provider details.

Important Make sure that the Partner ID, Contract Number, and Site ID values you enter in the vCloud Usage Meter Web application match the values you enter in the VMware Cloud Provider Program Business Portal. If you have entered different values in the VMware Cloud Provider Program Business Portal, correct the information in the vCloud Usage Meter Web application.

Option	Description
Company	Name of your company.
Contact Name	Name of the person who is the single point of contact. Enter the name in a Last Name, First Name format.
Phone	Phone number of the contact. Enter the number in a <i>+country code phone number</i> format.
Email	The email address of the contact person listed as a single point of contact. This is the email address that vCloud Usage Meter uses as the From address for sending emails to VMware. This email address must be known for the outgoing email server. The email server must also be accessible for the vCloud Usage Meter appliance. For more information, see Configure Outgoing Email Server .
Partner ID	Your VMware VMware Cloud Provider Program Partner ID. If you do not have or know your partner ID, you can obtain it from your aggregator.
Contract Number	Your contract number with VMware.
Site ID	Enter the SP-defined ID for the vCloud Usage Meter location. Service Providers can create sites to report multiple locations with multiple vCloud Usage Meter instances. The Site ID can be used to report back to an individual site for each vCloud Usage Meter appliance. If you are not using site reporting, enter None . If you are using site reporting, enter the site ID and name in the text box. You can obtain a site ID and name from the VMware Cloud Provider Program Business portal. If you are configuring a vCloud Usage Meter instance for testing purposes, enter 00 - TestSite in the text box.

3 Click **Save**.

Your service provider details are now saved and vCloud Usage Meter navigates you to configure an outgoing email server.

What to do next

You must configure your email settings. For more information, see [Configuring Email Settings](#).

Configuring Email Settings

You must configure an outgoing email server, so that vCloud Usage Meter can send emails. You can also configure the email alerts to receive monthly billing reports and alerts of failed and successful collections.

After you configure the email settings, vCloud Usage Meter alerts you of conditions that affect metering. By default, for vCenter Server, NSX, and vRealize Operations Manager, if the product is offline or unreachable for more than 720 collections (30 days), vCloud Usage Meter deactivates the product and stops collecting product consumption data for that product. You can reconfigure the default number of unsuccessful collections by running the `configureDisableProductPeriod.sh` script located in `/opt/vmware/cloudusagemetering/scripts/`. Use a positive integer as the input parameter.

When a vCenter Server is deactivated, vRealize Operations Manager is also deactivated without any email alert. Other related products such as NSX are not automatically deactivated.

After a product is disabled because of unsuccessful collections, vCloud Usage Meter attempts to reconnect to the product every 24 hours. If the issue preventing the connection is resolved, vCloud Usage Meter connects to the product and resumes collecting consumption data. vCloud Usage Meter notifies you if the collections for the product are resumed or the connection to the product is still not possible.

For vSAN, after the connectivity to the vCenter Server using vSAN is restored, vCloud Usage Meter resumes collecting consumption data with the first successful collection.

For Site Recovery Manager, after the connectivity to the vCenter Server using Site Recovery Manager is restored, you must manually recreate the recovery or protected site pairing. For more information, see [Add vCenter Server](#).

If you do not configure email alerts, all email notifications are sent to the provider email address that you specified when configuring the service provider details. For more information, see [Configure Service Provider Details](#).

No email notifications are sent for products that you disabled manually by using the vCloud Usage Meter Web application.

For vCloud Director, if an issue prevents vCloud Usage Meter from collecting consumption data for a product for more than 24 hours, vCloud Usage Meter disables the product and stops collecting consumption data permanently. To continue collecting consumption data for deactivated vCloud Director instances, navigate to the **Manage > Products** page of the Web application and click **Activate** next to the affected vCloud Director. The vCloud Usage Meter operator is responsible to act upon any issues affecting metering, such as network connectivity issues and credential updates of connected systems.

If you are configuring a vCloud Usage Meter instance in an environment with no access to Internet, consider the following best practices:

- Make sure that your mail server can relay messages from the service provider email address, using either authenticated or unauthenticated SMTP.

Note vCloud Usage Meter uses this email address as the From address for sending emails to VMware.

- If your mail server requires authentication, use encryption to avoid sending sensitive data in a plain text format.
- Verify the SMTP port number that is assigned to your mail server.

It is a best practice to configure email alerts, so that you are informed of any issues affecting the accurate metering.

Important You must configure an outgoing email server before you can proceed setting up vCloud Usage Meter.

Configure Outgoing Email Server

You must configure an outgoing email server, so that vCloud Usage Meter can send emails.

Procedure

- 1 In the Web application, navigate to **Manage > Email**.
- 2 Configure the **Outgoing Email Server** settings.

Option	Action
Host	Enter the host name.
Port	Enter the port number or accept the default of 25.

To send emails to VMware, it is mandatory to configure host name and port number.

- 3 (Optional) If necessary, select **Connection Security** from the drop-down.
- 4 (Optional) If you require authentication for the outgoing email server, enter a **User** name and **Password**.
- 5 To verify the email settings, click **Send email**.

The **Save** button remains inactive until you successfully send a test email to VMware.

vCloud Usage Meter sends a test email to `um-reports@vmware.com` using the email address listed on the **Provider** tab as the From address. vCloud Usage Meter sends a copy of the email to the service provider email address.

Before you can proceed to save your settings, you must successfully send an email to VMware. If you do not send an email to VMware, the **Email Alerts, Products, Reports, Collections, API, and LDAP** tabs in the **Manage** page of the Web application are not activated.

- 6 Click **Save**.

You have successfully sent an email to VMware and to the service provider email address and all tabs on the **Manage** page of the Web application are active.

Configure Email Alerts

You can configure the email alerts to receive monthly billing reports and alerts of failed and successful collections.

Procedure

- 1 In the Web application, navigate to **Manage > Email Alerts**.

- 2 Configure the **Email Alerts** settings to receive Email alerts.

To avoid missing an alert, a best practice is to configure a shared mailbox to receive the email alerts.

Option	Action
From Email	Enter the name that appears in the from line of the email alert.
To Email	Enter the email address or a comma-separated list of email addresses which receive the email alert.

- 3 Select the collection alert type.

Option	Description
Successful collection	Receive email alerts for successful collections.
Failed collection	Receive email alerts for failed collections.

- 4 (Optional) To verify that the outgoing email server is working correctly and that the alerts are sent, select the **Send a test email alert after saving** check box.

- 5 Click **Save**.

Configure a Proxy Server

Configure a proxy server between the vCloud Usage Meter appliance and the Internet. You use the proxy server when sending Monthly Usage, Customer Monthly Usage, Cluster History, and Virtual Machine History reports to VMware.

Procedure

- 1 In the vCloud Usage Meter, navigate to **Manage > Proxy**.
- 2 Enter the **IP or hostname** of the network proxy server in text box.
- 3 Enter the port number in the text box.
The port number value must be a number between 0 and 65535.
- 4 (Optional) If necessary, select the **Enable SSL for Proxy connection**.
- 5 (Optional) If necessary, select **Proxy Server needs authentication** and enter your credentials in the **Username** and **Password** text boxes.
- 6 Click **Save**.

You receive a Proxy configuration successfully saved message after the settings are correctly populated and saved.

What to do next

Verify that you have successfully configured the **Provider** and **Email** settings. For more information, see [Configure Service Provider Details](#) and [Configuring Email Settings](#).

About Automatic Reporting

vCloud Usage Meter generates and sends Monthly Usage, Customer Monthly Usage, Cluster History, and Virtual Machine History reports to VMware. You can also configure vCloud Usage Meter to generate and send reporting sets to yourself, an aggregator, or elsewhere.

When you first log in to the vCloud Usage Meter Web application, you get a pop-up window containing the terms and conditions of the automatic reporting to VMware. If you do not accept the terms and conditions, vCloud Usage Meter cannot be used.

After you accept the terms and conditions of the automatic reporting to VMware, you must configure the service provider details, the email settings, and set a proxy server if necessary. For more information, see [Configure Service Provider Details](#), [Configuring Email Settings](#), and [Configure a Proxy Server](#).

On the first day of each month between 00:05 AM and 00:35 AM, vCloud Usage Meter generates and sends Monthly Usage, Customer Monthly Usage, Cluster History, and Virtual Machine History reports to VMware. If a problem prevents the reports submission, vCloud Usage Meter retries to send the mail within 5 minutes. If the problem still persists, vCloud Usage Meter tries to send the reports to VMware again on the next day between 00:05 AM and 00:35 AM.

If you stop the appliance during the transmission period, vCloud Usage Meter attempts to send the reports 5 minutes after you start the appliance.

To resubmit reports to VMware manually, go to **Automatic Reporting** tab in the vCloud Usage Meter Web application and click **Submit Now** in the **Submit reports to VMware**.

vCloud Usage Meter encrypts all reports and obfuscates customer sensitive data before submitting the reports to VMware.

You can also configure vCloud Usage Meter to generate and send reporting sets to you, an aggregator, or elsewhere. For more information, see [Create Automatically Generated Reporting Sets](#).

Create Automatically Generated Reporting Sets

You can configure vCloud Usage Meter to create automatically generated sets of reports and email them to an aggregator, or elsewhere. If you report to multiple aggregators, you can configure a report set for each one. Alternatively, you can list all aggregators email addresses for a single reporting set.

If you stop vCloud Usage Meter during the transmission of reports, the appliance attempts to send the reports on the next day at 00:10 AM after you start it.

Procedure

- 1 Click **Automatic Reporting** in the top right menu bar of the Web application.
- 2 In the **Submit reports to self** section, enter a name for the reporting set in the details pane.
- 3 In the **Reporting Day** drop-down menu, select the day of the month on which to send the reports.
- 4 Select the reports to include in the set.
- 5 You can select license sets for filter. This filtering only applies to the Virtual Machine History report.

6 Configure the email settings.

Option	Action
From Email	Enter the email address which appears in the from line of the reporting set.
To Email	Enter the email address or a comma-separated list of email addresses which receive the reporting set.

7 Click **Save**.

The reports are sent every month on the date you set. The name of the new reporting set appears in the left pane list. Use the left pane to edit a previously created report.

Configure Collection Settings

vCloud Usage Meter collects consumption data from vCenter Server instances and other products based on a start time that you can set. If the default start time competes with other scripts that are working with your vCenter Server instances, you can change and test the start time.

Procedure

- 1 Click **Manage** in the top right menu bar of the Web application.
- 2 Click the **Collections** tab.
- 3 Select the minute of the hour to start collecting.
Setting the time at zero starts collections at the beginning of the hour.
- 4 Click **Save**.

What to do next

Monitor your collections. See [Monitor Collections](#).

Manage Reports

You can configure vCloud Usage Meter to report usage of vRealize Operations Manager and NSX as standalone and not part of a bundle. These report types are useful for end-user reporting.

Procedure

- 1 Click **Manage** in the top right menu bar of the Web application.
- 2 Click the **Reports** tab.
- 3 If directed to by the VMware Cloud Provider Program, you can set the Per-VM Memory Cap.

- 4 Select the check boxes for vRealize Operations Manager and NSX if you want to report the usage as standalone and not as part of a bundle.

If you select any of the check boxes, the selected feature usage is metered as standalone and not as part of a bundle in the Monthly Usage Report and Customer Monthly Usage Report, if there is an associated rule for such VMs.

Option	Description
Report NSX Enterprise usage as standalone	When selected, NSX Enterprise features usage is metered and reported as standalone and not as part of a bundle. As an example result, the Monthly Usage Units Report consists of the following: <ul style="list-style-type: none"> ■ VMware NSX Enterprise ■ VMware vCloud SP Advanced Bundle
Report vRealize Operations Manager Enterprise usage as standalone	When selected, vRealize Operations Manager Enterprise features usage is metered and reported as standalone and not as part of a bundle. As an example result, the Monthly Usage Units Report consists of the following: <ul style="list-style-type: none"> ■ VMware vRealize Operations Manager Enterprise (managed) ■ VMware vCloud SP Advanced Bundle

- 5 Click **Save**.

Provide API Access

You can add or revoke API access.

Procedure

- 1 Click **Manage** in the top right menu bar of the Web application.
- 2 Click the **API** tab.
- 3 To view Admin Token, click **Add Admin Token**
Click **Revoke** to remove the displayed Admin Token.
- 4 To view User Token, click **Add User Token**.
Click **Revoke** to remove the displayed User Token.

Admin and User Tokens are added or revoked according to the user action.

Configure LDAP Authentication

vCloud Usage Meter can authenticate users against an LDAP service.

Prerequisites

- Verify that vCloud Usage Meter supports your LDAP server. See [Interoperability Pages For vCloud Usage Meter](#).
- Verify a base distinguished name of the LDAP hierarchy to allow login to vCloud Usage Meter. Use a specific Base DN that only contains your intended user group.

- Verify a user name and password for a user account within the LDAP hierarchy user group to allow login to vCloud Usage Meter.
- Verify a valid SSL certificate if using SSL security.

Procedure

1 On the **LDAP** tab, enter details.

2 Host

Option	Description
Hostname	(Most commonly used.) Requires vCloud Usage Meter appliance to have DNS configured. (DNS configuration is verified in appliance console.)
Domain Name	Requires the vCloud Usage Meter appliance to have DNS configured and supports failover. (DNS configuration is verified in appliance console.)
IP Address	Does not require DNS configuration.

3 Port

389 is the default port for LDAP.

4 (Optional) **Use SSL** check box.

5 Username DN

(60 characters) The user account that connects to LDAP for the purposes of locating the account of someone logging in to vCloud Usage Meter.

6 Password

Password of the user account that connects to LDAP to locate the account for login to vCloud Usage Meter.

7 LDAP Schema

a User Base DN

(60 characters) Base distinguished name of LDAP hierarchy group that allows log in to vCloud Usage Meter. Use a specific user base DN that contains only your intended user group.

b **Object Class** - for example, **User**.

c **User Name Attribute** - for example, **sAMAccountName**.

8 Click **Save**.

What to do next

Test your LDAP login.

- 1 To verify and confirm the certificate fingerprint, log out of vCloud Usage Meter.
- 2 Log in with the user name and password of a user in the intended user group.
- 3 If successful, LDAP login is verified.

Preparing vCloud Usage Meter for Metering

6

You must provide and maintain certain details for vCloud Usage Meter to collect product consumption data from vCenter Server instances. These details include the host name and credentials.

vCenter Server 5.5u2 and earlier versions only support TLS 1.0. If you are using vCenter Server 5.5u2 or earlier version, vCloud Director must only use TLS 1.0.

vCloud Usage Meter detects vSAN consumption, so you do not need to register it through the Web application. vCloud Usage Meter also detects the vSAN edition based on use of features.

vCloud Usage Meter collects usage information on an hourly basis at the cluster level and it is averaged over the month in which the use occurs. The consumption information for individual virtual machines is not available.

vCloud Usage Meter detects NSX editions based on the use of features at virtual machine granularity.

vCloud Usage Meter now reports the total number of VMs protected by the vCloud Availability for vCloud Director solution at the end of the month. vCloud Usage Meter detects usage of vCloud Availability for vCloud Director after you add the vCloud Director product, so you do not need to register the vCloud Availability for vCloud Director solution through the Web application. You must set up a DNS server for the vCloud Usage Meter appliance, to get accurate reporting data.

After you configure the email settings, vCloud Usage Meter alerts you of conditions that affect metering. For more information, see [Configuring Email Settings](#).

This chapter includes the following topics:

- [Add vCenter Server](#)
- [Metering vRealize Operations Manager](#)
- [Add NSX Manager](#)
- [Add vCloud Director](#)
- [Add vRealize Automation](#)
- [Add Horizon DaaS](#)
- [Change Product Information](#)
- [Delete or Reactivate Product Servers](#)
- [Monitor Collections](#)

- [Delete Old Data](#)

Add vCenter Server

To begin metering, you must provide a host name and credentials for at least one vCenter Server instance. You can add one or more instances.

Prerequisites

- Verify that you have additional read-only vCenter Server user permissions. To add the required additional read-only permissions, perform the following steps.
 - a Log in to the vSphere Web Client as an administrator.
 - b Navigate to **Administration > Roles**.
 - c Click the **Create role** button.
 - d Type a name for the new role.
 - e Select the following permission: Profile-driven storage > Profile-driven storage view
 - f Assign the new role to the user which you use for vCloud Usage Meter collection.
- If your vCenter Server is protected by Site Recovery Manager, credentials are needed for both the protected and recovery site vCenter Server instances. For more information about configuring Site Recovery Manager, see the [VMware vCenter Site Recovery Manager Documentation](#).
- vCloud Usage Meter cannot successfully collect metering data from a vCenter Server managed by multiple vRealize Operations Manager servers. Verify that a single vRealize Operations Manager instance manages the vCenter Server you add.

Procedure

- 1 Click **Manage** in the top right menu bar of the Web application.
- 2 Click the **Products** tab.
- 3 Click the **Add** button located in the vCenter Server area.
- 4 (Optional) If you are using an external Platform Services Controller (PSC), select the **External Platform Services Controller** check box.
 - a Enter the external PSC hostname in the text box.
 - b Enter the PSC port.
By default, the PSC port is *7444*.
- 5 Enter a host name, IP address for the vCenter Server in the **vCenter Server hostname** text box.
- 6 Enter the user name in the **Administrator User Name** text box.
- 7 Enter the password in the **Password** text box.
- 8 Select the **Meter** check box.
Do not select if this site is a recovery site vCenter Server instance.

- 9 Click the **Site Recovery Manager Peer vCenter Server** drop-down.

If this site is a protected site instance, select and link it to the corresponding recovery site instance in the drop-down menu. To appear on the drop-down, the recovery site instance must be added. You must not add Site Recovery Manager servers to vCloud Usage Meter because vCloud Usage Meter detects them through their associated vCenter Server instance.

- 10 Click **Save**.

Note For each product server that you add, vCloud Usage Meter might present a certificate that you can verify. You might be prompted to accept the server certificate before proceeding.

- 11 The newly added virtual machines are not displayed immediately under the vCenter rules inventory. As the rules section uses only the vCenter Server inventory tree, a sync is required in order for the changes to reflect. Click **Synchronize All vCenter Inventories**.

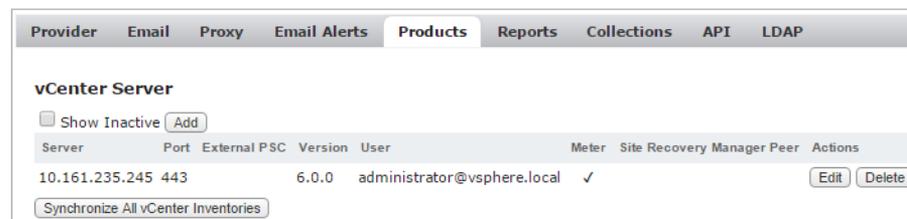
The changes made are reflected immediately under the vCloud Usage Meter Rules section.

Note When adding a vCenter Server that is using a demo or perpetual license, update the correct license information within an hour of adding the product. If you do not update the license information, that vCenter Server gets metered and charged.

The vCenter Server instance is added to the list of vCenter Server instances. If an error occurs, a message appears and the server instance is not added. vCloud Usage Meter performs collections against all added vCenter Server instances and Site Recovery Manager instances in both the protected and recovery sites.

Figure 6-1. vCenter Servers Set Up

Manage



Metering vRealize Operations Manager

If vRealize Operations Manager server is associated with a vCenter Server that you added for metering, vCloud Usage Meter detects the vRealize Operations Manager and displays the servers in the vCloud Usage Meter Web app.

To complete the vRealize Operations Manager registration and begin metering, you provide the required credentials for each vRealize Operations Manager you meter.

vCloud Usage Meter also detects all vCenter Server servers monitored by a vRealize Operations Manager. To avoid configuration issues, configure the metered vCenter Server instances, the associated vRealize Operations Manager instances, and vCloud Usage Meter in the same time zone.

If the added vRealize Operations Manager monitors a vCenter Server, which is added for metering, vCloud Usage Meter reports the usage for this vCenter Server as *Managed vCenter* line items.

If the added vRealize Operations Manager monitors a vCenter Server, which is not added for metering, vCloud Usage Meter reports the usage for this vCenter Server as *Unmanaged vCenter Servers* line items.

Virtual Machines monitored by vRealize Operations Manager that are running on *Unmanaged vCenter Servers* are always reported standalone.

vRealize Operations Manager Standard and Advanced editions are always reported standalone.

You can configure vCloud Usage Meter to report vRealize Operations Manager Enterprise edition as a standalone report and not as part of a bundle report. For more information, see [Manage Reports](#).

vRealize Operations Manager Enterprise edition reporting depends on the ESXi host license. The vSphere Enterprise Plus license is the only license that you can include in a bundle line item. Other ESXi host licenses are reported as standalone.

Configure Metering for a Subset of Virtual Machines

vCloud Usage Meter can generate reports for a subset of virtual machines that vRealize Operations Manager controls. To support such a topology, you must create a specific user vRealize Operations Manager and add it to vCloud Usage Meter.

Prerequisites

- Verify that you have administrator privileges for the vRealize Operations Manager user interface.

Procedure

- 1 Log in to the administration interface of vRealize Operations Manager.
- 2 Navigate to **Administration > Access Control** and click the **Add** button in the **User Accounts** tab.
The **Add User** window opens.
- 3 Enter the basic user information and click **Next**.
- 4 In the **Assign Groups and Permissions** window, click **Objects** to assign role and allocate resources.
- 5 From the **Select Role** drop-down menu, select *Administrator* and select the **Assign this role to the user** check box.
- 6 In the **Select Object Hierarchies** pane, select the **vSphere Storage** check box.
The vSphere inventory tree appears in the **Select Object** pane.
- 7 In the **Select Object** pane, select the virtual machines to be metered and click **Finish**.
- 8 Go to the vCloud Usage Meter Web application and add or update the user credentials for vRealize Operations Manager.

For more information about adding credentials for vRealize Operations Manager, see [Add Credentials for vRealize Operations Manager](#).

You can now add the new vRealize Operations Manager credentials and generate reports only for the subset of virtual machines you selected.

Add Credentials for vRealize Operations Manager

To begin metering vRealize Operations Manager, you must only provide the correct vRealize Operations Manager credentials.

Prerequisites

- Verify that you have properly configured the vRealize Operations Manager solutions and adapters. For more information, see [Configuring Solutions and Adapters in vRealize Operations Manager](#).
- Verify that you have registered vRealize Operations Manager as a vCenter Server extension. For more information, see [Register a Plug-In Package as a vCenter Server Extension](#).
- Verify that you have at least read-only administrator privileges.

Procedure

- 1 Click **Manage** in the top right menu bar of the Web application.
- 2 Click the **Products** tab.
- 3 Click **Edit** in the vRealize Operations Manager area and enter the administrator user name and password.

To add vRealize Operations Manager, accept the certificate. If you miss accepting the certificate, delete the vCenter Server associated with that vRealize Operations Manager and then reactivate it.

Important Providing the correct vRealize Operations Manager user name and password is essential to ensuring proper metering. Make sure that you provide the correct vRealize Operations Manager credentials.

- 4 Click **Save**.

The credentials for the vRealize Operations Manager server are added to vCloud Usage Meter.

If you change the vRealize Operations Manager certificate or password, or prevent vCloud Usage Meter from connecting to it, the vRealize Operations Manager server state changes to **Inactive**. In this case vCloud Usage Meter stops metering. After you set the correct certificate or password, vRealize Operations Manager might still not be visible on the **Products** page. In this case, delete the vCenter Server that is associated with vRealize Operations Manager, and then add the vCenter Server again so that the vRealize Operations Manager server is auto-detected.

Add NSX Manager

To add NSX Manager to be metered, you must provide the NSX Manager host name and credentials.

Prerequisites

- Verify that the NSX Manager is registered with vCenter Server. For more information, see [Register vCenter Server with NSX Manager](#).
- Verify that you have NSX CLI Admin user name and password for the NSX Manager you are adding.

Procedure

- 1 Click **Manage** in the top right menu bar of the Web application.
- 2 Click the **Products** tab.
- 3 Click **Add** in the NSX Manager area.
- 4 Enter a host name or IP address in the **Host Name or IP** text box.
- 5 Enter the NSX CLI Admin user name in the **User Name** text box.
- 6 Enter the NSX CLI Admin password in the **Password** text box.
- 7 Enter the referencing vCenter Server host name or IP address in the **vCenter Host Name or IP** text box.
- 8 Click **Save**.

After successfully adding NSX Manager server, if you enter an incorrect Password when editing it, the NSX Manager gets deleted. To reactivate, provide the correct credentials.

Note If an NSX certificate changes, click the corresponding **Edit** button so that vCloud Usage Meter can reevaluate the product. After it detects the certificate change, accept the new certificate so that the collection runs successfully.

You added the NSX Manager server to the list of instances. If an error occurs, a message appears and the server is not added.

Add vCloud Director

To add vCloud Director to be metered, you must provide the vCloud Director host name and credentials.

Prerequisites

Verify that you have system administrator privileges.

When adding vCloud Director, make sure that you also register the vCenter Server associated with that vCloud Director instance.

Procedure

- 1 Click **Manage** in the top right menu bar of the Web application.
- 2 Click the **Products** tab.
- 3 Click the **Add** button located in the vCloud Director area.

- 4 Enter a host name, IP address, or DNS name for the vCloud Director in the **Host Name** or **IP** text box.

Use a comma to separate multiple servers. They must all have the same user name and password.

- 5 Enter the port number.
- 6 Enter the user name in the **Administrator User Name** text box.
- 7 Enter the password in the **Password** text box.
- 8 Click **Save**.

You successfully added vCloud Director to the list of instances. If an error occurs, a message appears and the instance is not added.

Add vRealize Automation

To add vRealize Automation to be metered, you must provide the vRealize Automation server's host name and credentials.

Prerequisites

- Verify that you have read-only administrator privileges.
- Verify that you have a vSphere endpoint created in your vRealize Automation. For more information, see [Create a vSphere Endpoint](#) in the vRealize Automation documentation.

Procedure

- 1 Click **Manage** in the top right menu bar of the Web application.
- 2 Click the **Products** tab.
- 3 Click the **Add** button located in the vRealize Automation area.
- 4 Enter a host name or IP address for the vRealize Automation IaaS Server in the **Host Name** or **IP** text box.

Use a comma to separate multiple servers. They must all have the same user name and password.

- 5 Enter the user name in the **User Name** text box.

This user is the system user that you used to do the initial vRealize Automation IaaS server installation. Provide the user name in the *domain\user* format.

- 6 Enter the password in the **Password** text box.
- 7 Add the vRealize Automation Cafe appliance details to generate an authentication certificate.
- 8 Enter a host name or IP address for the vRealize Automation appliance in the **Host Name** or **IP** text box.

- 9 Enter the administrator user name in the **User Name** text box.

For vRealize Automation 6.X, enter the user name with domain, for example *administrator@vsphere.local*.

For vRealize Automation 7.X, enter the user name without domain, for example *administrator*. This name must be from the *vsphere.local* domain.

- 10 Enter the administrator password in the **Password** text box.

- 11 Click **Save**.

You added the vRealize Automation server to the list of instances. If an error occurs, an error message appears and the server is not added.

Add Horizon DaaS

To add Horizon DaaS to be metered, you must provide the Horizon DaaS server host name and credentials.

vCloud Usage Meter connects to Horizon DaaS over HTTPS to collect consumption data.

Prerequisites

- Verify that you have read-only administrator privileges.
- Verify that ports 8443 and 443 are opened.

Procedure

- 1 Click **Manage** in the top right menu bar of the Web application.
- 2 Click the **Products** tab.
- 3 Click **Add** in the Horizon DaaS area.
- 4 Enter a Horizon DaaS Service Center IP address, or DNS name in the **Host Name or IP** text box.
- 5 Enter the user name in the **User Name** text box in the `domain\user` format.
- 6 Enter the password in the **Password** text box.
- 7 Enter the value of **number of VDI Session Model**.

The **number of VDI Session Model** is the number of VDI virtual machines that you use to support Remote Desktop Sessions Host (RDSH) for the connection of remote desktops. The VDI concurrent connections count reduces by the **number of VDI Sessions Model**.

- 8 Click **Save**.
- 9 After adding the Horizon DaaS server, you can edit the **number of VDI Session Model**. To view the updated value in the Monthly Usage Report, you can only increase the VDI quota by entering a smaller value for the **number of VDI Session Model**. For example, if you initially entered the number as 12, you can change it to 4. Any mistake in configuring the right session model reflects in the Monthly Usage Report until you correct the error.

The Horizon DaaS server is added to the list of instances. If an error occurs, a message appears and the server is not added.

Change Product Information

You can change the user name and password details for products.

Prerequisites

Verify that you have read-only administrator privileges.

Procedure

- 1 Click **Manage** in the top right menu bar of the Web application.
- 2 Click the **Products** tab.
- 3 Locate the product and click **Edit**.
- 4 Change the product details as necessary.
- 5 Click **Save**.

Delete or Reactivate Product Servers

You can delete the product servers that are no longer in use. vCloud Usage Meter designates the server as inactive. An inactive server can be reactivated to reinclude it in collections.

Procedure

- 1 Click **Manage** in the top right menu bar of the Web application.
- 2 Click the **Products** tab.
- 3 On the **Products** tab, to delete a server, in the appropriate product area, select the server, click **Delete**.

The product is placed in an inactive state and it can be reactivated again later. After deletion or reactivation, force a collection or wait for the hourly collection to ensure the change in metering.

4 Manage the scope of metering for a product.

Table 6-1. Manage Servers

Option	Description
Delete server	Locate the server you want to remove and click Delete . Irrespective of whether any data was collected before the deletion, vCloud Usage Meter designates the server as inactive. Any data that was collected before deletion remains in the database.
Display inactive servers	Locate the product area and click the Show Inactive check box. The deleted products that have collected data is shown in the list.
Reactivate server	Locate the product area and click the Show Inactive check box. Select the inactive server and click Activate . It is moved to the active list.

Monitor Collections

You can view times of successful or failed collections for metered products.

Procedure

- 1 Click **Monitor** in the top right menu bar of the Web application.
- 2 Select the year and month to view.
- 3 Click **Submit**.
- 4 To view collection times, point to the **OK** or **Fail** count in any column.

What to do next

To minimize failed collections, you can change collection times or memory settings.

- If your collection start time is competing with other scripts that are working with your vCenter Server instances, you can change the start time. See [Configure Collection Settings](#).
- Verify your memory settings.

Delete Old Data

You can delete old product consumption data from the vCloud Usage Meter database.

This operation deletes collection data older than the selected period from the following tables in the database:

- CollectionMsg
- Collection
- VcopsVmCollection
- VmHistory

The related records in the following tables are also deleted:

- InventoryItem
- Vm
- HostHistory
- Host
- LicenseSetLicense
- License
- VcServer

You do not delete products with this operation.

Important You cannot undo this action.

Prerequisites

- If you delete data that is still within the 24 months retention period, back up the vCloud Usage Meter appliance first.
- Verify that you have administrative privileges in the vCloud Usage Meter Web application.

Procedure

- 1 Log in to the vCloud Usage Meter Web application.
- 2 Go to the **Support** page.
- 3 Click **Delete Old Data** in the **Database** section of the page.
- 4 Enter the age of data in days that you want to keep. The data that is older than the entered number of days is deleted.
- 5 Enter the word **CONFIRM**.
- 6 Click **Delete**.

Managing Customers and Rules

vCloud Usage Meter meters compute resource consumption in your entire vCenter Server inventory. With customers and rules, you have detailed control and can organize consumption reporting by customer.

When you are ready to organize consumption reporting by a customer, you can create a rule that meters objects in your inventory for an entire vCenter Server instance. For example, for the unique ID of a virtual machine or IP address.

This chapter includes the following topics:

- [vCloud Usage Meter Customers](#)
- [vCloud Usage Meter Customer Rules](#)
- [Import Customers and Rules](#)
- [Export Customers and Rules](#)

vCloud Usage Meter Customers

You can add customers individually or import multiple customers to vCloud Usage Meter. The import and export capability on the **Customer** tab can support you keep the same customer list on multiple vCloud Usage Meter.

This ability can aid when customer consumption is shared among multiple vCenter Server instances. For more information, see [Import Customers and Rules](#) and [Export Customers and Rules](#).

Customers that require confidentiality can still be represented and metered in vCloud Usage Meter. If confidentiality is necessary, you can designate that customer as restricted, and work with your VMware Cloud Provider Program coordinator to set up a code. That way confidential names and locations are never visible. For more information, see [About Restricted Customers](#).

About Restricted Customers

If a customer name or location is considered confidential or sensitive, you can designate this customer as restricted. The customer is given a code name.

You can work with your VMware Cloud Provider Program administrator to use code details for metering and reporting instead of the customer's actual details. Confidential details of restricted customers are maintained at the VMware Cloud Provider Program operations.

Note You can import most customer details by using tab separated files. You can only set the restricted status manually through the vCloud Usage Meter Web application's **Customer** menu.

For more information about how to restrict status, see [Add a Customer](#).

Add a Customer

To report product consumption by customer, you must add the customer to vCloud Usage Meter.

Procedure

- 1 Click **Customers** in the top right menu bar of the Web application.
- 2 Click **Add**.
- 3 Provide the customer information.
- 4 (Optional) If the customer details are coded as confidential, select the **Restricted** check box.
- 5 Click **Save**.

What to do next

You can add multiple customers and rules and duplicate them to multiple vCloud Usage Meter virtual appliances by importing or exporting tab separated files.

Note You can import most of the customers details by using tab separated files. You can only set the restricted status manually through the vCloud Usage Meter Web application.

For more information, see [Import Customers and Rules](#).

Change Customer Information

You can change the name, country, and postal code details for customers.

Procedure

- 1 Click **Customers** in the top right menu bar of the Web application.
- 2 Locate the customer to be updated and select the corresponding check box.
- 3 Click **Edit**.
- 4 Change the information as required.
- 5 Click **Save**.

Remove a Customer

You can remove one or more customers from the metering scope of vCloud Usage Meter.

Procedure

- 1 Click **Customers** in the top right menu bar of the Web application.
- 2 Locate the customers to be removed and select the check boxes.
- 3 Click **Delete Selected** and confirm the removal.

You removed the selected customers from the list of customers. Data that is collected before the removal remains in the vCloud Usage Meter database.

vCloud Usage Meter Customer Rules

By creating customer rules in vCloud Usage Meter, you associate customers with virtual machines that the appliance meters.

vCloud Usage Meter rebuilds customer rules on every collection. If you create, change, or remove a rule, it will be applied to reports after a subsequent collection. You must wait for the next collection to finish successfully to update the new association between customers and virtual machines in the vCloud Usage Meter reports.

- [Object and Value Types in Customer Rules](#)

You can add a rule by linking a customer to specific objects in your vCenter Server inventory. Each object has a value type that uniquely identifies it for metering. When you construct a rule, the value type varies, depending on the object.

- [Add a Rule](#)

You can add rules to collect product consumption data about your customers.

- [Change Rule Information](#)

You can change rules that collect product consumption data for your customers. To change a rule, you must delete it and then construct a replacement rule.

- [Remove a Rule](#)

You can remove rules based on the relationship between a vSphere inventory object and a customer. When a rule is deleted, only the relationship between the vSphere inventory object and the customer is removed. All product consumption data is maintained.

Object and Value Types in Customer Rules

You can add a rule by linking a customer to specific objects in your vCenter Server inventory. Each object has a value type that uniquely identifies it for metering. When you construct a rule, the value type varies, depending on the object.

Object Type Definitions

Object types aid you in metering and reporting specific customer activity.

Table 7-1. Object Type Definitions

Object Type in Inventory	Definition
vCenter Server	A vCenter Server as identified by a unique ID, holds all object types.
Cluster	Server group in the virtual environment.
Data center	A required structure in vCenter Server under which hosts and their associated virtual machines are added.
Host	Physical computer on which virtualization or other software is installed.
Resource Pool	Divisions of computing resources used to manage allocations between virtual machines in your inventory.
Folder	Grouped objects of the same type. For example, folders help set permissions across objects, to set alarms across objects, and to organize objects in a meaningful way.
VM	Virtual machine. A software-based computer that, like a physical computer, runs an operating system and applications. Virtual machines that have been deleted from a vCenter Server inventory but that remain in the vCloud Usage Meter database are shown as dimmed out.
VM vCenter Server Name	Virtual machine name in your vCenter Server inventory.
VM DNS Name	A DNS name of a virtual machine in your inventory.
vApp	A format that packages and manages applications containing multiple virtual machines.
IPv4 address	An IP network address in your inventory.

Supported Object and Value Type Combinations

Each combination of supported objects requires specific value types, and some also need identification of the vCenter Server. Exact string, substring, regular expression, and CIDR notation apply to all vCenter Server instances registered with vCloud Usage Meter.

Table 7-2. Supported Object and Value Types

Object Type	Value Type	vCenter Server Needed
VM, host, cluster, data center, or vCenter Server	Unique ID	Yes
VM	Exact string	Yes
vCenter ServerName or VM	Substring	Yes
DNS Name	Regular expression	Yes
IP V4 address	IP V4 CIDR notation	Yes
Folder, resource pool, or vApp	Unique ID	Yes
	Exact string	Yes
	Substring	Yes
	Regular expression	Yes

Add a Rule

You can add rules to collect product consumption data about your customers.

Prerequisites

Review your vSphere inventory for object types that correspond to your customers. See [Object and Value Types in Customer Rules](#).

Procedure

- 1 Click **Rules** in the top right menu bar of the Web application.
- 2 Select a customer by entering part of the customer name and then locating it in the list that appears. vCloud Usage Meter populates a list of customer names that match the characters you enter.
- 3 In the **Object Type** drop-down menu, select an object type that is in your vSphere inventory.

When you click a location in the **vCenter Server Inventory** tree, vCloud Usage Meter populates the rest of the rule accordingly. You can use the **Filter** option to aid your search through the inventory tree.

The options for **Value Type** vary according to the object type that you select.
- 4 If the object type you select requires a value, for example, virtual machine vCenter Server or DNS name, enter a value in the **Value** text box.
- 5 Click **Create**.

You added the rule to the rules list and you can view it in the **Rules List** tab.

During customer rules creation, if a conflict occurs with another customer rule, an error message appears that lists the customer and virtual machines affected. The rule is not created.

What to do next

On the **Mapped Virtual Machines** tab, view a list of virtual machines that have rules associated with them for a particular customer.

On the **Unmapped Virtual Machines** tab, view a list of virtual machines that have no rules associated with them for a particular customer.

Change Rule Information

You can change rules that collect product consumption data for your customers. To change a rule, you must delete it and then construct a replacement rule.

Prerequisites

Before deleting a rule, note any details that you plan to reinstate.

Procedure

- 1 Click **Rules** in the top right menu bar of the Web application.
- 2 Click the **Rules List** tab to view the existing rules.

What to do next

You can remove a rule. See [Remove a Rule](#).

You can also add a rule back to the list. See [Add a Rule](#).

Remove a Rule

You can remove rules based on the relationship between a vSphere inventory object and a customer. When a rule is deleted, only the relationship between the vSphere inventory object and the customer is removed. All product consumption data is maintained.

Procedure

- 1 Click **Rules** in the top right menu bar of the Web application.
- 2 Click the **Rules List** tab to view the existing rules.
- 3 (Optional) Select a customer by entering part of the customer name and then locating it in the list that appears.

vCloud Usage Meter populates a list of customer names that match the characters you enter.
- 4 (Optional) Click the **Show Rules for All Customers** check box to see all rules for all customers.
- 5 Select check box next to one or more rules you want to remove.
- 6 Click **Delete Selected Rules** and confirm that you want to delete the selected rules.

You have removed the selected rules from the rules list.

Import Customers and Rules

You use a tab-separated file to import customers and rules to vCloud Usage Meter. You can manually generate the file, or you can base the file on an exported customers and customers rules list from vCloud Usage Meter.

Important You cannot import restricted customers. You must enter restricted customers information manually. For more information, see [Add a Customer](#).

Prerequisites

- Prepare, or obtain from export, a tab-separated file. See [Export Customers and Rules](#). If you are transferring customer data from one vCloud Usage Meter virtual appliance to another, obtain a tab-separated file by export.
- Verify that the tab-separated file does not contain duplicate customer names.

- Verify that countries are listed in alpha-2 code format. See http://www.iso.org/iso/country_codes/iso_3166_code_lists/country_names_and_code_elements.htm.
- Every vCenter Server in the tab-separated file must be configured in the target vCloud Usage Meter.
- The vCenter Server inventory must be synced in the target vCloud Usage Meter through **Manage > Product > Synchronize All vCenter Inventories**.

Procedure

- 1 Click **Customers** in the top right menu bar of the Web application.
- 2 In the **Import** area, click **Browse** to locate the tab-separated file on your system.
- 3 Click **Import**.
 - If the import is successful, a page appears with a confirmation message.
 - If the import fails, an error message appears that indicates the type of error and the line number producing the error.

Example: Tab-Separated File Format for Importing Customers and Rules

This example shows the format for tab-separated rows and columns for several sample customers and rules.

Table 7-3. Tab-Separated File Format for Importing Customers and Rules

Row	Column A	Column B	Column C	Column D	Column E
1	# vCloud Usage Meter Customer Export				
2	# Version: 3.5.1				
3	# Customers				
4	# Name	Country	Postal Code		
5	NewCo	AF	44		
6	YourCo	US	94555		
7	TheCo				
8	ThisCo	US	95555		
9	# Rules				
10	# Example rule: Exact string folder match for abc for customer CloudCo				
11	# CloudCo		Folder	Exact String	abc
12	# Customer	vCenter	Object Type	Value Type	Value
13	NewCo	10.255.79.10	VM	Unique ID	vm-100

Table 7-3. Tab-Separated File Format for Importing Customers and Rules (Continued)

Row	Column A	Column B	Column C	Column D	Column E
14	NewCo	10.255.79.10	Host	Unique ID	host-77
15	NewCo		VM DNS name	Exact string	ad
16	NewCo	10.255.79.10	vApp	Unique ID	resgroup-v99
17	NewCo	10.255.79.10	VM	Unique ID	vm-103
18	NewCo	10.255.79.10	vApp	Unique ID	resgroup-v91
19	TheCo	192.168.128.1	Data Center	Unique ID	datacenter-2

Export Customers and Rules

You can export customers and rules from vCloud Usage Meter in a tab-separated file.

Procedure

- 1 Click **Customers** in the top right menu bar of the Web application.
- 2 Click **Export All**.

A tab-separated file is exported and you must save the file.

What to do next

- Use the file as an example for other imports.
- Use the file to import data to another vCloud Usage Meter virtual appliance. See [Import Customers and Rules](#).

Managing Product Consumption Reports



With vCloud Usage Meter, you can generate reports to monitor and track resource consumption by a customer or by a vSphere inventory object. You can generate a report manually at any time. You can export the report as a tab-separated text file or as a ZIP file.

License Sets and Billing Categories

You can use license sets to group license keys for convenience in reporting to aggregators. Because license keys can have different billing characteristics, you can indicate which license keys are billable by designating a billing category.

Report Types

vCloud Usage Meter provides a choice of reports. See [Product Consumption Reports](#).

Reporting Methods

You can view reports in the following ways.

- Browse a report in the user interface or save it to a file. See [Generate a Product Consumption Report](#).
- Create automatic reporting sets. See [Create Automatically Generated Reporting Sets](#).

Manual Reporting

Depending on the products in use in your environment, you might need to manually adjust or collect product usage information to accurately report all required data. For more information, see *Appendix A. Adjusting Reports with Manually Collected Product Usage Data* and *Appendix B. Manually Collecting Product Usage Data* in the *VMware Cloud Provider Program Product Usage Guide* in Partner Central at <https://www.vmware.com/partners.html> (login required).

- [License Sets and Billing Categories](#)
The VMware Cloud Provider Program offers bundles to service providers for billing purposes. With billing groups, in vCloud Usage Meter you can designate some licenses as non-billable and can group licenses in sets.

- [Product Consumption Reports](#)

You can use vCloud Usage Meter to generate different types of reports that monitor and track resource consumption.

License Sets and Billing Categories

The VMware Cloud Provider Program offers bundles to service providers for billing purposes. With billing groups, in vCloud Usage Meter you can designate some licenses as non-billable and can group licenses in sets.

vSphere license keys that service providers deploy might have different billing characteristics, so you can indicate which license keys are billable by defining the billing category. For more information about the billing categories, see [Manage Billing Categories](#).

VMware Cloud Provider Program partners can only leverage VMware perpetual licenses, including OEM versions, to support internal IT operations. Internal IT operations are any IT function that exclusively support a system that is not connected, either directly or in an ancillary manner, to the partner's hosting environment. In addition, VMware perpetual licenses may not be used to support the management or operations of an environment utilized to host for unaffiliated third parties. Virtual machines running on hosts with perpetual license keys should be tagged in the vCloud Usage Meter and are not considered billable.

You can use license sets to group a list of licenses that you can later use as filter in the Virtual Machine History and Cluster History reports. You can also generate the Virtual Machine History and Cluster History reports for only a particular license set by selecting the license set when generating reports. For more information about creating, editing, and removing license sets, see [Create License Sets](#), [Edit License Sets](#), and [Remove License Sets](#) topics. For more information about generating reports for particular license set, see [Generate a Product Consumption Report](#).

- [Manage Billing Categories](#)

You can indicate which license keys are billable by defining the billing category.

- [Create License Sets](#)

Using license sets, you can group licenses in sets that are meaningful for reporting.

- [Edit License Sets](#)

You can change which licenses are included in a license set.

- [Remove License Sets](#)

If a license set is no longer meaningful or needed, you can remove individual licenses or an entire license set.

Manage Billing Categories

You can indicate which license keys are billable by defining the billing category.

Procedure

- 1 Click **Licenses** in the top right menu bar of the Web application.

- 2 Click the **Billing Categories** tab.
- 3 In the **Billing Category** drop-down menu, select a category.

Option	Description
VCPP	License key obtained through the VMware Cloud Provider Program. All virtual machines running on hosts with these keys are considered to be billable.
Demo	License keys that are not billable that can be used for environments such as demonstration systems.
Perpetual	License keys obtained outside of the VMware Cloud Provider Program. Virtual machines running on hosts with these keys are not considered billable.

Note **Demo** and **Perpetual** licenses can be differentiated only at the vSphere license level.

Create License Sets

Using license sets, you can group licenses in sets that are meaningful for reporting.

Procedure

- 1 Click **Licenses** in the top right menu bar of the Web application.
- 2 Click the **License Sets** tab.
- 3 Enter a name for the new license set.
- 4 Click **Create**.
- 5 Select the licenses you want to include in the set.

A license can belong to multiple sets.

- 6 Click **Save**.

Edit License Sets

You can change which licenses are included in a license set.

Procedure

- 1 Click **Licenses** in the top right menu bar of the Web application.
- 2 Click the **License Sets** tab.
- 3 Click the name of the license set you want to edit.
The included licenses are displayed.
- 4 Select or deselect licenses, as required.
- 5 Click **Save**.

Remove License Sets

If a license set is no longer meaningful or needed, you can remove individual licenses or an entire license set.

Procedure

- 1 Click **Licenses** in the top right menu bar of the Web application.
- 2 Click the **License Sets** tab.
- 3 To delete an entire license set, select the name of the license set you want to delete. To delete a single (or several) licenses within a license set, click the license set name and select the licenses you want to delete.
- 4 Click **Delete**.

The license set or individual licenses are removed.

Product Consumption Reports

You can use vCloud Usage Meter to generate different types of reports that monitor and track resource consumption.

Click **Reports** in the top right menu bar of the Web application and then select the type from the Report drop-down.

Monthly Usage Report

The Monthly Usage report provides information about the monitored product, the unit type being metered, and the associated consumption, including usage information by VMware Cloud Provider Program bundles.

Table 8-1. Monthly Usage Report Details

Report Column	Description
Product	Product or VMware Cloud Provider Program bundle metered
Unit of Measure	Unit being measured
Units to be Reported	Quantity for the listed unit

You might observe fluctuations in the Monthly Usage Report. If a Service Provider mixes perpetual and VMware Cloud Provider Program licensed hosts in a cluster and enables DRS, this mixing of licenses can increase the fluctuations. To reduce these fluctuations, create homogeneous clusters containing a single billing category. This homogeneous cluster approach results in a cluster of VMware Cloud Provider Program licensed hosts separate from a cluster of perpetually licensed hosts.

You can now generate Virtual Machines by Product Server (VMPS) reports for NSX and vSAN. To generate a VMPS report for NSX and vSAN, you must run at least one collection for the reporting period. The VMPS report for NSX is organized by product category (NSX-Base, NSX-Advanced, NSX-Enterprise) and NSX servers. The VMPS report for vSAN is organized by product category (vSAN Standard, vSAN Advanced, vSAN Enterprise) and vCenter Server instances.

Note If you change the name of a vSAN enabled cluster, you get the new cluster name with the license and version information in the Monthly Usage report. The record for the old name of the cluster is missing license and version information in the report.

Customer Monthly Usage

The Customer Monthly Usage report provides the same information as the monthly usage Units section of the Monthly Usage report, but presents the information by customer.

Virtual Machine History Report

Earlier vCloud Usage Meter versions collect information about the vCenter Server inventory on an hourly basis. The result is large amounts of redundant data, that takes storage resources and slows down the report generation process. vCloud Usage Meter now remains connected to each vCenter Server and continually collects the relevant changes from each instance. Only these changes are saved in the database. Instead of hourly samples the vCloud Usage Meter keeps time spans, during which everything relevant about a virtual machine remains constant. If you keep a virtual machine powered on for two months, then power it off, there is one record kept of that entire two-month interval. You can see this change in the vCenter Server reports. The *Virtual Machine History* report replaces the *Detailed Billing and Usage Reports*. The *Virtual Machine History* report contains one line for each of the intervals described. For more information about billing metrics, see the *VMware Cloud Provider Program Product Usage Guide* in Partner Central at <https://www.vmware.com/partners.html> (login required).

When generating the Virtual Machine History Report, vCloud Usage Meter calculates the VM usage based on powered on and powered off timestamps that are recorded in the database. In the vCloud Usage Meter database, timestamps are recorded in milliseconds, while in the Virtual Machine History Report, the same values are rounded to seconds. As a result, you might think there are duplicated records in the report, but those are valid records that cover the same period of seconds. For example, the vCloud Usage Meter database contains the following records:

- 11:25:30.002 to 11:25:30.234
- 11:25:30.882 to 11:25:43.790
- 11:25:54.934 to 11:26:43.831

When generating the Virtual Machine History Report, vCloud Usage Meter transforms these values to the following:

- 11:25:30 to 11:25:30
- 11:25:30 to 11:25:43

- 11:25:54 to 11:26:43

Cluster History Report

The Cluster History report provides historic data for all vSAN enabled clusters. The report data includes Used Capacity in MB, On and Off statuses of vSAN features, such as Stretched Cluster, IOPS Limit, Deduplication, and Erasure Coding for the entire reporting month.

Horizon DaaS Tenants

The Horizon DaaS Tenants report provides data for the maximum allocated quota of VDI sessions and RDSH sessions. The VDI desktops used for RDSH and the utility and management virtual machines are excluded from the report.

- [Generate a Product Consumption Report](#)
You can generate a report to monitor product consumption.
- [Edit Reporting Sets](#)
You can edit reporting sets and change their details.
- [Remove Reporting Sets](#)
You can remove reporting sets that are no longer needed.

Generate a Product Consumption Report

You can generate a report to monitor product consumption.

Some reports cover only one month, for others you can select a range of months.

Important If you make a report request with an API that is more than one month for a report that does not support a range of months, the request fails with an error message.

Procedure

- 1 Click **Reports** in the top right menu bar of the Web application.
- 2 In the **Report** drop-down menu, select a report type.
- 3 Select the report criteria.
You can select a **Customer**, **Country**, or **Postal Code** by entering part of the item and then locating it in the list that appears. vCloud Usage Meter populates a list that matches the characters you enter. You can only select a report criteria for Virtual Machine History and Cluster History reports.
- 4 If you are using license sets, you can generate the reports for a particular license set by selecting the specific license set.
You can only generate Virtual Machine History and Cluster History reports for a specific license set. For more information about license sets, see [License Sets and Billing Categories](#). If you are not using license sets, skip this step.

- 5 Select the report's beginning and ending month and year.
- 6 Select the **Include anonymized customer name in the report**, if necessary.
- 7 Select how to view the report:
 - **Browse** - view the report in a Web browser. There is a 6000 limit on the total rows.
 - **Export (tab separated)** - save the report to a file.
 - **Zip** - select check box to save the report as a ZIP file.

vCloud Usage Meter generates the report. vCloud Usage Meter retains the report in your browser's cache until another report is generated or you log out from the virtual appliance.

Edit Reporting Sets

You can edit reporting sets and change their details.

Procedure

- 1 Click **Automatic Reporting** in the top right menu bar of the Web application.

- 2 Select the reporting set to edit from the left **Name** area.

The last time the reporting set was sent appears at the bottom of the right area.

- 3 In the right details pane, change the details.

Option	Description
Name	Enter the name of the reporting set. If you change the existing name, vCloud Usage Meter creates a set.
Reporting Day	Select the day of the month to send the automatic reporting set.
From Email	Enter the name to appear in the From line of the reporting set.
To Email	Enter the email address to receive the reporting set.

- 4 Click **Save**.

What to do next

You can delete old reporting sets. See [Remove Reporting Sets](#).

Remove Reporting Sets

You can remove reporting sets that are no longer needed.

Procedure

- 1 Click **Automatic Reporting** in the top right menu bar of the Web application.
- 2 Select the reporting set you want to remove from the left Name area.
- 3 Click **Delete**.

The reporting set is removed and is no longer included in the list.

vCloud Usage Meter Administration

9

Administrative and management tasks occur after you install and configure the vCloud Usage Meter virtual appliance. They include changes to the provisioned environment and routine administration and maintenance procedures.

This chapter includes the following topics:

- [Additional Configuration](#)
- [Error Management](#)
- [About SSL Certificates](#)
- [vCloud Usage Meter Accounts Management](#)
- [Back up the vCloud Usage Meter Database](#)
- [Troubleshooting vCloud Usage Meter](#)

Additional Configuration

After installing and configuring vCloud Usage Meter, you can change the default behaviour of the system.

Enable Java Management Extensions for vCloud Usage Meter

Enable Java Management Extensions (JMX) service to gain access to internal data such as database size, customer count, customer rules count, and other information. You can use any JMX client to access the vCloud Usage Meter JMX service.

Prerequisites

- Verify that you have a Java Management Extensions (JMX) client installed. JConsole is an example of a JMX client.
- Verify that you have a password to log in to the vCloud Usage Meter console as **root**.

Procedure

- 1 Log in to the virtual machine console as **root**.
- 2 Navigate to `/usr/share/tomcat/conf`.

- 3 Create a JMX password file by running the following command:

```
echo "monitorRole password" > jmxremote.password
```

You can change the monitorRole user password for **jconsole** in the `jmxremote.password` file. For the provided monitorRole user, replace `password` in `jmxremote.password` with your desired password.

- 4 Run `jmxcontrol.sh enable`, with a **root** privilege.
- 5 To check JMX status, type `jmxcontrol.sh status`.

Connect with the Java Management Extensions Client to Use the JMX Service

Connect with your Java Management Extensions (JMX) client to use the JMX service. With JMX service, you gain access to internal data such as database size, customer count, customer rules count, and other information.

Prerequisites

Verify that you have enabled JMX for vCloud Usage Meter. For more information, see [Enable Java Management Extensions for vCloud Usage Meter](#).

Procedure

- 1 Open the JMX Client.
- 2 Enter the IP address of the vCloud Usage Meter server.
- 3 Enter port number **9003**.
- 4 Enter user name **monitorRole**.
- 5 Enter your JMX read-only user password.

Disable Java Management Extensions for vCloud Usage Meter

Disable the Java Management Extensions (JMX) service to remove access to internal data such as database size, customer count, customer rules count, and other information.

Prerequisites

Verify that you have a password to log in to the vCloud Usage Meter console as **root**.

Procedure

- 1 Log in to the virtual machine console.
- 2 Enter `/opt/vmware/cloudusagemetering/scripts/jmxcontrol.sh disable`.

Change vCloud Usage Meter Logging Level

You can change the logging level of vCloud Usage Meter to collect more details.

Prerequisites

Verify that you have user privileges.

Procedure

- 1 Click **Support** in the top right menu bar of the Web application.
- 2 Select a level from the **Logging Level** drop-down menu.

Option	Description
Trace	Select to include finer-grained events information than the Debug logging level.
Debug	Select to include more log detail than Info . This option causes the log capacity to fill faster.
Info	Select to include Warn , Error , Fatal , and Info messages. This level is the default logging level for vCloud Usage Meter libraries.
Warn	Select to include Warn , Error , and Fatal messages.
Error	Select to include Error and Fatal messages.
Fatal	Select to include Fatal messages.

What to do next

After you review the changed logging activity, consider setting the level for a minimum effect on log rolling capacity. For more information, see [Change Log History Capacity](#).

Change Third-Party Libraries Logging Level

You can change the logging level of third-party libraries. By default, the logging level is **Warn**.

Prerequisites

Verify that you have sufficient user privileges.

Procedure

- 1 Click **Support** in the top right menu bar of the Web application.
- 2 Select a level for **Third Party Libraries Logging Level** from the drop-down menu.

Option	Description
Trace	Select to include finer-grained events information than the Debug logging level.
Debug	Select to include more log detail than Info . This option causes the log capacity to fill faster.
Info	Select to include Warn , Error , Fatal , and Info messages.
Warn	Select to include Warn , Error , and Fatal messages. This level is the default logging level for third-party libraries.
Error	Select to include Error and Fatal messages.
Fatal	Select to include Fatal messages.

Change Log History Capacity

You can change the log rolling capacity that vCloud Usage Meter allots to increase or decrease the amount of log history recorded.

vCloud Usage Meter allots 100 MB for log activity, before deleting the older log history. Do not reduce below this log rolling capacity. Increasing the log rolling capacity can be useful when the log level is also increased. For more information about logging levels, see [Change vCloud Usage Meter Logging Level](#).

Procedure

- 1 In the vSphere Web Client, start the vCloud Usage Meter remote console.
- 2 Log in as the `usgmttr` user.
- 3 Edit the `/usr/share/tomcat/webapps/um/WEB-INF/classes/log4j.properties` file.
- 4 Change the capacity.

Option	Description
<code>log4j.appender.rootRoll.MaxFileSize=10MB</code>	Enter a new maximum file size.
<code>log4j.appender.rootRoll.MaxBackupIndex=10</code>	Enter a new maximum backup index.
<code>log4j.appender.rootRollWarn.MaxFileSize=10MB</code>	Enter a new maximum file size.
<code>log4j.appender.rootRollWarn.MaxBackupIndex=10</code>	Enter a new maximum backup index.
<code>log4j.appender.rulesRoll.MaxFileSize=10MB</code>	Enter a new maximum file size.
<code>log4j.appender.rulesRoll.MaxBackupIndex=10</code>	Enter a new maximum backup index.
<code>log4j.appender.treeRoll.MaxFileSize=10MB</code>	Enter a new maximum file size.
<code>log4j.appender.treeRoll.MaxBackupIndex=10</code>	Enter a new maximum backup index.
<code>log4j.appender.collectorRoll.MaxFileSize=10MB</code>	Enter a new maximum file size.
<code>log4j.appender.collectorRoll.MaxBackupIndex=10</code>	Enter a new maximum backup index.

What to do next

Review log history and consider changing the log rolling capacity back to the default capacity to conserve resources.

Error Management

vCloud Usage Meter notifies you of errors that affect the accuracy of metering. You receive the error messages in the **Monitor** page of the vCloud Usage Meter Web application and in the Monthly Usage Report.

Important After you configure the email settings, vCloud Usage Meter alerts you of conditions that affect metering. For more information, see [Configuring Email Settings](#).

To ensure accurate reporting, it is a responsibility of the vCloud Usage Meter operator to take actions on error messages and resolve issues that affect the vCloud Usage Meter data collection.

Table 9-1. Common vCloud Usage Meter Error Messages

Error Message	Cause	Resolution
No route to host (Host unreachable)	There is a network connectivity failure in your environment or you must configure the DNS for the affected host.	Ping the affected host and use nslookup to determine if the problem is in the network or in the DNS server.
Unable to find valid certification path to requested target	The vCenter Server certificate changed.	In the vCloud Usage Meter Web application, navigate to Manage > Products , click Edit , and then click Save for the affected vCenter Server to save the new certificate.
The server sent HTTP status code 503: Service Unavailable	The vCenter Server API service is unavailable.	The vCenter Server might be running but not responding to API requests. Verify that the vCenter Server API services are started.
Cannot complete login due to an incorrect user name or password	The provided vCenter Server credentials are incorrect.	Provide correct credentials for the affected vCenter Server instance. For more information see, Add vCenter Server .
		Note Consider using a service account with a password that does not expire.

About SSL Certificates

This section is regarding SSL certificates using internal server names. These changes are outside of VMware's control and the following details are provided for an informational purpose.

For details of the requirements, see:

<https://cabforum.org/internal-names/>

<https://www.digicert.com/internal-names.htm/>

Any certificate issued after these requirements were implemented expired on November 1, 2015 and you will have to issue new certificates and might also have to implement an internal Certificate Authority (CA). The baseline requirements prevent Certificate Authorities (CAs) from issuing internal name certificates that expire after November 1, 2015. It is not possible to obtain a publicly trusted certificate for any host name that cannot be externally verified after 2015. In addition, any certificate issued before these guidelines were implemented and which expire after October 2016 are revoked then and you have to replace their certificates again.

These requirements also dictate that CAs must immediately begin to phase out issuance of SSL Certificates for internal server names or reserved IP addresses and eliminate (revoke) any certificates containing internal names. CA/B requires CAs to revoke any certificates containing internal names by October 2016.

To install a new certificate on vCloud Usage Meter, see <https://kb.vmware.com/kb/2047572>.

vCloud Usage Meter Accounts Management

Reset the vCloud Usage Meter *Root* Password

If you lost or forgot the *root* account password, you can reset it.

If you know the *root* account password and want to change it due to security or other reasons, see [Change the vCloud Usage Meter Root Password](#).

Procedure

- 1 In the vSphere Web Client, restart the guest operating system of the vCloud Usage Meter virtual appliance.
- 2 Click the console and wait for the *GNU GRUB* menu to appear.
- 3 In the *GNU GRUB* menu, use the arrow keys to select *SLES 12-SP2* and press the E button.

Note The *GNU GRUB* menu remains on the screen for several seconds before it starts the boot sequence.

- 4 Use the arrow keys to go to the line that begins with **linux** and append the `init=/bin/bash` string at the end of the line.
- 5 To boot the system, press Ctrl+X or F10.
- 6 To reset the *root* account password, enter the following commands in the console:

```
mount -o remount,rw /
passwd
```

- 7 Enter a new password and re-enter the same password to confirm the change.
- 8 Restart the vCloud Usage Meter appliance by using the vSphere Web Client.

You successfully changed the *root* account password of the vCloud Usage Meter appliance.

Change the vCloud Usage Meter *Root* Password

You can change the *root* account password due to security restrictions or other reasons.

Prerequisites

Verify that you have a password to log in to the vCloud Usage Meter console as *root*.

Procedure

- 1 Log in to the virtual machine console as the **root** user.
- 2 To change the *root* password, run the `passwd` command.
- 3 Enter the new password and re-enter the same password to confirm the change.
- 4 Log out from the virtual machine console.

You have changed the *root* account password and can log in to vCloud Usage Meter as *root* with the new password.

Unlock *Usgmtr* Account

If you enter the wrong password for the *usgmtr* account too many times, the account locks. After the *usgmtr* account is locked, you cannot log in as *usgmtr* until the account is unlocked.

Prerequisites

- Verify that you have a password to log in to the vCloud Usage Meter console as *root*. To change the *root* account password, see [Reset the vCloud Usage Meter Root Password](#).
- Verify that you have the correct password to log in to vCloud Usage Meter with the *usgmtr* account. This procedure pertains to unlocking the account. If you want to change the password for the *usgmtr* account, see [Change the vCloud Usage Meter usgmtr Password](#).

Procedure

- 1 Log in to the virtual machine console as the **root** user.
- 2 Run the `pam_tally2 --user=usgmtr --reset` command to unlock the *usgmtr* account.

This operation resets the count for failed login attempts for the *usgmtr* account. After you run the `pam_tally2` script, you can log in to the vCloud Usage Meter appliance as *usgmtr* with the previously set password.

- 3 Log out from the virtual machine console.

You can now log in to the vCloud Usage Meter as *usgmtr* with the password that you previously set for the account.

Change the vCloud Usage Meter *usgmtr* Password

You can change the *usgmtr* account password due to security restrictions or other reasons.

Prerequisites

- Verify that you have a password to log in to the vCloud Usage Meter console as *root*. To change the *root* account password, see [Reset the vCloud Usage Meter Root Password](#).
- If you enter a wrong password too many times, your account gets locked. Verify that the *usgmtr* account is unlocked. For more information, see [Unlock Usgmtr Account](#).

Procedure

- 1 Log in to the virtual machine console as the **root** user.
- 2 To change the *usgmtr* password, run the `passwd usgmtr` command.
- 3 Enter the new password and re-enter the same password to confirm the change.
- 4 Log out from the virtual machine console.

You have changed the *usgmtr* account password and can log in to vCloud Usage Meter as *usgmtr* with the new password.

Back up the vCloud Usage Meter Database

You can back up all product consumption data that vCloud Usage Meter collects. You can create backups in several formats and use the resulting file for troubleshooting or as a backup before upgrading.

Important All product consumption data that vCloud Usage Meter collects is maintained in the virtual appliance database. To maintain history, do not delete the vCloud Usage Meter virtual appliance.

Procedure

- 1 In the vSphere Web Client, start the vCloud Usage Meter remote console.
- 2 Log in as the *usgmtr* user.
- 3 Run the following command.

```
pg_dump -U usgmtr -O usgmtr | gzip > {partner_name}_um{UM_version}_date +%Y%m%d%H%M%S`_dbdump.sql.gz
```

The database is saved to a file.

Troubleshooting vCloud Usage Meter

If you have appropriate user privileges, you can troubleshoot vCloud Usage Meter operations to diagnose problems or change default settings. The procedures are available either in the vCloud Usage Meter Web application or through the console.

About vCloud Usage Meter User Activity and Process Notifications

vCloud Usage Meter displays notices about user activities and background processes at the top of the Web page. For example, a notification of user activity might include a confirmation that you changed the service provider name in the contact details. A process notification informs you about what the system is doing, such as generating a product consumption report.

Some notifications disappear, whereas some notifications persist from session to session unless cleared or the vCloud Usage Meter virtual machine is restarted. You can also view notifications as part of a log.

Using vCloud Usage Meter Logs for Troubleshooting

You can use vCloud Usage Meter logs for troubleshooting aid. In the logs, you can view and monitor details about activities and processes. You can change log settings to collect more details.

Table 9-2. vCloud Usage Meter Log Operations

Operation	Description
Review notifications	Review and clear notifications that vCloud Usage Meter displays at the top of each page about user activities and background processes. These notifications also appear in the logs. For more information, see About vCloud Usage Meter User Activity and Process Notifications .
View vCloud Usage Meter logs	View logs to monitor activities in the virtual appliance or to troubleshoot problems. Click Support in the top right menu bar of the Web application to view the support bundle, which also includes logs.
Change logging level	Change the log level setting to collect more details. For more information, see Change vCloud Usage Meter Logging Level .
Increase log rolling capacity	Change the allotted capacity for accumulating log history, so that more history is available for review. For more information, see Change Log History Capacity .
Generate support bundles	Generate support bundle collections of log files as directed by technical support. For more information, see Generate Troubleshooting Diagnostic Information .

Generate Troubleshooting Diagnostic Information

You can generate system and runtime information, and support bundle collections of log files, as directed by technical support to help diagnose problems.

Prerequisites

Verify that you have user privileges.

Procedure

- 1 Click **Support** in the top right menu bar of the Web application.

- Review the diagnostic activity information.

Option	Description
Runtime Information	Information such as heap used.

- In the **Support Bundle** area, click **Generate** to generate a collection of log files. Coordinate with Technical Support to diagnose problems.

Support bundles use disk space. Delete them by clicking **Delete support bundles** when you no longer need them.

What to do next

See [Change vCloud Usage Meter Logging Level](#).

Technical Support

Service providers that encounter technical issues with the vCloud Usage Meter appliance follow the standard VMware support processes.

Self-Help

If you encounter technical issues, you can use the following self-help resources to find a solution:

- [Knowledge Base](#)
- [VMware Communities](#)
- [Troubleshooting vCloud Usage Meter](#) topic in the *vCloud Usage Meter User's Guide*.

Support Requests

If you encounter technical issues in any of the following categories, open a Support Request:

- Installation and configuration issues
- Issues with generating product usage reports
- Issues with delivering product usage reports

To file a Support Request, follow the process at [My VMware](#).

For information about filing a Support Request in My VMware, see <http://kb.vmware.com/kb/2006985>.

Provide the following information in the Support Request:

- The version of the vCloud Usage Meter that you use.
- The version of the vCenter Server where you deploy the vCloud Usage Meter .
- The vCloud Usage Meter support bundle.

For information about generating the vCloud Usage Meter support bundle, see [Generate Troubleshooting Diagnostic Information](#).

- If the issue pertains to a particular report, generate the report, upload it in the Support Request, and send it to your aggregator.

For more information about generating reports with the vCloud Usage Meter appliance, see [Generate a Product Consumption Report](#).

The VMware support team might request additional information and actions from you, depending on the specific issue that you encounter.

License Requests

For license inquiries and product requests, get in touch with your aggregator contact first and then your VMware contact.

Other Issues

If you have difficulties understanding the VMware Cloud Provider Program, or analyzing reports, contact your aggregator sales contact.

For Partner Central issues and inquiries, email PartnerNetwork@vmware.com.

For contract-related issues and inquiries, email vCAN-Operations@vmware.com.

For other issues, contact a VMware Cloud Provider Program representative.

End of General Support

You can find the End of General Support date for a specific vCloud Usage Meter version at [VMware Lifecycle Product Matrix](#).