

# vCloud Usage Meter User's Guide 3.5

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# About This User's Guide

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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 Usage Meter and vCloud Air Network:

- *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
- *vCloud Air Network Program Guide* - contains information about the vCloud Air Network program along with the service provider reporting requirements
- *vCloud Air Network Product Usage Guide* - contains information about the VMware products available for service providers along with the usage points for each product

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**NOTE** You can download the vCloud Air Network Guides at <http://www.vmware.com/partners/service-provider/>

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## 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>.



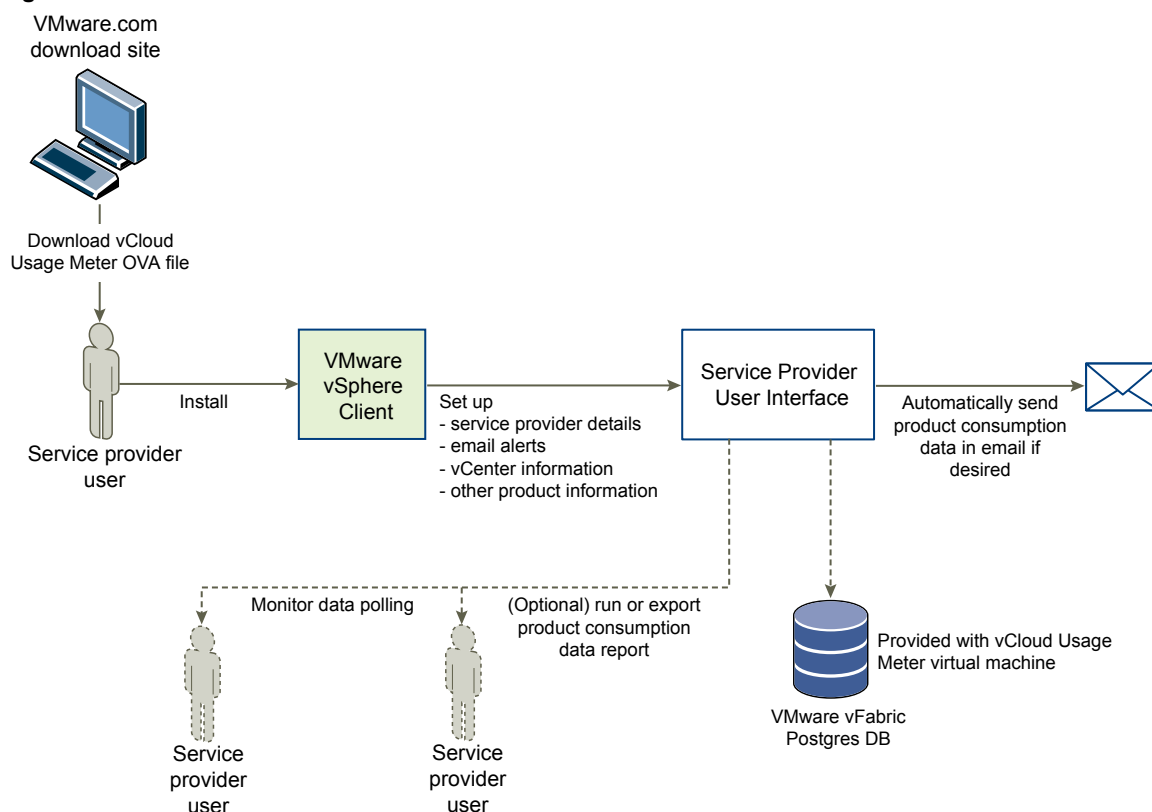
## Introduction to vCloud Usage Meter

vCloud Usage Meter is an appliance that is installed on vSphere Client. It meters and collects product consumption data on products that are part of the VMware vCloud Air Network Program (formerly called VMware Service Provider Program or "VSPP") bundles and generates reports.

Service providers send the data reported in the monthly reports to their VMware vCloud Air Network (vCAN) Program aggregator for diagnostic purposes.

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

**Figure 2-1.** Service Provider Workflow



### Accessing vCloud Usage Meter After Installation

Once you have installed vCloud Usage Meter, there are several methods for accessing settings or 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 programs. 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<sup>®</sup> host includes DNS name, RAM (physical memory), and license type.
- Collected data from the virtual machine includes the VMware vCenter<sup>®</sup> 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<sup>®</sup> vFabric<sup>™</sup> Postgres database of the virtual appliance itself.

## About Customer and Rule Management

vCloud Usage Meter provides the ability 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 are able to 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 or 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

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vCloud Usage Meter is a virtual appliance that you install by using vSphere 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 affect its speed of data collection, so you should 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 vCAN aggregator.

To upgrade from previous versions, see [Chapter 4, “Upgrading vCloud Usage Meter,”](#) on page 15.

This chapter includes the following topics:

- [“System Requirements,”](#) on page 9
- [“TCP Port Configuration,”](#) on page 10
- [“Install vCloud Usage Meter,”](#) on page 11
- [“Configure an IP Pool for vCloud Usage Meter,”](#) on page 11
- [“Change the Time Zone,”](#) on page 12
- [“Configure the Web Application Password,”](#) on page 13

## System Requirements

Before you install vCloud Usage Meter, verify that your system meets the minimum requirements. vCloud Usage Meter is deployed on a vCenter Server.

### Web Browser Requirements

The vCloud Usage Meter user interface is compatible with these Web browsers:

- Microsoft Internet Explorer Edge 25.10586.0.0
- Mozilla Firefox 47.0.1
- Google Chrome 52.0.2743.116 m
- Safari 9.0.1

### Capacity Metered

vCloud Usage Meter can meter at least up to:

- 20 vCenter Server instances

- 20,000 virtual machines
- 1,000 customers

## Hardware Requirements

vCloud Usage Meter requires a minimum of:

- An Intel or AMD x86 processor that is 2.0GHz or faster
- 3.6GB of RAM, with at least 750MB of RAM on the client for metering capacity at or above supported quantities
- Disk storage of 30GB or more
- A 10/100 Ethernet adapter - 1,000Mbps is recommended

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**NOTE** The 750MB of RAM client refers to the Web browser. The amount of RAM required by vCloud Usage Meter depends on the size of the environment, some service providers might need more than 3.6GB and some might need less than 3.6GB (some might need as little as 2GB).

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## Software Requirements

- vCenter Server
- vSphere
- SSH client

## LDAP Requirements

vCloud Usage Meter supports these LDAP servers:

- Microsoft Active Directory Server
- Microsoft Active Directory Server with SSL
- OpenLDAP
- OpenLDAP with SSL

## 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
22	vCloud Usage Meter	Horizon Workspace - Data	Used for collecting data.
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).
9007	vCloud Usage Meter	SRM Server	Used for invoking SRM APIs on the server.

## Install vCloud Usage Meter

You can use vSphere Client to install vCloud Usage Meter.

### Prerequisites

- Download the vCloud Usage Meter OVA installation file from <https://my.vmware.com/group/vmware/get-download?downloadGroup=UMSV350> and save it to your local machine.
- Verify that you have vSphere Client installed and that you have at least read-only administrator privileges.

### Procedure

- 1 From the **File** drop-down menu in the vSphere Client, select **Deploy OVF Template**.
- 2 In the Deploy OVF Template dialog, specify the location of the saved OVA file.
- 3 Verify the OVF Template details.
- 4 Accept the end-user license agreement.
- 5 Specify a name and inventory location for the vCloud Usage Meter virtual appliance.
- 6 Select the resource pool within which you want to install the template.
- 7 Select the data store in which you want to store the virtual machine files.
- 8 Select the disk format in which you want to store the virtual disks.
- 9 Select a network for the installed template.
- 10 Select the allocation policy to allocate IP addresses.
- 11 Set the passwords for the root account and the `usgmttr` account.




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**CAUTION** Keep a record of the root password. Password cannot be recovered. If the password is lost, ALL appliance administrator control is lost.

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- 12 Review the information in the Ready to Complete dialog and click **Finish**.

The installer starts the deployment process.

### What to do next

If you selected fixed for the IP allocation policy, configure an IP pool for vCloud Usage Meter. See [“Configure an IP Pool for vCloud Usage Meter,”](#) on page 11.

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

## Configure an IP Pool for vCloud Usage Meter

When vCloud Usage Meter is installed using a fixed IP policy, you must create an associated IP pool.

Because the OVF template uses network properties, vCloud Usage Meter might not work correctly unless assigned networks have an associated IP pool. 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.

### Prerequisites

- Verify that you have vSphere Client installed and that you have read-only administrator privileges.

- Verify that you have installed vCloud Usage Meter installed and that you can navigate to the data center where it is located. See [“Install vCloud Usage Meter,”](#) on page 11.
- List the IP pool configuration details.

### Procedure

- 1 In the vSphere Client inventory tree, click the data center that contains the vCloud Usage Meter virtual machine.
- 2 Click the **IP Pools** tab and click **Add**.
- 3 Enter the IP Pool details:
  - Enter a Name for the IP Pool
  - Enter the Subnet and Gateway

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**NOTE** Do not select **Enable IP Pool**.

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- 4 Click the **DNS** tab and enter the details:
  - DNS domain
  - Search path
  - IPv4 DNS server.
- 5 Click the **Associations** tab:
  - Select the networks to associate with the IP pool.
- 6 Click **OK**.

The IP Pool is created.

### What to do next

Power on the virtual machine and configure the virtual machine details.

## Change the Time Zone

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

### Prerequisites

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

### Procedure

- 1 In vSphere Client, open the virtual console and select **Set Timezone**.
- 2 Press Enter.
- 3 Change your time zone.
- 4 Type `service tomcat restart` to restart the Tomcat service.
- 5 Type `exit` to return to the virtual machine console.

## 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.

### Procedure

- 1 In vSphere Client, open the virtual console and select **Login**.
- 2 Press Enter.
- 3 Type **usgmttr** and the password that was configured at installation and press Enter.
- 4 To create your Web application password, at the prompt, type **webpass** and press Enter.
- 5 Type a Web application password.

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**NOTE** Keep a record of the Web application password.

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- 6 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.
- Provide user credentials to your users.



# Upgrading vCloud Usage Meter

---

The vCloud Usage Meter 3.5.0 is installed as a new appliance.

If you are a Service Provider and are installing vCloud Usage Meter 3.5.0 in the middle of a month:

- You should run the existing vCloud Usage Meter appliance till the end of that month.
- You should use the data from the existing vCloud Usage Meter appliance for reporting for the month in which installation takes place.
- You should shut down and then backup the existing vCloud Usage Meter appliance.

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**NOTE** The vCloud Air Network Program stipulates that a Service Provider needs to keep usage data for a period of 24 months going back from the current month.

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In the month following the vCloud Usage Meter 3.5.0 installation, you should use the data from the vCloud Usage Meter 3.5.0 appliance for monthly reporting for that month and thereafter.

## Install 3.5.0

This process installs the vCloud Usage Meter 3.5.0 virtual appliance.

Usage Meter 3.5.0 is installed as a new appliance. You can import configuration data (all data displayed on the Manage page), but not measurements, from earlier version 3.3.3 or 3.4.0 by following the steps listed below.

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**NOTE** After importing data, you may need to edit the following products:

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- NSX Manager: Enter the referencing vCenter server host name or IP address in the **vCenter Host Name or IP** field and select the **NSX Edition** type. If you had selected NSX standalone reporting, you need to select it again from **Manage > Reports** page because NSX now has three editions, select the reporting type for each edition.
- Horizon DaaS: Enter the **number of VDI Session Model** value.

### Prerequisites

- Back up or snapshot the vCloud Usage Meter virtual appliance that you are importing from, in case an unexpected error occurs during the import process.
- Verify that you have the TCP hostname or IP address of the older vCloud Usage Meter virtual appliance, and its root and Web application passwords.

### Procedure

- 1 Back up the Usage Meter appliance that you are importing from, to protect against the unlikely event that the importing process harms that Usage Meter

- 2 Turn on sshd on the old Usage Meter with the `service sshd start` command.
- 3 On Usage Meter 3.5.0, log in as root (or log in as usgmtr and change to root), and run the `importum <hostname> <version>` command, where `<hostname>` is the TCP hostname or IP address of the old Usage Meter and `<version>` is either 3.3.3 or 3.4.0.

Importum uses ssh and scp to export the database from the old system and copy it and the keystore files to Usage Meter 3.5.0. You are prompted twice, once by ssh and once by scp for the usgmtr password of the old system (or the root password if using Usage Meter 3.4.0 or earlier).

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**NOTE** The log file might contain the following error messages, which you can ignore.

- ERROR: must be owner of extension plpgsql
  - WARNING: no privileges could be revoked for "public"
- 

- 4 Turn off sshd on the old Usage Meter with the `service sshd stop` command.

The appliance is upgraded to 3.5.0.

The login password of the 3.5.0 Usage Meter Web application is set to the password of the old system. You can change it with the `webpass` command. Any self-signed VMware product certificates you accepted on the old Usage Meter are copied Usage Meter 3.5.0. Any changes you made to `web.xml` or `default.props` on the old system are not preserved. You can run the 3.5.0 system in parallel with the old system while you ensure it is working correctly. You can run the import script more than once.

### What to do next

Monitor results to ensure continuous data collection.

After upgrading to vCloud Usage Meter 3.5.0, products such as vRealize Automation servers, which were added in previous Usage Meter versions, may get set as inactive (0.0.0.0). After the upgrade is complete, reactivate the products set to 'Inactive' from the **Manage > Products** page.



## Managing Settings

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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,”](#) on page 17
- [“Configure Email Settings,”](#) on page 18
- [“Provide API Access,”](#) on page 19
- [“Configure LDAP Authentication,”](#) on page 19
- [“Configure Collection Settings,”](#) on page 20
- [“Manage Reports,”](#) on page 20

### Configure Service Provider Details

The first time you sign in to the Web application, you will need to configure your contact details as a service provider. The service provider details appear in reports.

#### Procedure

- 1 Click **Manage** in the top right menu bar of the Web application.
- 2 Click the **Provider** tab.
- 3 Type your service provider details.

Option	Description
<b>Company</b>	Name of your company.
<b>Contact Name</b>	Name of the person who is the single point of contact. Type the name in <b>Last Name, First Name</b> format.
<b>Phone</b>	Phone number of the contact. Type the number in <i>+country code phone number</i> format.

Option	Description
<b>Email</b>	Email address of the contact person listed above.
<b>Partner ID</b>	Your VMware vCloud Air Network Program Partner ID. If you do not have or know your partner ID, you can obtain it from your aggregator.
<b>Contract Number</b>	Your contract number with VMware
<b>Site ID</b>	(optional) Enter the SP-defined ID for the Usage Meter location. Service Providers can create sites to report multiple locations with multiple Usage Meters. This can be used to report back to an individual site for each Usage Meter.

- 4 Click **Save**.

Your service provider details are now saved.

## Configure Email Settings

You can configure outgoing email server and alert settings to send you automatic monthly billing reports and alerts of failed or successful collections.

### Procedure

- 1 Click **Manage** in the top right menu bar of the Web application.
- 2 Click the **Email** tab.
- 3 Configure the **Outgoing Email Server** settings.

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

- 4 (Optional) If required, select **Connection Security** from the drop-down.
- 5 (Optional) If you require authentication for the outgoing email server, type a **User name** and **Password**, and click **Save**.
- 6 Configure the **Email Alerts** settings to receive Email alerts.

Option	Action
<b>From Email</b>	Enter the name to appear in the From line of the email alert.
<b>To Email</b>	Enter the email address to receive email alerts. Use commas to separate multiple email addresses.

- 7 Select the collection alert type.

Option	Description
<b>Successful collection</b>	Receive email alerts for successful collections.
<b>Failed collection</b>	Receive email alerts for failed collections.

- 8 (Optional) Select the **Send a test email alert after saving** check box to verify that the outgoing email server is working correctly and that the alerts will be sent.
- 9 Click **Save**.

Your email settings are now saved.

## 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 the LDAP server is supported by vCloud Usage Meter. See [“System Requirements,”](#) on page 9.
- Verify a base distinguished name of the LDAP hierarchy to allow log in 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 log in 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
<b>Hostname</b>	(Most commonly used.) Requires vCloud Usage Meter appliance to have DNS configured. (DNS configuration is verified in appliance console.)
<b>Domain Name</b>	Or - this is recommended because it supports failover. Requires the vCloud Usage Meter appliance to have DNS configured. (DNS configuration is verified in appliance console.)
<b>IP Address</b>	Or - least preferred, but 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) This is the user account that will connect 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 of log in o 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.

## 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,”](#) on page 26.

## Manage Reports

vCloud Usage Meter can be configured to generate bundled or standalone usage reports for vCenter Operations Manager and NSX. These reports 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 You can set the Per-VM Memory Cap, if directed to by the vCloud Air Network Program.

4 Select the checkboxes for vCenter Operations Manager and NSX if you want to report that usage on a standalone basis.

5 Click **Save**.

# Managing Metering

---

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.

Virtual SAN (vSAN) metering is now supported and it is usage-based. As vSAN is auto-detected by vCloud Usage Meter, you do not need to register it via the UI. The usage is collected on an hourly basis at the cluster level and it is averaged over the month in which the usage happens. The usage information for individual virtual machines is not available.

[vCloud Usage Meter Interoperability Matrix](#) lists the VMware products and their versions metered by vCloud Usage Meter.

This chapter includes the following topics:

- [“Add vCenter Server,”](#) on page 21
- [“Add Credentials for vRealize Operations Manager,”](#) on page 22
- [“Add NSX Manager,”](#) on page 23
- [“Add vCloud Director,”](#) on page 24
- [“Add vRealize Automation,”](#) on page 24
- [“Add Horizon DaaS,”](#) on page 25
- [“Change Product Information,”](#) on page 25
- [“Delete or Reactivate Product Servers,”](#) on page 26
- [“Monitor Collections,”](#) on page 26

## 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 read-only administrator privileges.

If your vCenter Server is protected by vCenter Site Recovery Manager, credentials are needed for both the protected and recovery site vCenter Server instances. For more information on vCenter Site Recovery Manager, refer to [Site Recovery Manager Installation and Configuration](#).

### 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 Enter a host name, IP address name for the vCenter Server in the **Host Name** or **IP** field.
- 5 Enter the user name in the **Administrator User Name** field.
- 6 Enter the password in the **Password** field.
- 7 Select the **Meter** checkbox.  
Do not select if this is a recovery site vCenter Server instance.
- 8 Click the **Site Recovery Manager Peer vCenter Server** drop-down.  
If this is a protected site instance, select and link it to the corresponding recovery site instance in the drop-down list. To appear on the drop-down, the recovery site instance must be added.  
vCenter Site Recovery Manager servers do not need to be added to vCloud Usage Meter because vCloud Usage Meter automatically detects them through their associated vCenter Server instance.
- 9 Click **Save**.

---

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

---

- 10 The newly added virtual machines are not displayed immediately under the vCenter rules inventory. As rules section uses only the vCenter 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 Usage Meter Rules section.

---

**NOTE** While adding a vCenter Server that is using a demo or perpetual license, ensure that you update the correct license information within an hour of adding the product. If not, that vCenter Server will get 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 vCenter Site Recovery Manager instances in both the protected and recovery sites.

**Figure 6-1.** vCenter Servers Set Up

### Manage

The screenshot shows a web interface with a navigation bar containing tabs: Provider, Email, Products (selected), Reports, Collections, API, and LDAP. Below the navigation bar is a section titled "vCenter Server" with a "Show Inactive" checkbox and an "Add" button. A table lists two vCenter Server instances. The table has columns: Server, Port, Version, User, Meter, Site Recovery Manager Peer, and Actions. The first instance has Server 10.160.171.173, Port 443, Version 6.0.0, User administrator@vsphere.local, and a checked Meter checkbox. The second instance has Server 10.160.97.51, Port 443, Version 6.0.0, User administrator@vsphere.local, and a checked Meter checkbox. Each row has Edit and Delete buttons. At the bottom of the table is a "Synchronize All vCenter Inventories" button.

Server	Port	Version	User	Meter	Site Recovery Manager Peer	Actions
10.160.171.173	443	6.0.0	administrator@vsphere.local	✓		Edit Delete
10.160.97.51	443	6.0.0	administrator@vsphere.local	✓		Edit Delete

## Add Credentials for vRealize Operations Manager

vCloud Usage Meter locates and automatically adds vRealize Operations Manager (previously, known as vCenter Operations Manager) servers for you if they are associated with the vCenter Server instances that you added. To begin metering, you must provide the correct vRealize Operations Manager credentials.

### Prerequisites

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.

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

- 4 Click **Save**.

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

When you change the vRealize Operations Manager certificate or password, or perform any step that prevents vCloud Usage Meter from being able to connect with it, the vRealize Operations Manager Server gets set to Inactive and vCloud Usage Meter stops metering it. After you set it to the correct certificate or password, vRealize Operations Manager might still not be visible on the Manage > Products page. In this case, delete the vCenter Server that is associated with vRealize Operations Manager from vCloud Usage Meter, and then add the vCenter Server again so that the vRealize Operations Manager Server get auto-detected again.

## Add NSX Manager

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

**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 Click **Add** in the NSX Manager area.
- 4 Enter a host name or IP address in the **Host Name or IP** field.
- 5 Enter the user name in the **User Name** field in the domain\user format.
- 6 Enter the password in the **Password** field.
- 7 Enter the referencing vCenter server host name or IP address in the **vCenter Host Name or IP** field.
- 8 Select the **NSX Edition** type (Enterprise, Advanced, or Base). This helps in differentiating for vCloud Air Network (vCAN) providers so that their NSX usage gets bundled differently.

If you had earlier selected to report NSX as standalone, you need to make the selection again from the **Manage > Reports** page. You need to select this for every edition of NSX.

- 9 Click **Save**.

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

---

**NOTE** If a NSX certificate changes, click the corresponding **Edit** button so that Usage Meter can re-evaluate the product. Once it detects the certificate change, accept the new certificate so that the collection runs successfully.

---

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

## Add vCloud Director

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

### Prerequisites

Verify that you have read-only administrator privileges.

While adding vCloud Director, make sure you also register the vCenter Server(s) associated with that vCloud Director.

### 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** field.  
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** field.
- 7 Enter the password in the **Password** field.
- 8 Click **Save**.

The vCloud Director is added to the list of instances. If an error occurs, a message appears and the server 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.

### 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** field.  
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** field.
- 6 Enter the password in the **Password** field.
- 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** field.



- 9 Enter the administrator user name in the **User Name** field.
- 10 Enter the administrator password in the **Password** field.
- 11 Click **Save**.

The vRealize Automation server is added to the list of instances. If an error occurs, a message appears and the server is not added. If the "One or more errors occurred" error message appears, it is possible that after vRealize Automation certificate changes were made, vCloud Usage Meter was unable to find a valid certification path to the requested target.

## Add Horizon DaaS

To add Horizon DaaS (previously known as Deskstone Server) to be metered, you must provide the Horizon DaaS server's host name and credentials.

### 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 Click **Add** in the Horizon DaaS area.
- 4 Enter a host name, IP address, or DNS name in the **Host Name or IP** field.
- 5 Enter the user name in the **User Name** field in the domain\user format.
- 6 Enter the password in the **Password** field.
- 7 Enter the value of **number of VDI Session Model**.
- 8 Click **Save**.
- 9 After adding the Horizon DaaS server, you can **Edit** the number of VDI Session Model. However, in order 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 may change it to 4. Any mistake in configuring the right session model will reflect in the Monthly Usage Report as long as the configuration error persists.

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 desired.

- 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 re-include 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 re-activated 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 <b>Delete</b> . Irrespective of whether any data was collected prior to 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 <b>Show Inactive</b> checkbox. The deleted products that have collected data are shown in the list.
Reactivate server	Locate the product area and click the <b>Show Inactive</b> checkbox. Select the inactive server and click <b>Activate</b> . It is moved to the active list.

## Monitor Collections

You can view times of successful or failed collections for vCenter Server instances and other products associated with vCloud Usage Meter, to monitor the incidence of failed collections.

### 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,”](#) on page 20.
- Verify your memory settings.

# Managing Customers and Rules

---

vCloud Usage Meter meters compute resource consumption on your entire vCenter Server inventory. Creating customers and rules provides you with detailed control, allowing you to organize consumption reporting by customer. You can also organize for other reasons, such as consumption reporting for testing.

You can add customers individually or import multiple customers to vCloud Usage Meter. The import and export capability can help you keep the same customer list on multiple vCloud Usage Meter virtual appliance installations. This ability can aid when customer consumption is shared among multiple vCenter Server instances.

Customers that require confidentiality can be still be represented and metered in vCloud Usage Meter. If confidentiality is needed, you designate that customer as restricted, and work with your vCAN Program coordinator to set up a code, so confidential names and locations are never visible.

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, or for the unique ID of a virtual machine or IP address.

This chapter includes the following topics:

- [“About Restricted Customers,”](#) on page 28
- [“Add a Customer,”](#) on page 28
- [“Change Customer Information,”](#) on page 28
- [“Remove a Customer,”](#) on page 29
- [“About Object and Value Types,”](#) on page 29
- [“Add a Rule,”](#) on page 30
- [“Change Rule Information,”](#) on page 31
- [“Remove a Rule,”](#) on page 31
- [“Import Customers and Rules,”](#) on page 31
- [“Export Customers and Rules,”](#) on page 33

## About Restricted Customers

If a customer's 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 vCAN 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 vCAN 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,"](#) on page 28.

## Add a Customer

To report product consumption by a 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's information.
- 4 (Optional) If the customer's 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** While you can import most customers 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, see ["Import Customers and Rules,"](#) on page 31.

## 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 customer(s) to be removed and select the check box(es).
- 3 Click **Delete Selected** and confirm the removal.

The selected customer(s) is removed from the list of customers. Data that was collected before removal remains in the database.

## About Object and Value Types

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 by vCloud Usage Meter. When you construct a rule, the value type varies, depending upon 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 Types	vCenter Server Needed
VM, host, cluster, data center, or vCenter Server	Unique ID	Yes
VM vCenter ServerName or VM DNS Name	Exact string	Yes
	Substring	Yes
	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, which enables the reporting required by the VMware vCAN Program.

### Prerequisites

Review your vSphere inventory for object types that correspond to your customers. See [“About Object and Value Types,”](#) on page 29.

### Procedure

- 1 Click **Rules** in the top right menu bar of the Web application.
- 2 Select a customer by typing 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 typed.
- 3 In the **Object Type** drop-down menu, select an object type that is in your vSphere inventory.  
When you click on a location in the **vSphere 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, type a value in the **Value** text box.
- 5 Click **Create**.

The rule is added 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 does not get created.

### What to do next

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

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

## Change Rule Information

You can change rules that collect product consumption data for your customers if the rule needs to point to a different location in your vCenter Server inventory. To change a rule, you must delete it and then construct a replacement rule.

### Prerequisites

Before deleting a rule, note any details 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,”](#) on page 31.

You can also add a rule back to the list. See [“Add a Rule,”](#) on page 30.

## 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 typing 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 typed.
- 4 (Optional) Click the **Show Rules for All Customers** check box to see all rules for all customers.
- 5 Select check box next to the rule(s) you want to remove.
- 6 Click **Delete Selected Rules**.

The selected rule(s) is removed 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.

Tab-separated files can contain data for either customers or rules, or both. Customers that are restricted are not allowed to be imported via a tab separated file and must be entered manually. For more information, see [“Add a Customer,”](#) on page 28.

### Prerequisites

- Prepare, or obtain from export, a tab-separated file. See [“Export Customers and Rules,”](#) on page 33. If you are transferring customer and rule 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](http://www.iso.org/iso/country_codes/iso_3166_code_lists/country_names_and_code_elements.htm).

### 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: 3.5.0				
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
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.

### 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,”](#) on page 31.



# Managing Product Consumption Reports

---

# 8

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 file or as a ZIP file when a large number of records are returned.

## 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 [“About Product Consumption Reports,”](#) on page 37.

## 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,”](#) on page 38.
- Create automatic reporting sets. See [“Create Automatically Generated Reporting Sets,”](#) on page 39.

This chapter includes the following topics:

- [“About License Sets and Billing Categories,”](#) on page 36
- [“Manage Billing Categories,”](#) on page 36
- [“Create License Sets,”](#) on page 36
- [“Edit License Sets,”](#) on page 37
- [“Remove License Sets,”](#) on page 37
- [“About Product Consumption Reports,”](#) on page 37
- [“Generate a Product Consumption Report,”](#) on page 38
- [“Create Automatically Generated Reporting Sets,”](#) on page 39
- [“Edit Reporting Sets,”](#) on page 39
- [“Remove Reporting Sets,”](#) on page 40

## About License Sets and Billing Categories

The VMware vCAN Program provides licenses to use service provider bundles. With billing groups, vCloud Usage Meter you can designate some licenses as non-billable and can group licenses in sets.

vCloud Usage Meter Reports include licenses that are identified and updated through queries to the vCenter Server instances in your inventory. If a license key is no longer present, the license is removed from the licenses that can be managed.

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. You can assign one of the following categories.

<b>vCAN</b>	License key obtained through the VMware vCAN Program. All virtual machines running on hosts with these keys are considered to be billable.
<b>Demo</b>	License key that is not billable, such as for a system used for demonstration.
<b>Perpetual license key</b>	Obtained outside of the VMware vCAN Program. Virtual machines running on hosts with perpetual license keys are not billable.

With license sets, you can group one or more vSphere license keys and associate virtual machine vRAM consumption with those groups.

## 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
<b>vCAN</b>	License key obtained through the VMware vCAN Program. All virtual machines running on hosts with these keys are considered to be billable.
<b>Demo</b>	License keys that are not billable that can be used for environments such as demonstration systems.
<b>Perpetual</b>	License keys obtained outside of the VMware vCAN Program. Virtual machines running on hosts with these keys are not considered billable.

## 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 check boxes for 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

Individual licenses or entire license sets can be removed if the set is no longer meaningful or needed.

### 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 license(s) you want to delete.
- 4 Click **Delete**.

The license set or individual license(s) is removed.

## About Product Consumption Reports

You can use vCloud Usage Meter to generate different types of reports that monitor and track resource consumption by a customer or by a vSphere inventory object.

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

### Monthly Usage

The Monthly Usage report provides information such as, the product being monitored, the unit type being metered, and the associated consumption, including usage information by vCAN bundles.

**Table 8-1.** Monthly Usage Report Details

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

There may be fluctuations in the Monthly Usage Report, if a vCAN Partner or Service Provider mixes perpetual and vCAN licensed hosts in a cluster and enables DRS. To avoid these fluctuations, disable motion of virtual machine hosts between the two (perpetually licensed versus vCAN licensed) billing categories by creating homogeneous clusters containing a single billing category. This creates a cluster of vCAN licensed hosts separate from a cluster of perpetually licensed hosts.

## Customer Monthly Usage

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

## Virtual Machine History

The Virtual Machine History report includes one line for each time interval for each virtual machine in which the billing-related values were constant.

## Generate a Product Consumption Report

You can generate a report to monitor product consumption.

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



**CAUTION** If a report request is made with an API that is more than one month for a report that does not allow a range of months, the request will fail with an error message.

### Procedure

- 1 Click **Reports** in the top right menu bar of the Web application.
- 2 In the **Report Type** drop-down menu, select a report.
- 3 Select the report criteria.

You can select a customer, country, or postal code by typing part of the item and then locating it in the list that appears. vCloud Usage Meter populates a list that matches the characters you typed.

- 4 (Optional) Select **License Sets** to report by license set.

Select a license set by typing part of the name and locating it in the list that appears. vCloud Usage Meter populates a list that matches the characters you typed.

- 5 Select the report's beginning and ending month and year.
- 6 Select how to view the report:

- **Browse** - view report in web browser. There is a 6000 limit on the total rows.
  - To change total rows, log into virtual machine console.
  - Pause Tomcat service, enter `service tomcat stop`
  - Go  
to: `/opt/vmware/vfabric-tc-server-standard/um/webapps/um/WEB-INF/classes/props/default.props`
  - Change `browserReportLimit=<number of rows>`
  - To start Tomcat service, enter `service tomcat start`
- **Export (tab separated)** - save report to a file.
- **Zip** - select checkbox to save 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.

## 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.

### Procedure

- 1 Click **Automatic Reporting** in the top right menu bar of the Web application.
- 2 Enter a name for the reporting set in the right-hand details panel.
- 3 In the Reporting Day drop-down menu, select the day of the month on which to send the reports.
- 4 Select the checkboxes of the reports to include in the set.
- 5 Select the checkboxes of the licenses to include in the set.
- 6 Configure the email settings.

Option	Action
<b>From Email</b>	Enter the name to appear in the from line of the reporting set.
<b>To Email</b>	Enter the email address to receive the reporting set.

- 7 Click **Save**.

The name of the new reporting set appears in the left-hand panel list.

## Edit Reporting Sets

You can edit automatically generated 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-hand **Name** area.

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

- 3 In the right-hand details panel, change the details.

Option	Description
<b>Name</b>	Type the name of the reporting set. If you change the existing name, vCloud Usage Meter creates a set.
<b>Reporting Day</b>	Select the day of the month to send the automatic reporting set.
<b>From Email</b>	Type the name to appear in the from line of the reporting set.
<b>To Email</b>	Type 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,”](#) on page 40.

## 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-hand Name area.
- 3 Click **Delete**.

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



# 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.

This chapter includes the following topics:

- [“Using vCloud Usage Meter Logs for Troubleshooting,”](#) on page 41
- [“About SSL Certificates,”](#) on page 42
- [“About vCloud Usage Meter User Activity and Process Notifications,”](#) on page 42
- [“Change vCloud Usage Meter Logging Level,”](#) on page 42
- [“Change Log History Capacity,”](#) on page 43
- [“Generate Troubleshooting Diagnostic Information,”](#) on page 44
- [“Back Up the vCloud Usage Meter Database,”](#) on page 44
- [“Enable Java Management Extensions for vCloud Usage Meter,”](#) on page 45
- [“Connect with the Java Management Extensions Client to Use the JMX Service,”](#) on page 45
- [“Disable Java Management Extensions for vCloud Usage Meter,”](#) on page 46

## Using vCloud Usage Meter Logs for Troubleshooting

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

**Table 9-1.** 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. See <a href="#">“About vCloud Usage Meter User Activity and Process Notifications,”</a> on page 42.
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. See <a href="#">“Change vCloud Usage Meter Logging Level,”</a> on page 42.

**Table 9-1.** vCloud Usage Meter Log Operations (Continued)

Operation	Description
Increase log rolling capacity	Change the allotted capacity for accumulating log history, so that more history is available for review. See <a href="#">"Change Log History Capacity,"</a> on page 43.
Generate support bundles	Generate support bundle collections of log files as directed by technical support. See <a href="#">"Generate Troubleshooting Diagnostic Information,"</a> on page 44.

## 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 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 may 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 will be revoked at that time and you will 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://ikb.vmware.com/kb/2047572>.

## 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 could 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 automatically, 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.

## 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 in the **Logging Level** area.

Option	Description
<b>Trace</b>	Do not select Trace because it is not currently used.
<b>Debug</b>	Select to include more log detail than Info. This causes the log capacity to fill faster.
<b>Info</b>	Select to include Warn, Error, and Fatal warnings.
<b>Warn</b>	Select to include Warnings only (not recommended).
<b>Error</b>	Select to include Error warnings only (not recommended).
<b>Fatal</b>	Select to include Fatal warnings only (not recommended).

### What to do next

After you review the changed logging activity, consider setting the level for minimum effect on log rolling capacity. See [“Change Log History Capacity,”](#) on page 43.

## Change Log History Capacity

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

vCloud Usage Meter allots 100MB 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. See [“Change vCloud Usage Meter Logging Level,”](#) on page 42.

### Prerequisites

- Verify that the vSphere client is installed.
- Verify that you have access to the location of the vCloud Usage Meter console.
- Verify that you have a password to login to the vCloud Usage Meter console as **root**.

### Procedure

- 1 Log in to the virtual machine console.
- 2 Edit `/opt/vmware/vfabric-tc-server-standard/um/webapps/um/WEB-INF/classes/log4j.properties`
- 3 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.

Option	Description
<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 recommended capacity in order to conserve resources.

## Generate Troubleshooting Diagnostic Information

You can generate system and runtime information, or 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.
- 2 Review the diagnostic activity information.

Option	Description
<b>Runtime Information</b>	Information such as heap used.

- 3 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,”](#) on page 42.

## 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.

### Prerequisites

- Verify that the vSphere client is installed.
- Verify that you have access to the location of the vCloud Usage Meter console.
- Verify that you have a password to login to the vCloud Usage Meter console as **root**.

**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 Log into the vCloud Usage Meter virtual appliance as the usgmtr user.
- 2 Run the command: `/opt/vmware/vpostgres/current/bin/pg_dump usgmtr | gzip >umdump.sql.gz`

The database is saved to a file.

## 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 into the virtual machine console.
- 2 Type **jmxcontrol.sh enable**, with root privilege.
- 3 Type **cdum**.

It will redirect to the `/opt/vmware/vfabric-tc-server-standard/um` directory path.

- 4 Type **cd conf**.
- 5 Type **vi jmxremote.password**

You can change the administrator password for **jconsole** in this file. For the provided admin user, replace `<password>` in **jmxremote.password** with your desired password.

- 6 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. See [“Enable Java Management Extensions for vCloud Usage Meter,”](#) on page 45.

### 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 into the virtual machine console.
- 2 Enter `/opt/vmware/cloudusagemetering/scripts/jmxcontrol.sh disable`.

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