vCenter Chargeback Manager Installation and Upgrade Guide

vCenter Chargeback Manager 2.0.0

vmware®

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

http://www.vmware.com/support/

The VMware Web site also provides the latest product updates.

If you have comments about this documentation, submit your feedback to:

docfeedback@vmware.com

Contents

About the Guide

The *vCenter Chargeback Manager Installation and Upgrade Guide* provides information about installing and upgrading VMware® vCenter Chargeback Manager. This book also describes how to install and upgrade the different data collectors.

Intended Audience

This book is intended for anyone who wants to install or upgrade vCenter Chargeback Manager. The information in this book is written for experienced system administrators who are familiar with Windows, VMware vSphere®, VMware vCloud Director, and basic database administration.

Introduction to vCenter Chargeback Manager

1

vCenter Chargeback Manager is an end-to-end cost reporting solution for virtual environments using vSphere. vCenter Chargeback Manager can also be used with VMware vCloud Director. Before you install and start using vCenter Chargeback Manager, an understanding of what is chargeback and about chargeback solutions for a virtual environment would be helpful.

This chapter includes the following topics:

- "What Is Chargeback," on page 7
- "Chargeback Solution for Virtual Environments," on page 7
- "Overview of vCenter Chargeback Manager," on page 8

What Is Chargeback

Chargeback is a mechanism to account for the operational costs involved in providing and maintaining an IT infrastructure, including the costs for IT services and applications. Measuring resource utilization and calculating the corresponding IT operational cost enables you to account for the IT resources utilized and bill for the services provided.

In a non-virtual environment, a physical server and the associated resources like the applications running on it can be easily mapped to the department using them, making the billing for such resource utilizations relatively easy. Also, costs incurred due to maintenance and licensing can be directly associated to a department, thereby enabling you to calculate the complete IT operational costs.

In a virtual environment, however, the task of calculating the IT operational cost for each department becomes very difficult. Multiple virtual machines run on a physical server, which might be shared across different departments or cost centers in an organization. As a result, resource utilization for this server and, therefore, the cost incurred cannot be directly associated to any single department or cost center. The difficulty in accounting gets further compounded when applications and services get shifted over time to different servers, based on the load and available infrastructure resources.

Chargeback Solution for Virtual Environments

In a virtual environment, a chargeback solution requires a flexible metering system that can account for the utilization of resources shared across the organization.

These measurements can be based on allocation or actual usage of individual servers and resources. In the case of VMotion, DRS, or HA being enabled, the measurements could be based on the allocation or actual usage of resource pools.

To support chargeback, the virtual environment and the chargeback solution must provide ways to measure resource usage and associate the usage with a specific costing model. The chargeback solution must also support the use of different costing models so as to charge the various departments or cost centers differently.

A chargeback solution for a virtual environment defines a hierarchy with different types of entities such as departments, divisions, business units, cost centers, physical servers, virtual machines, and so on. For each entity type, a cost model is defined that determines the rate for each unit of a resource utilized. The chargeback solution determines the resource usage by using either utilization-based metering or allocation-based metering of virtual machines. The metered parameters are then associated with the designated entities, and the cost model defined for that entity along with specific chargeback formulas are used as part of the overall chargeback solution.

Overview of vCenter Chargeback Manager

Determining the resource utilization and calculating the corresponding cost for a virtual environment that uses VMware vSphere typically involves VMware professional services' work or use of partner solutions. These solutions are built using custom methods for VMware vSphere resource data collection and chargeback cost calculation for organizations.

vCenter Chargeback Manager is an end-to-end cost reporting solution for virtual environments that use VMware vSphere. This Web-based application interacts with the vCenter Server Database to retrieve usage information, calculates the cost by using the defined chargeback formulas, and generates cost and usage reports. Figure 1-1 shows how vCenter Chargeback Manager interacts with various components of a virtual environment using VMware vSphere.

Figure 1-1. vCenter Chargeback Manager in a Virtual Environment
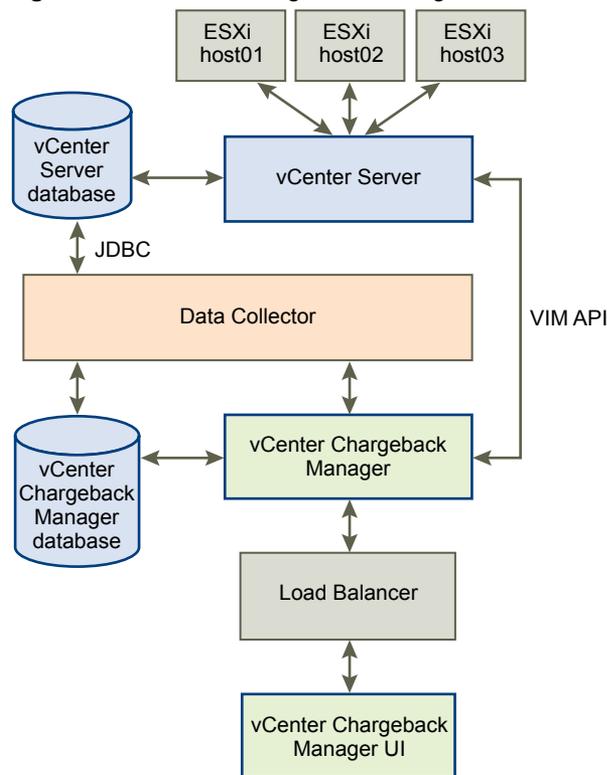
vCenter Chargeback Manager runs on an Apache Tomcat server instance. Users interact with vCenter Chargeback Manager through a load balancer (Apache HTTP Server). vCenter Chargeback Manager connects to the vCenter Chargeback Manager database that stores application-specific information, such as the defined chargeback hierarchies, cost models, users, roles, and so on. The application interacts with the vCenter Server using VIM APIs and with the vCenter Server database through a data collector. The data collector communicates with the vCenter Server Database using JDBC.

When you install vCenter Chargeback Manager, a load balancer and a data collector is also installed and run on the same machine. Although the vCenter Chargeback Manager database can also be installed on the same machine, in a real-world scenario you would install the application and the database on separate machines.

vCenter Chargeback Manager retrieves the virtual infrastructure inventory and the resource usage information for each virtual machine from the vCenter Server database through the data collector. The data collector replicates this information in the vCenter Chargeback Manager database. vCenter Chargeback Manager uses this information from the vCenter Chargeback Manager database along with the cost model and chargeback cost calculation formulas to generate the cost reports. A single data collector instance can communicate with multiple vCenter Server instances and vCenter Server databases and replicate the relevant information in a vCenter Chargeback Manager database.

vCenter Chargeback Manager also lets you create a cluster of vCenter Chargeback Manager instances that share a single load balancer. Each user request is routed through the load balancer. The load balancer forwards the request to a vCenter Chargeback Manager instance in the cluster, while ensuring session affinity for an instance, based on the number of requests currently being serviced by each instance in the cluster. All the vCenter Chargeback Manager instances in a cluster are connected to the same vCenter Chargeback Manager database.

If you have a VMWare vCloud Director setup, you can install the vCloud Director Data Collector and configure it appropriately so that the vCloud Director setup can be integrated with vCenter Chargeback Manager. You can then generate various reports of the organizations classified under the different categories, such as Pay-As-You-Go, Reservation, and Allocation Pool.

System Requirements 2

Before you install vCenter Chargeback Manager, you must ensure that the minimum hardware and software requirements are met.

This chapter includes the following topics:

-
-

Hardware Requirements

The system on which vCenter Chargeback Manager is installed must meet the minimum hardware requirements for installing and running the application.

vCenter Chargeback Manager can be run on a computer or a virtual machine that matches or exceeds the following hardware specifications:

- 2.0GHz or faster Intel or AMD x86 processor
- 4GB or more of RAM
- A minimum of 2GB disk storage (3GB recommended)
- 10/100 Ethernet adapter (Gigabit recommended)

If you want to install the vCenter Chargeback Manager database on the computer on which vCenter Chargeback Manager along with the load balancer and data collector is already installed, then additional storage, memory, and processor capacity are required.

Software Requirements

Other than an operating system, you must have a database management system and a Web browser installed to run and access vCenter Chargeback Manager.

Operating Systems

vCenter Chargeback Manager can be installed and run on the following operating systems (32-bit and 64-bit):

- Microsoft Windows Server 2003 with Service Pack 2
- Microsoft Windows Server 2003 R2
- Microsoft Windows Server 2008
- Microsoft Windows Server 2008 R2 (64-bit only)

64-bit operating systesm give the App Server more addressable memory and are therfore preferred over 32-bit operating systems.

Database Management Systems

vCenter Chargeback Manager supports the Standard and Enterprise edition of the following database management systems:

- Microsoft SQL Server 2008 (x64) (with Service Pack 2)
- Microsoft SQL Server 2008 (Intel x86) (with Service Pack 2)
- Microsoft SQL Server 2005 (x64) (with Service Pack 2)
- Microsoft SQL Server 2005 (Intel x86) (with Service Pack 2)

vCenter Chargeback Manager supports the Enterprise edition of the following database management systems:

- Oracle Database 11g Release 2
- Oracle Database 10g Release 2

Web Browsers and Flash Player Plug-In

vCenter Chargeback Manager is a browser-based application that is tested and supported on the following:

- Microsoft Internet Explorer 7.x and 8.x
- Mozilla Firefox 4.x and 5.x
- Adobe Flash Player for Windows Plug-in version 10.1 or later
- Adobe Flash Player for Linux Plug-in version 10.1 or later

VMware vCenter Server

vCenter Chargeback Manager supports the folowing vCenter Server releases:

- vCenter Server 5.0
- vCenter Server 4.1 and later releases
- vCenter Server 4.0 and later releases
- VirtualCenter Server 2.5 Update 3 and later releases

Install and Upgrade Prerequisites 3

Before installing or upgrading vCenter Chargeback Manager, you must peform few pre-installation tasks.

This chapter includes the following topics:

-
-
-
-
-

Network Management Prerequisites

To ensure successful installation and upgrade of vCenter Chargeback Manager, the networking-related pre-installation tasks must be completed.

You must perform the following pre-installation tasks:

- Check whether the required ports are free.

  Ensure that the ports that you specify during the installation are free. While installing, you must provide the port details for the following applications and protocols:

HTTP port	This port is used by vCenter Chargeback Manager for communication using the HTTP protocol. The default port number is 8080.
Load-balancer port	This port is used by vCenter Chargeback Manager to communicate with the load balancer. The default port is 8009.
HTTPS port	This port is used by the load balancer to listen for user requests. The default port is 443.

  If any of the specified port is also configured for another service and the service is not running, then the installer will use the specified port. However, this might result in a port conflict and either of the configured services might fail.

  If you are upgrading an existing vCenter Chargeback Manager setup, then note down the ports currently used by the application and enter the same port details during upgrade.

■ Set a static IP address on the machine.

Before you install the vCenter Chargeback Manager, you must obtain a static IP address from your network administrator. Set this IP address on the machine on which you are going to install vCenter Chargeback Manager. Preferably, obtain and set static IP addresses on all the servers and databases that the vCenter Chargeback Manager communicates with.

Alternately, you can use the fully-qualified domain name (FQDN) for all the servers and databases that vCenter Chargeback Manager communicates with.

Database Management Prerequisites

Performing the database management-related pre-installation tasks ensures that you have a database and a database user account with the required privileges that the application can use.

Before you begin the vCenter Chargeback installation you must create a vCenter Chargeback Manager database and a corresponding database user. vCenter Chargeback Manager stores the application-specific data, such as cost models, chargeback hierarchies, and users and roles, in the vCenter Chargeback Manager database. You must, therefore, first create a database for storing this data. The database management systems supported by vCenter Chargeback Manager are listed in "Software Requirements," on page 11. You can either create the database yourself by referring to the corresponding product documentation or ask your database administrator to create one for you. Ensure that the database is not configured to be case-sensitive.

If you are using an Oracle database as the vCenter Chargeback Manager database, you must configure the database to use the Unicode (AL32UTF8) character set to support the following scenarios:

■ You want to deploy the vCenter Chargeback Manager database in a non-English environment.

■ You want to synchronize the vCenter Chargeback Manager database with a vCenter Server database that has non-English data.

You must provide the details of the database and database user when installing vCenter Chargeback Manager. The installer uses these details to create the database schema and objects. Also, vCenter Chargeback Manager and the data collector authenticates in to the database by using this database user account to perform the necessary database operations.

NOTE Instead of using the default database users, such as sa, SYS, and SYSTEM, create a database user with just the required privileges and access the database with this users credentials. This is a good security practice.

---

vCenter Chargeback Manager Database User Privileges in Oracle Database

After you create a database instance and a database user in Oracle Database that vCenter Chargeback Manager can use, you must assign the following system roles and privileges to this user.

■ CONNECT

■ RESOURCE

■ CREATE TRIGGER

■ CREATE TABLE

■ CREATE VIEW

■ CREATE PROCEDURE

■ CREATE SEQUENCE

vCenter Chargeback Manager Database User Privileges in SQL Server

After you create a database instance and a database user in SQL Server that vCenter Chargeback Manager can use, you must assign privileges to this user by running the following commands in SQL Server:

```
CREATE ROLE CB_ADMIN_ROLE;
GRANT ALTER ON SCHEMA :: DBO TO CB_ADMIN_ROLE;
GRANT REFERENCES ON SCHEMA :: DBO TO CB_ADMIN_ROLE;
GRANT INSERT ON SCHEMA :: DBO TO CB_ADMIN_ROLE;
GRANT SELECT ON SCHEMA :: DBO TO CB_ADMIN_ROLE;
GRANT DELETE ON SCHEMA :: DBO TO CB_ADMIN_ROLE;
GRANT UPDATE ON SCHEMA :: DBO TO CB_ADMIN_ROLE;
GRANT EXECUTE ON SCHEMA :: DBO TO CB_ADMIN_ROLE;
GRANT CREATE TABLE to CB_ADMIN_ROLE;
GRANT CREATE VIEW to CB_ADMIN_ROLE;
GRANT CREATE PROCEDURE to CB_ADMIN_ROLE;
GRANT CREATE FUNCTION TO CB_ADMIN_ROLE;
GO
sp_addrolemember CB_ADMIN_ROLE, <db_username>
```

Other System Prerequisites

Apart from the networking and database management related prerequisites, you must perform few other pre-installation tasks to ensure that vCenter Chargeback Manager is successfully installed and upgraded.

You must perform the following pre-install tasks:

■ Ensure that system time of all the servers and databases are in sync.

You must ensure that the system time of the machines on which you install vCenter Chargeback Manager and vCenter Chargeback Manager database are in sync. If you plan to install one or more data collectors on different machines, then the system time of these machines must be in sync with that of the machines on which vCenter Chargeback Manager and vCenter Chargeback Manager database are installed.

Also, the system time of the vCenter Servers and the vCenter Server databases that you configure in vCenter Chargeback Manager must be in sync with the that of the machine on which vCenter Chargeback Manager is installed. In short, the system time of the machines on which vCenter Chargeback Manager and the applications and databases that it communicates with are installed must be in sync.

■ Ensure that MSI Installation is enabled.

Before you start the installation, you must ensure that MSI installation is enabled on the machine. If not, you must manually install Microsoft Visual C++ 2005 Redistributable Package (x86) before running the vCenter Chargeback Manager installer.

■ Ensure that port exceptions are configured on the Windows firewall.

If the Windows Firewall is enabled, you must set the port exceptions for the HTTP, load balancer, and HTTPS ports on the Windows Firewall. If these exceptions are not set, the application will be not be usable.

■ Ensure that the Windows user has the `Log on as a service` permission.

If you want to use the Windows authentication option for the vCenter Chargeback Manager database, you must ensure that the Windows user has the `Log on as a service` permission. If this permission is not set on the user, the installation will fail. Also, the installer must be run in the context of this Windows user.

Pre-installation Checklist

The pre-installation checklist helps you ensure that you have all the required information and have performed the necessary pre-install tasks.

Table 3-1 lists the pre-install requirements.

Table 3-1. vCenter Chargeback Manager Pre-Install Checklist

Item	Requirement	Checked
Hardware Configuration		
CPU	2.0GHz or faster Intel or AMD x86 processor	
RAM	4.0 GB or more	
Disk space	Minimum 2.0 GB; Recommended 3.0 GB or more	
Card	10/100 Ethernet adapter (Gigabit recommended)	
Network Configuration		
FQDN or static IP Address	Write down the FQDN or IP address of the machine on which you plan to install vCenter Chargeback Manager. If you are using an IP address, ensure that the machine has a static IP address.	
Port Numbers	HTTP Port (default: 8080) Load-balancer Port (default: 8009) HTTPS Port (default: 443) Ensure that the default ports are free. If not, use any other free ports. Note down the port numbers that you want to use.	
Database Configuration		
Type	Microsoft SQL Server 2005 or later Oracle Database 10g or later	
Database name	Create a database for vCenter Chargeback Manager and note down the database name.	
URL	IP address of the vCenter Chargeback Manager database. Ensure that the machine on which the database is installed has a static IP address. TNS listener port for Oracle database Database instance name for SQL Server database	
Database user name and password	User name of the database user who has privileges to create and delete schema, as well as to read from and write to the database. Password for this user If you are using Windows Authentication for a Microsoft SQL Server database, then you must have the Windows user account name. This user must have the `Log on as a service` permission. Password for this Windows user account If you are using Windows authentication, ensure that you run the installer in the context of this Windows user.	
Software Configuration		
System Time	Ensure that system time of all the servers and databases are in sync	
Microsoft SQL Server	Ensure that the SQL Server Browser service is running if you are using a database instance name and dynamic database instance port to connect to the vCenter Chargeback Manager database.	

Table 3-1. vCenter Chargeback Manager Pre-Install Checklist (Continued)

Item	Requirement	Checked
MSI Installation	Is MSI installation enabled?	
	If not, install Microsoft Visual C++ 2005 Redistributable Package (x86).	
Port Exceptions on Windows Firewall	If you have enabled Windows Firewall, you must set the port exceptions for the HTTP port, load balancer port, and HTTPS port.	

Download and Extract the vCenter Chargeback Manager Installer

You must first download the installer files and extract its contents on to the machine on which you want to install vCenter Chargeback Manager. You must run the installer on the local machine and not from a remote machine.

Procedure

1 Download the installation-related files, `vCenter–CB–`*version_number–build_number*`.zip`, from http://www.vmware.com/products/vcenter-chargeback/overview.html.

2 Extract the content of this ZIP file to the machine on which you want to install the application.

The `vCenter–CB.exe` file is the installer file.

What to do next

Run the installer to install vCenter Chargeback Manager.

Installing vCenter Chargeback Manager

4

After you have ensured that the minimum hardware and software requirements are met and the relevant pre-installation tasks are completed, you can install vCenter Chargeback Manager.

You can install vCenter Chargeback Manager to be used as a stand-alone instance or you can create a cluster of vCenter Chargeback Manager instances. When you install vCenter Chargeback Manager a corresponding load balancer is installed and the vCenter Chargeback Manager database schema is created in the database.

You can choose to install the load balancer and the vCenter Chargeback Manager instance on different machines. This helps you to install the load balancer on a DMZ network and the vCenter Chargeback Manager on a secured internal network.

You can choose to install a data collector along with vCenter Chargeback Manager on the same machine. You can also install one or more data collectors on different machines. You must, however, install at least one data collector instance. This data collector fetches the relevant data from the vCenter Server database and replicates the same in the vCenter Chargeback Manager database.

You can also install a vCenter Chargeback Manager instance and point it to a database that contains a valid vCenter Chargeback Manager database schema. This is useful when you want to move the vCenter Chargeback Manager and the vCenter Chargeback Manager database to a different machine from the one that they are currently installed on.

This chapter includes the following topics:

- "Install vCenter Chargeback Manager," on page 19
- "Create a vCenter Chargeback Manager Cluster," on page 24
- "Install vCenter Chargeback Manager with an Existing Database Schema," on page 28
- "Services Related to the vCenter Chargeback Manager," on page 32
- "Accessing the vCenter Chargeback Manager," on page 34

Install vCenter Chargeback Manager

vCenter Chargeback Manager can be installed on any system or virtual machine that meets the system requirements.

When you install the application for the first time, the installer performs the following tasks:

- Connects to the database and creates a schema for the application data.
- Installs the load balancer, which receives and routes all user requests to the application.
- Installs the application.

- Installs the data collector, which synchronizes the vCenter Chargeback Manager database with the vCenter Server databases.

NOTE   If the installation fails due to some reason, the uninstaller is automatically invoked and all the components installed till the failure occurred is removed.

When you install vCenter Chargeback Manager, you can choose to install the load balancer, vCenter Chargeback Manager server, and data collectors on the same or different machines. If you choose to install the load balancer and the vCenter Chargeback Manager server on different machines, then you must first install the load balancer and then the vCenter Chargeback Manager server.

When you install the load balancer, the relevant data is stored in the vCenter Server database. When you run the installer on a different machine and provide the same database details, the installer provides you with an option to install a new load balancer or connect to an existing load balancer.

Prerequisites

Ensure that you run the installer on the machine on which vCenter Chargeback Manager has to be installed. Do not run it on a remote machine.

Procedure

1   Run the vCenter–CB.exe file.

    The installation wizard is displayed.

2   Click **Next** on the Introduction screen.

3   Accept the end-user license agreement, and click **Next**.

4   Provide the path for the installation directory, and click **Next**.

    If the specified installation directory exists, ensure that it is empty. If the specified installation directory does not exist, the installer creates the directory. The install path must contain at least one folder. You cannot provide only the drive name. Also, the directory path must contain only ASCII characters.

5   Enter the vCenter Chargeback Manager database-related information, and click **Next**.

Option	Description
Database Type	The type of database used to create the vCenter Chargeback Manager database. This can be either **SQL SERVER** or **ORACLE**.
Database URL	The IP address or host name of the system on which the vCenter Chargeback Manager database is installed. For an SQL Server database, you can also provide the vCenter Chargeback Manager database instance name. The database instance name must contain only ASCII characters.
	For Oracle Database, the database URL can be in any of the following formats:
	IP Address
	Host Name
	For SQL Server, the database URL can be in any of the following formats:
	IP Address
	Host Name
	IP Address\Database Instance Name
	Host Name\Database Instance Name
	You can also specify a well formed JDBC URL that starts with 'jdbc' and contains the database name.
Database Port	(Optional) The port on which the database service is listening for requests. If the port number is not specified, the installer uses the default port. For an Oracle database, you must specify the TNS listener port if you are not using the default port 1521. For an SQL Server database, specify the database instance port if you are using a static port.

Option	Description
Database Name	Name of the database in which vCenter Chargeback Manager stores the application-specific data. For Oracle Database, ensure that you provide the service name and not the SID.
SQL Authentication Mode	This option is applicable only for SQL Server databases. For an SQL Server database, the authentication type can be either **SQL Server Authentication** or **Windows Authentication**.
Database Username	The name of the database user. The database user must have privileges to create and delete schema, as well as read from and write to the database. If you select **Windows Authentication** for **SQL Authentication Mode**, you must provide the Windows user account name. The user name must be of the form `DomainName\UserName`. Also, the user must have the `Log on as a service` permission.
Database Password	Password for the user name that you have provided. If you select **Windows Authentication** as the authentication type, you must provide the password for the Windows user account. Ensure that the Windows user account password does not contain any special characters. The installer might fail if the password contains special characters.

If the installer successfully connects to the database and the database user has CREATE, INSERT, and DROP privileges, the next screen is displayed.

6   Enter the load balancer-related information, and click **Next**.

Option	Description
IP Address	Static IP address or the FQDN of the machine on which you are installing load balancer. Do not use `localhost` instead of the IP address or FQDN.
Admin Email Address	Email address of the server administrator. Ensure that the email address contains only ASCII characters.
HTTPS Port	An unused port through which the Apache Server can communicate. The load balancer listens on this port for user requests.

If the specified port is free, the next screen is displayed.

7   Select **Install vCenter Chargeback Server**, enter the IP address and port details for the vCenter Chargeback Manager, and click **Next**.

Option	Description
IP Address	Static IP address or the FQDN of the machine on which you are installing vCenter Chargeback Manager. Do not use `localhost` instead of the IP address or the FQDN.
HTTP Port	An unused HTTP port through which vCenter Chargeback Manager can communicate.
Load-Balancer Port	An unused port through which vCenter Chargeback Manager can communicate with the load balancer (Apache Server).
Server Instance Name	A unique user-defined name for the vCenter Chargeback Manager instance. This name is used by the load balancer to identify the instance. Ensure that the instance name contains only ASCII characters.

If the specified ports are free, the next screen is displayed.

If you are installing only the load balancer, then ensure that the **Install vCenter Chargeback Server** option is not selected and click **Next**.

8   Enter a user name and password for the vCenter Chargeback Manager administrative account, and click **Next**.

The password must contains at least 8 characters and should not exceed 24 characters in length. The password cannot be same as the user name. Also, the password must include a combination of upper-case and lower-case characters.

NOTE   If you are using Oracle Database for your vCenter Chargeback Manager database, ensure that the user name for the administrative account contains only ASCII and non-ASCII characters. Extended ASCII characters in the user name is not supported. This restriction is not applicable if you are using Microsoft SQL Server for you vCenter Chargeback Manager database.

If you are installing only the load balancer, then this screen is not displayed.

9   Select the data collectors that you want to install and click **Next**.

The **Install vCenter Chargeback Data Collector** option is selected by default. You must have at least one instance of this data collector running and registered with the application for the database synchronization jobs to run.

You can optionally choose to install the VMware Cloud Director Data Collector and vShield Manager Data Collector. All the data collectors can be installed even after a vCenter Chargeback Manager instance is installed. If you are installing the vShield Manager Data Collector, choose to install the VMware Cloud Director Data Collector too or ensure that at least one instance of VMware Cloud Director Data Collector is running.

If you installing only the load balancer, then you cannot select any data collectors for installation.

10   If you chose to install the VMware Cloud Director Data Collector, enter the VMware Cloud Director database-related information, and click **Next**.

Option	Description
Database Type	The type of database used to create the VMware Cloud Director database. The permissible values are **ORACLE** and **SQL Server**.
Database URL	The IP address of the system on which the VMware Cloud Director database is installed. The database URL can be in any of the following formats: *IP Address* *Host Name* You can also specify a well formed JDBC URL that starts with 'jdbc' and contains the database name.
Database Port	(Optional) The port on which the database service is listening for requests. If the port number is not specified, the installer uses the default port. You must specify the TNS listener port if you are not using the default port 1521.
Database Name	Name of the database in which VMware Cloud Director stores the application-specific data. This must be the service name and not the SID.
Database Username	The name of the database user. The database user must have privileges to read the VMware Cloud Director database objects.
Database Password	Password for the user name that you have provided.

If the installer successfully connects to the database, the next screen is displayed.

11   If you chose to install the VMware Cloud Director Data Collector or the vShield Manager Data Collector, enter the password for the vCenter Chargeback Manager administrative account and click **Next**.

You must provide the correct password to ensure that the data collectors can call the vCenter Chargeback Manager APIs.

12 Review the information displayed on the Pre-Installation Summary screen, and click **Install**.

The installer starts installing the various components and creating the database schema. If the installation is successful, the URL for accessing the vCenter Chargeback Manager is displayed.

13 Note this URL, and click **Done**.

The installer displays a dialog stating whether you want to generate your own SSL certificate.

14 Click **Generate my own SSL Certificate**.

A command window is displayed.

a Provide a pass phrase for the default key and press Enter.

You are prompted to enter the pass phrase three more times. Provide the same pass phrase and press Enter each time.

b Provide the required certificate information and press Enter.

You are prompted to enter the following information:

- Country Code: A two letter code for the country.

- State or Province Name: Name of the state or province.

- Locality Name: Name of the city or town.

- Organization Name: Name of the organization.

- Organization Unit Name: Name of the department or organization unit.

- Common Name: Your name.

- Email Address: An email address.

c Provide the requested extra attributes for the certificate and press Enter.

You are prompted to enter the following information:

- A challenge password: A user-defined password.

- An optional company name: Company name. This is optional and can be left blank.

d Provide the pass phrase and press Enter.

You are prompted to enter the pass phrase again. Provide the same pass phrase and press Enter.

e Press any key to complete the process and close the window.

An SSL certificate is successfully installed.

What to do next

If you have installed only the load balancer, then you can install the vCenter Chargeback Manager server on a different machine. Ensure that you provide the same database details and the IP address on the load balancer when installing the vCenter Chargeback Manager server.

If you chose not to generate an SSL certificate after the installation is completed by clicking **Skip now, I'll generate it later**, then you must generate an SSL certificate by following the instructions in "Generate an SSL Certificate for vCenter Chargeback Manager," on page 23. The Apache Tomcat server installed with vCenter Chargeback Manager uses SSL v3 and strong authentication.

Generate an SSL Certificate for vCenter Chargeback Manager

After you have installed vCenter Chargeback Manager, you can generate an SSL certificate for the vCenter Chargeback Manager instance.

You can generate an SSL certificate for vCenter Chargeback Manager either when installing the application or after you install the application.

Procedure

1 Select **Generate SSL Certificate** from the **Start > Programs > VMware > VMware vCenter Chargeback > vCenter Chargeback Manager Tools** menu.

The Generate SSL Certificate window is displayed.

2 Provide a pass phrase for the default key and press Enter.

You are prompted to enter the pass phrase three more times. Provide the same pass phrase and press Enter each time.

3 Provide the required certificate information and press Enter.

You are prompted to enter the some information to be included in the generated SSL certificate.

Option	Description
Country Code	A two letter code for the country.
State or Province Name	Name of the state or province.
Locality Name	Name of the city or town.
Organization Name	Name of the organization.
Organization Unit Name	Name of the department or organization unit.
Common Name	Your name.
Email Address	An email address.

4 Provide the requested extra attributes for the certificate and press Enter.

Option	Description
A challenge password	A user-defined password
An optional company name	Company name. This is optional and can be left blank

5 Provide the pass phrase and press Enter.

You are prompted to enter the pass phrase again. Provide the same pass phrase and press Enter.

The SSL certificate is generated with the information provided.

6 Press any key to complete the process and close the window.

The generated SSL certificate can be seen when you access the application.

Create a vCenter Chargeback Manager Cluster

Apart from installing standalone vCenter Chargeback Manager instances, you can also create a cluster of vCenter Chargeback Manager instances. A cluster has more than one vCenter Chargeback Manager instance accessing the same vCenter Chargeback Manager database and having a common load balancer.

Cluster Installation

When you install vCenter Chargeback Manager for the first time on a machine, a load balancer is installed. The load balancer enables you to run more than one instance of the vCenter Chargeback Manager, with each instance accessing the same vCenter Chargeback Manager database.

These vCenter Chargeback Manager instances form a cluster. All user requests are routed through the load balancer. Also, all the instances in the cluster share the same administrative account information.

NOTE Ensure that each instance of vCenter Chargeback Manager in the cluster is of the same version.

The load balancer ensures that the vCenter Chargeback Manager instances are serving equal number of concurrent sessions. New sessions are distributed to the instances in a round-robin fashion. Also, if one of the instances fails, any request currently being serviced by that instance is automatically redirected to another instance in the cluster. For the failover to happen successfully, you must ensure the following:

- All the vCenter Chargeback Manager instances in the cluster, the vCenter Chargeback Manager database, and the data collectors have the same system time. That is, the system times are in sync.

- All the vCenter Chargeback Manager instances in the cluster are in the same network domain.

- Multicasting must be enabled on the machine on which the vCenter Chargeback Manager instance is installed.

Installing a vCenter Chargeback Manager Cluster Instance

You can create a cluster of vCenter Chargeback Manager instances that use the same database and load balancer.

You have installed a vCenter Chargeback Manager instance and the corresponding load balancer and vCenter Chargeback Manager database. To install another instance of vCenter Chargeback Manager and create a cluster, perform the following tasks.

NOTE   If the installation fails due to some reason, the uninstaller is automatically invoked and all the components installed till the failure occurred is removed.

Procedure

1   Run the vCenter–CB.exe file.

The installation wizard is displayed.

2   Click **Next** on the Introduction screen.

3   Accept the end-user license agreement, and click **Next**.

4   Provide the path for the installation directory, and click **Next**.

If the specified installation directory exists, ensure that it is empty. If the specified installation directory does not exist, the installer creates the directory. The install path must contain at least one folder. You cannot provide only the drive name. Also, the directory path must contain only ASCII characters.

5   Enter the vCenter Chargeback Manager database-related information, and click **Next**.

Option	Description
Database Type	The type of database used to create the vCenter Chargeback Manager database. This can be either **SQL SERVER** or **ORACLE**.
Database URL	The IP address or host name of the system on which the vCenter Chargeback Manager database is installed. For an SQL Server database, you can also provide the vCenter Chargeback Manager database instance name. The database instance name must contain only ASCII characters.
	For Oracle Database, the database URL can be in any of the following formats:
	IP Address
	Host Name
	For SQL Server, the database URL can be in any of the following formats:
	IP Address
	Host Name
	IP Address\Database Instance Name
	Host Name\Database Instance Name
	You can also specify a well formed JDBC URL that starts with 'jdbc' and contains the database name.

Option	Description
Database Port	(Optional) The port on which the database service is listening for requests. If the port number is not specified, the installer uses the default port. For an Oracle database, you must specify the TNS listener port if you are not using the default port 1521. For an SQL Server database, specify the database instance port if you are using a static port.
Database Name	Name of the database in which vCenter Chargeback Manager stores the application-specific data. For Oracle Database, ensure that you provide the service name and not the SID.
SQL Authentication Mode	This option is applicable only for SQL Server databases. For an SQL Server database, the authentication type can be either **SQL Server Authentication** or **Windows Authentication**.
Database Username	The name of the database user. The database user must have privileges to create and delete schema, as well as read from and write to the database. If you select **Windows Authentication** for **SQL Authentication Mode**, you must provide the Windows user account name. The user name must be of the form DomainName\UserName. Also, the user must have the Log on as a service permission.
Database Password	Password for the user name that you have provided. If you select **Windows Authentication** as the authentication type, you must provide the password for the Windows user account. Ensure that the Windows user account password does not contain any special characters. The installer might fail if the password contains special characters.

If the installer connects to the database and detects a vCenter Chargeback Manager schema, a dialog is displayed.

6 Click **Use it**.

The vCenter Chargeback Manager instance will use this existing vCenter Chargeback Manager database.

7 Ensure that the **Install Load Balancer Server** option is not selected, and click **Next**.

8 Select **Install vCenter Chargeback Server**, enter the IP address and port details for the vCenter Chargeback Manager, and click **Next**.

Option	Description
IP Address	Static IP address or the FQDN of the machine on which you are installing vCenter Chargeback Manager. Do not use localhost instead of the IP address or the FQDN.
HTTP Port	An unused HTTP port through which vCenter Chargeback Manager can communicate.
Load-Balancer Port	An unused port through which vCenter Chargeback Manager can communicate with the load balancer (Apache Server).
Server Instance Name	A unique user-defined name for the vCenter Chargeback Manager instance. This name is used by the load balancer to identify the instance. Ensure that the instance name contains only ASCII characters.

If the specified ports are free, the next screen is displayed.

If you are installing only the load balancer, then ensure that the **Install vCenter Chargeback Server** option is not selected and click **Next**.

9 Select the data collectors that you want to install and click **Next**.

The **Install vCenter Chargeback Data Collector** option is selected by default. You must have at least one instance of this data collector running and registered with the application for the database synchronization jobs to run.

You can optionally choose to install the VMware Cloud Director Data Collector and vShield Manager Data Collector. All the data collectors can be installed even after a vCenter Chargeback Manager instance is installed. If you are installing the vShield Manager Data Collector, choose to install the VMware Cloud Director Data Collector too or ensure that at least one instance of VMware Cloud Director Data Collector is running.

If you installing only the load balancer, then you cannot select any data collectors for installation.

10 If you chose to install the VMware Cloud Director Data Collector, enter the VMware Cloud Director database-related information, and click **Next**.

Option	Description
Database Type	The type of database used to create the VMware Cloud Director database. The permissible values are **ORACLE** and **SQL Server**.
Database URL	The IP address of the system on which the VMware Cloud Director database is installed.
	The database URL can be in any of the following formats:
	IP Address
	Host Name
	You can also specify a well formed JDBC URL that starts with 'jdbc' and contains the database name.
Database Port	(Optional) The port on which the database service is listening for requests. If the port number is not specified, the installer uses the default port. You must specify the TNS listener port if you are not using the default port 1521.
Database Name	Name of the database in which VMware Cloud Director stores the application-specific data. This must be the service name and not the SID.
Database Username	The name of the database user. The database user must have privileges to read the VMware Cloud Director database objects.
Database Password	Password for the user name that you have provided.

If the installer successfully connects to the database, the next screen is displayed.

11 If you chose to install the VMware Cloud Director Data Collector or the vShield Manager Data Collector, enter the password for the vCenter Chargeback Manager administrative account and click **Next**.

You must provide the correct password for the data collectors to call the vCenter Chargeback Manager APIs.

12 Review the information displayed on the Pre-Installation Summary screen, and click **Install**.

The installer starts installing the various components. If the installation is successful, the URL for accessing the vCenter Chargeback Manager application and the information required to add this installed instance to the cluster is displayed.

13 Note this information, and click **Done**.

The administrative account for accessing this instance will be same as the one used by the existing vCenter Chargeback Manager instance.

Adding a vCenter Chargeback Manager Instance to a Cluster

Installing a vCenter Chargeback Manager cluster instance does not automatically add it to the cluster. You must manually add a vCenter Chargeback Manager instance to a cluster.

You can add a vCenter Chargeback Manager instance to a cluster by running the ModifyLBWorkers.bat file on the machine on which the load balancer is installed.

Procedure

1 On the machine on which the load balancer is installed, open a command-line window.

2   Navigate to the \vCenter–CB–Tools\load–balancer\bin directory.

     cd *Installation_Folder*\vCenter–CB–Tools\load–balancer\bin\

     where, *Installation_Folder* is the complete folder path provided during the vCenter Chargeback Manager installation. The default installation folder is C:\Program Files\VMware\VMware vCenter Chargeback.

3   Run the ModifyLBWorkers.bat file to register the vCenter Chargeback Manager instance with the load balancer.

     ModifyLBWorkers add *Host_IP_Address Load–Balancer_Port Server_Instance_Name*

     Here, *Host_IP_Address* is the IP address of the machine on which the new vCenter Chargeback Manager instance is installed, *Load-Balancer_Port* is the port through which the vCenter Chargeback Manager instance communicates with the load balancer, and *Server_Instance_Name* is the name of the new vCenter Chargeback Manager instance that you want to add to the cluster. *Load-Balancer_Port* is same as the port configured during the new vCenter Chargeback Manager installation. *Server_Instance_Name* is the name that you have provided during the installation.

4   Restart the Load Balancer service from the **Start > Programs > VMware > VMware vCenter Chargeback > vCenter Chargeback Manager Services** menu.

Install vCenter Chargeback Manager with an Existing Database Schema

You can create a stand-alone vCenter Chargeback Manager instance that uses an existing vCenter Chargeback Manager schema.

When you install vCenter Chargeback Manager, you provide database details to install the vCenter Chargeback Manager schema. If the database already contains the vCenter Chargeback Manager database schema, the installer lets you use it as is or create a new schema.

This install procedure is particularly useful when you want to move a vCenter Chargeback Manager instance, the load balancer, and the vCenter Chargeback Manager database to a different machine from the one that they currently exist on.

You can uninstall a vCenter Chargeback Manager instance but retain the database. You can then move the database to a new location and re-install vCenter Chargeback Manager and the load balancer on different machines. When re-installing vCenter Chargeback Manager, you must provide the database details of the relocated vCenter Chargeback Manager database.

NOTE   If the installation fails due to some reason, the uninstaller is automatically invoked and all the components installed till the failure occurred is removed.

The administrative account for accessing this re-installed vCenter Chargeback Manager instance will be same as the one used during the installation of the earlier vCenter Chargeback Manager instance.

Procedure

1   Run the vCenter–CB.exe file.

     The installation wizard is displayed.

2   Click **Next** on the Introduction screen.

3   Accept the end-user license agreement, and click **Next**.

4   Provide the path for the installation directory, and click **Next**.

     If the specified installation directory exists, ensure that it is empty. If the specified installation directory does not exist, the installer creates the directory. The install path must contain at least one folder. You cannot provide only the drive name. Also, the directory path must contain only ASCII characters.

5   Enter the vCenter Chargeback Manager database-related information, and click **Next**.

Option	Description
Database Type	The type of database used to create the vCenter Chargeback Manager database. This can be either **SQL SERVER** or **ORACLE**.

Database URL	The IP address or host name of the system on which the vCenter Chargeback Manager database is installed. For an SQL Server database, you can also provide the vCenter Chargeback Manager database instance name. The database instance name must contain only ASCII characters.
	
	For Oracle Database, the database URL can be in any of the following formats:
	`IP Address`
	`Host Name`
	
	For SQL Server, the database URL can be in any of the following formats:
	`IP Address`
	`Host Name`
	`IP Address\Database Instance Name`
	`Host Name\Database Instance Name`
	
	You can also specify a well formed JDBC URL that starts with 'jdbc' and contains the database name.

Database Port	(Optional) The port on which the database service is listening for requests. If the port number is not specified, the installer uses the default port. For an Oracle database, you must specify the TNS listener port if you are not using the default port 1521. For an SQL Server database, specify the database instance port if you are using a static port.
Database Name	Name of the database in which vCenter Chargeback Manager stores the application-specific data. For Oracle Database, ensure that you provide the service name and not the SID.
SQL Authentication Mode	This option is applicable only for SQL Server databases. For an SQL Server database, the authentication type can be either **SQL Server Authentication** or **Windows Authentication**.
Database Username	The name of the database user. The database user must have privileges to create and delete schema, as well as read from and write to the database. If you select **Windows Authentication** for **SQL Authentication Mode**, you must provide the Windows user account name. The user name must be of the form `DomainName\UserName`. Also, the user must have the `Log on as a service` permission.
Database Password	Password for the user name that you have provided. If you select **Windows Authentication** as the authentication type, you must provide the password for the Windows user account. Ensure that the Windows user account password does not contain any special characters. The installer might fail if the password contains special characters.

If the installer connects to the database and detects a vCenter Chargeback Manager schema, a dialog is displayed.

6   Click **Use it**.

The vCenter Chargeback Manager instance will use this existing vCenter Chargeback Manager database.

Do not click **Create new schema**, because the installer will overwrite the existing schema with a new schema. All the data in the existing schema will be lost.

7   Enter the load balancer-related information, and click **Next**.

Option	Description
IP Address	Static IP address or the FQDN of the machine on which you are installing load balancer. Do not use `localhost` instead of the IP address or FQDN.
Admin Email Address	Email address of the server administrator. Ensure that the email address contains only ASCII characters.
HTTPS Port	An unused port through which the Apache Server can communicate. The load balancer listens on this port for user requests.

If the specified port is free, the next screen is displayed.

8   Select **Install vCenter Chargeback Server**, enter the IP address and port details for the vCenter Chargeback Manager, and click **Next**.

Option	Description
IP Address	Static IP address or the FQDN of the machine on which you are installing vCenter Chargeback Manager. Do not use `localhost` instead of the IP address or the FQDN.
HTTP Port	An unused HTTP port through which vCenter Chargeback Manager can communicate.
Load-Balancer Port	An unused port through which vCenter Chargeback Manager can communicate with the load balancer (Apache Server).
Server Instance Name	A unique user-defined name for the vCenter Chargeback Manager instance. This name is used by the load balancer to identify the instance. Ensure that the instance name contains only ASCII characters.

If the specified ports are free, the next screen is displayed.

If you are installing only the load balancer, then ensure that the **Install vCenter Chargeback Server** option is not selected and click **Next**.

9   Select the data collectors that you want to install and click **Next**.

The **Install vCenter Chargeback Data Collector** option is selected by default. You must have at least one instance of this data collector running and registered with the application for the database synchronization jobs to run.

You can optionally choose to install the VMware Cloud Director Data Collector and vShield Manager Data Collector. All the data collectors can be installed even after a vCenter Chargeback Manager instance is installed. If you are installing the vShield Manager Data Collector, choose to install the VMware Cloud Director Data Collector too or ensure that at least one instance of VMware Cloud Director Data Collector is running.

If you installing only the load balancer, then you cannot select any data collectors for installation.

10   If you chose to install the VMware Cloud Director Data Collector, enter the VMware Cloud Director database-related information, and click **Next**.

Option	Description
Database Type	The type of database used to create the VMware Cloud Director database. The permissible values are `ORACLE` and `SQL Server`.
Database URL	The IP address of the system on which the VMware Cloud Director database is installed. The database URL can be in any of the following formats: *IP Address* *Host Name* You can also specify a well formed JDBC URL that starts with 'jdbc' and contains the database name.

Option	Description
Database Port	(Optional) The port on which the database service is listening for requests. If the port number is not specified, the installer uses the default port. You must specify the TNS listener port if you are not using the default port 1521.
Database Name	Name of the database in which VMware Cloud Director stores the application-specific data. This must be the service name and not the SID.
Database Username	The name of the database user. The database user must have privileges to read the VMware Cloud Director database objects.
Database Password	Password for the user name that you have provided.

If the installer successfully connects to the database, the next screen is displayed.

11 If you chose to install the VMware Cloud Director Data Collector or the vShield Manager Data Collector, enter the password for the vCenter Chargeback Manager administrative account and click **Next**.

You must provide the correct password for the data collectors to call the vCenter Chargeback Manager APIs.

12 Review the information displayed on the Pre-Installation Summary screen, and click **Install**.

The installer starts installing the various components. If the installation is successful, the URL for accessing the vCenter Chargeback Manager is displayed.

13 Note this URL, and click **Done**.

The installer displays a dialog stating whether you want to generate your own SSL certificate.

14 Click **Generate my own SSL Certificate**.

A command window is displayed.

a Provide a pass phrase for the default key and press Enter.

You are prompted to enter the pass phrase three more times. Provide the same pass phrase and press Enter each time.

b Provide the required certificate information and press Enter.

You are prompted to enter the following information:

- Country Code: A two letter code for the country.

- State or Province Name: Name of the state or province.

- Locality Name: Name of the city or town.

- Organization Name: Name of the organization.

- Organization Unit Name: Name of the department or organization unit.

- Common Name: Your name.

- Email Address: An email address.

c Provide the requested extra attributes for the certificate and press Enter.

You are prompted to enter the following information:

- A challenge password: A user-defined password.

- An optional company name: Company name. This is optional and can be left blank.

    d   Provide the pass phrase and press Enter.

        You are prompted to enter the pass phrase again. Provide the same pass phrase and press Enter.

    e   Press any key to complete the process and close the window.

    An SSL certificate is successfully installed.

What to do next

If you chose not to generate an SSL certificate after the installation is completed by clicking **Skip now, I'll generate it later**, then you must generate an SSL certificate by following the instructions in "Generate an SSL Certificate for vCenter Chargeback Manager," on page 23. The Apache Tomcat server installed with vCenter Chargeback Manager uses SSL v3 and strong authentication.

Services Related to the vCenter Chargeback Manager

When vCenter Chargeback Manager is installed, by default, a load balancer is installed. You can install one or more data collector instances too. The services related to the vCenter Chargeback Manager and its corresponding components must be started for the application to function properly.

The services related to the application and the corresponding components are:

VMware vCenter Chargeback Service	Starting this service starts the application.
VMware vCenter Chargeback Load Balancer Service	Starting this service starts the load balancer. This service must be running so that the load balancer can receive user requests and route them to the application for them to be serviced.
VMware vCenter Chargeback DataCollector-Embedded	Starting this service starts the Data Collector instance that was installed along with the vCenter Chargeback Manager.
VMware vCenter Chargeback DataCollector	Starting this service starts the Data Collector instance that was installed individually (in this case, the name of the instance is DataCollector) and not with the application.
VMware vCenter Chargeback - VMware Cloud Director DataCollector-Embedded	Starting this service starts the VMware Cloud Director Data Collector instance that was installed along with the vCenter Chargeback Manager.
VMware vCenter Chargeback - VMware Cloud Director DataCollector	Starting this service starts the VMware Cloud Director Data Collector instance that was installed individually (in this case, the name of the instance is VMware Cloud Director DataCollector) and not with the application.

VMware vCenter Chargeback - vShield Manager DataCollector-Embedded	Starting this service starts the vShield Manager Data Collector instance that was installed along with the vCenter Chargeback Manager.
VMware vCenter Chargeback - vShield Manager DataCollector	Starting this service starts the vShield Manager Data Collector instance that was installed individually (in this case, the name of the instance is vShield Manager DataCollector) and not with the application.

NOTE Before starting any data collector service, ensure that the corresponding database services are started and are running correctly.

Managing Application-Related Services

All the services required for successfully running and accessing vCenter Chargeback Manager are configured to start automatically when the machine is powered on and the operating system is started. You can also manually control these services.

If the database service corresponding to the vCenter Chargeback Manager database stops, then the data collector services stop automatically after a period of time. If the data collector services stop, then you must manually start the data collector services after restarting the vCenter Chargeback Manager database service.

If you start the vCenter Chargeback Manager service, before starting the corresponding database service, then you must manually restart the vCenter Chargeback Manager service after restarting the database service.

If vCenter Chargeback Manager, the corresponding database, and the data collectors are installed on different machines, then you must individually start each of the services. You must start the services in the following order:

1   vCenter Chargeback Manager database service

2   vCenter Chargeback Manager service

3   Services for each data collector installed

Prerequisites

Before starting any of the application-related services, ensure that the database service corresponding to the vCenter Chargeback Manager database is started and is running without any issues.

Procedure

1   Select the relevant service menu from the **Start > Programs > VMware > VMware vCenter Chargeback > vCenter Chargeback Manager Services** menu.

The menu provides shortcuts for the following services:

- VMware vCenter Chargeback

- VMware vCenter Chargeback DataCollector

- VMware vCenter Chargeback Load Balancer

- VMware vCenter Chargeback - VMware Cloud Director DataCollector

- VMware vCenter Chargeback - vShield Manager DataCollector

2   Select the relevant shortcut to start or stop a service from the selected service menu.

Accessing the vCenter Chargeback Manager

If all the required services are running, you can access the vCenter Chargeback Manager through a supported Web browser.

Procedure

1   Click **Launch vCenter Chargeback Manager Homepage** from the **Start > Programs > VMware > VMware vCenter Chargeback** menu.

    If you want to access the application from a remote machine, the open a Web browser and provide the application URL that was displayed after installing the vCenter Chargeback Manager.

2   Enter the login credentials, and click **Login**.

Upgrading vCenter Chargeback Manager

<div style="text-align: right; font-size: 3em;">5</div>

You can upgrade an existing vCenter Chargeback Manager setup to the latest version of vCenter Chargeback Manager.

If you are using vCenter Chargeback 1.5 or later version, then you can directly upgrade your existing setup to vCenter Chargeback Manager 2.0. However, if you have a vCenter Chargeback 1.0.x setup, then you must first upgrade to vCenter Chargeback 1.5 before upgrading to vCenter Chargeback Manager 2.0.

This chapter includes the following topics:

- "Pre-Upgrade Tasks for vCenter Chargeback Manager," on page 35
- "Upgrade vCenter Chargeback Manager," on page 36
- "Upgrading vCenter Chargeback Manager and Configuring in DMZ," on page 38
- "Upgrading a vCenter Chargeback 1.0.x Setup," on page 38

Pre-Upgrade Tasks for vCenter Chargeback Manager

The pre-upgrade tasks ensure that you have a backup of the database and the necessary configuration files. Also, the completion of the pre-upgrade tasks ensures that vCenter Chargeback Manager can function smoothly after the upgrade is completed.

Prerequisites

In your current vCenter Chargeback Manager installation, check and ensure that the following criteria are met.

- No roles have names containing the prefix `CBM_150_DEFAULT_ROLE_NAME_`.
- None of the LDAP users are assigned the Super User role.
- None of the user names contain the prefix `CBM_150_USER_`.

Procedure

1   Check whether the data collector has synchronized all the vCenter Server hierarchies.

   You can check the status and last run time for the data collector synchronization jobs from the Data Collectors page on the **Settings** tab.

2   Stop all the vCenter Chargeback Manager related services.

3   Take a backup of the existing vCenter Chargeback Manager database.

   If the upgrade fails due to any unforeseen reason and you are not able to use the existing setup either, you can use the database backup to recover the data.

What to do next

After you have taken a backup of the database, you must purge the vCenter Chargeback Manager database. See KB 1026068 (http://kb.vmware.com/kb/1026068) for further instructions.

If you are using a vCenter Chargeback Manager release prior to 1.6, and are using Oracle Database as a vCenter Chargeback Manager database and Microsoft SQL Server database as the vCenter Server database, then follow the instructions provided in KB 1032952 (http://kb.vmware.com/kb/1032952.)

You can also back up the relevant configuration files from the current vCenter Chargeback Manager installation, so that you can restore the existing installation if the upgrade fails. See KB 1026796 (http://kb.vmware.com/kb/1026796) for further details.

Upgrade vCenter Chargeback Manager

You can upgrade an existing vCenter Chargeback Manager instance to a more recent version.

Prerequisites

Before you upgrade a standalone vCenter Chargeback Manager instance, stop the corresponding vCenter Chargeback Manager service and the data collector services. If any vCenter Chargeback Manager related service is running, the upgrade process fails.

For a cluster installation, you must upgrade each vCenter Chargeback Manager instance in the cluster. You must first upgrade the instance that has the load balancer. Before upgrading the first instance of a cluster, you must stop all the related services. When the first instance is upgraded, the corresponding vCenter Chargeback Manager database is also upgraded. After the upgrade, the vCenter Chargeback Manager service and the corresponding database, data collector, and load balancer services are automatically restarted.

NOTE   You must upgrade all the instances in a cluster to ensure that the application functions correctly. A cluster with multi-version vCenter Chargeback Manager instances might not function correctly.

Ensure that you are running the installer on the machine on which vCenter Chargeback Manager is installed. If you run the installer from a shared location on the network, the installer might fail.

If the existing instance vCenter Chargeback Manager has a VMware Cloud Director Data Collector installed, ensure that you provide the same VMware Cloud Director database details for the vCenter Chargeback Manager instance during upgrade.

Procedure

1   Run the `vCenter–CB.exe` file.

    The installation wizard is displayed.

2   Click **Next** on the Introduction screen.

3   Accept the end-user license agreement, and click **Next**.

    When the installer detects an older version of vCenter Chargeback Manager, an Alert dialog box is displayed.

4   Click **Upgrade to 2.0.0.0** in the Alert dialog box.

5   If the vCenter Chargeback Manager database is an SQL Server database, the installer displays the Database Configuration screen.

    You can change the **SQL Authentication Mode** option on this screen.

    a   (Optional) Select **Windows Authentication** as the authentication type.

    b   Provide the Windows user account name in the form `DomainName\UserName`.

        The user must have the **Log on as a service** permission.

The installer checks whether the vCenter Chargeback Manager and data collector services are stopped. If any of the services are running, the installer stops the services.

6　Select the data collectors that you want to install and click **Next**.

The **Install vCenter Chargeback Data Collector** option is selected by default. You must have at least one instance of this data collector running and registered with the application for the database synchronization jobs to run.

You can optionally choose to install the VMware Cloud Director Data Collector and vShield Manager Data Collector. All the data collectors can be installed even after a vCenter Chargeback Manager instance is installed. If you are installing the vShield Manager Data Collector, choose to install the VMware Cloud Director Data Collector too or ensure that at least one instance of VMware Cloud Director Data Collector is running.

If you installing only the load balancer, then you cannot select any data collectors for installation.

7　If you chose to install the VMware Cloud Director Data Collector, enter the VMware Cloud Director database-related information, and click **Next**.

Option	Description
Database Type	The type of database used to create the VMware Cloud Director database. The permissible values are **ORACLE** and **SQL Server**.
Database URL	The IP address of the system on which the VMware Cloud Director database is installed. The database URL can be in any of the following formats: *IP Address* *Host Name* You can also specify a well formed JDBC URL that starts with 'jdbc' and contains the database name.
Database Port	(Optional) The port on which the database service is listening for requests. If the port number is not specified, the installer uses the default port. You must specify the TNS listener port if you are not using the default port 1521.
Database Name	Name of the database in which VMware Cloud Director stores the application-specific data. This must be the service name and not the SID.
Database Username	The name of the database user. The database user must have privileges to read the VMware Cloud Director database objects.
Database Password	Password for the user name that you have provided.

If the installer successfully connects to the database, the next screen is displayed.

8　Provide the password for the administrative account of the existing installation and click **Next**.

9　Review the information displayed on the Pre-Installation Summary screen, and click **Install**.

The installer starts upgrading the various components. If the upgrade process is successful, the URL for accessing the vCenter Chargeback Manager is displayed.

10　Note the URL, and click **Done**.

The vCenter Chargeback Manager instance is upgraded.

What to do next

You can now connect to the upgraded vCenter Chargeback Manager setup. Ensure that you clear your Web browser cache before accessing the vCenter Chargeback Manager.

Upgrading vCenter Chargeback Manager and Configuring in DMZ

You can upgrade an existing vCenter Chargeback Manager setup to version 2.0 such that the load balancer runs in the DMZ and the vCenter Chargeback Manager instance is in a secured internal network.

If you have a vCenter Chargeback 1.5 or later setup and want the load balancer and the vCenter Chargeback Manager to run on different machines post-upgrade, then you must perform the following tasks.

Procedure

1   Perform the pre-upgrade tasks listed in "Pre-Upgrade Tasks for vCenter Chargeback Manager," on page 35.

2   Stop all the vCenter Chargeback Manager related services.

     You must stop the load balancer, database, and all the data collector services along with the vCenter Chargeback Manager service.

3   Uninstall the existing vCenter Chargeback Manager setup but retain the database.

     Ensure that you do not select the option to empty the database during uninstallation.

4   Run the vCenter Chargeback Manager installer on the machine on which you want to install the load balancer.

     During the install provide the details of the retained vCenter Chargeback Manager database. Do not select the **Install vCenter Chargeback Server** option during the installation.

5   Run the vCenter Chargeback Manager installer on the machine on which you want to install the vCenter Chargeback Manager instance.

     During the install provide the details of the retained vCenter Chargeback Manager database and the newly installed load balancer details. Ensure that you select the **Install vCenter Chargeback Server** option during the installation.

Upgrading a vCenter Chargeback 1.0.x Setup

You cannot directly upgrade a vCenter Chargeback 1.0.x setup to the latest vCenter Chargeback Manager release.

After performing the pre-upgrade tasks, you must perform the following tasks to upgrade a vCenter Chargeback 1.0.x setup to the latest vCenter Chargeback Manager release.

1   Upgrade your setup to vCenter Chargeback 1.5.

     When you upgrade to vCenter Chargeback 1.5, the database schema is updated.

2   Take a backup of the upgraded database.

3   Upgrade the vCenter Chargeback 1.5 setup to the latest version of vCenter Chargeback Manager.

Upgrade to vCenter Chargeback 1.5

You can upgrade a vCenter Chargeback 1.0.x setup to vCenter Chargeback 1.5.

Prerequisites

Before you upgrade a standalone vCenter Chargeback Manager instance, stop the corresponding vCenter Chargeback Manager service and the data collector services. If any vCenter Chargeback Manager related service is running, the upgrade process fails.

For a cluster installation, you must upgrade each vCenter Chargeback Manager instance in the cluster. You must first upgrade the instance that has the load balancer. Before upgrading the first instance of a cluster, you must stop all the related services. When the first instance is upgraded, the corresponding vCenter Chargeback Manager database is also upgraded. After the upgrade, the vCenter Chargeback Manager service and the corresponding database, data collector, and load balancer services are automatically restarted.

NOTE   You must upgrade all the instances in a cluster to ensure that the application functions correctly. A cluster with multi-version vCenter Chargeback Manager instances might not function correctly.

Ensure that you are running the installer on the machine on which vCenter Chargeback Manager is installed. If you run the installer from a shared location on the network, the installer might fail.

If the existing instance vCenter Chargeback Manager has a VMware Cloud Director Data Collector installed, ensure that you provide the same VMware Cloud Director database details for the vCenter Chargeback Manager instance during upgrade.

Procedure

1   Run the vCenter–CB.exe file.

    The installation wizard is displayed.

2   Click **Next** on the Introduction screen.

3   Accept the end-user license agreement, and click **Next**.

    When the installer detects an older version of vCenter Chargeback Manager, an Alert dialog box is displayed.

4   Click **Upgrade to 1.5.0.0** in the Alert dialog box.

5   If the vCenter Chargeback Manager database is an SQL Server database, the installer displays the Database Configuration screen.

    You can change the **SQL Authentication Mode** option on this screen.

    a   (Optional) Select **Windows Authentication** as the authentication type.

    b   Provide the Windows user account name in the form DomainName\UserName.

        The user must have the **Log on as a service** permission.

    The installer checks whether the vCenter Chargeback Manager and data collector services are stopped. If any of the services are running, the installer stops the services.

6   Select the data collectors that you want to install and click **Next**.

    The **Install vCenter Chargeback Data Collector** option is selected by default. You must have at least one instance of this data collector running and registered with the application for the database synchronization jobs to run.

    You can optionally choose to install the VMware Cloud Director Data Collector and vShield Manager Data Collector. All the data collectors can be installed even after a vCenter Chargeback Manager instance is installed. If you are installing the vShield Manager Data Collector, choose to install the VMware Cloud Director Data Collector too or ensure that at least one instance of VMware Cloud Director Data Collector is running.

    If you installing only the load balancer, then you cannot select any data collectors for installation.

7   If you chose to install the VMware Cloud Director Data Collector, enter the VMware Cloud Director database-related information, and click **Next**.

Option	Description
Database Type	The type of database used to create the VMware Cloud Director database. The permissible values are **ORACLE** and **SQL Server**.
Database URL	The IP address of the system on which the VMware Cloud Director database is installed. The database URL can be in any of the following formats: *IP Address* *Host Name* You can also specify a well formed JDBC URL that starts with 'jdbc' and contains the database name.
Database Port	(Optional) The port on which the database service is listening for requests. If the port number is not specified, the installer uses the default port. You must specify the TNS listener port if you are not using the default port 1521.
Database Name	Name of the database in which VMware Cloud Director stores the application-specific data. This must be the service name and not the SID.
Database Username	The name of the database user. The database user must have privileges to read the VMware Cloud Director database objects.
Database Password	Password for the user name that you have provided.

If the installer successfully connects to the database, the next screen is displayed.

8   Provide the password for the administrative account of the existing installation and click **Next**.

9   Review the information displayed on the Pre-Installation Summary screen, and click **Install**.

The installer starts upgrading the various components. If the upgrade process is successful, the URL for accessing the vCenter Chargeback Manager is displayed.

10   Note the URL, and click **Done**.

The vCenter Chargeback Manager instance is upgraded.

Post-Upgrade Changes in vCenter Chargeback 1.5

When you upgrade an existing vCenter Chargeback 1.0 or 1.0.1 installation to vCenter Chargeback 1.5, the installer makes changes to the user-defined resources created in the existing installation.

In vCenter Chargeback 1.5, user names are case-insensitive. Therefore, the installer renames users in the existing setup that have the same name but with different casing. The installer uses the prefix `CBM_150_USER_` for the duplicate names. You can rename users with such prefix appropriately.

Unlike earlier release, in vCenter Chargeback 1.5 a user cannot be assigned individual privileges on the entities. Therefore, privileges assigned to the user on entities are grouped together into roles after upgrade. These roles have names with the prefix `CBM_150_DEFAULT_ROLE_NAME_`. You can rename such roles.

If a vCenter Server is added to vCenter Chargeback with the **Register as Plugin** option selected, then the user whose authentication details are used when adding the vCenter Server is automatically added to vCenter Chargeback. Also, vCenter Server users who have generated reports on this vCenter Server are automatically added to vCenter Chargeback. You can delete the users that are not required and also assign appropriate roles on the ones that are required.

In earlier releases, any user can view any of the vCenter Servers or cost models. However, starting from vCenter Chargeback 1.5, users must be assigned role with privileges to access the cost models and vCenter Servers. Only the super user can view all the resources in the application. The vCenter Server users who are added to the application can view the vCenter Server to which they belong. These users can also view the default hierarchy of the corresponding vCenter Server.

In earlier releases of vCenter Chargeback, users with the view privilege on a hierarchy have privileges to view all the reports generated on the hierarchy. After the upgrade, a user can view only the reports that he has generated. If the user who has generated the report is deleted, then the report is assigned to the super user.

Scheduled report generation might fail after the upgrade is compete. The users who scheduled the reports must be assigned roles with access privileges on the cost models, chargeback hierarchies, and chargeback hierarchical entities used for scheduling the reports. vCenter Chargeback does not display any error message stating the scheduled report generation failed due to lack of privileges.

The Report Viewer role in the earlier versions of vCenter Chargeback is upgraded to the Report Generator role in vCenter Chargeback 1.5. After upgrade, users with the Report View role are assigned the Report Generator role, which has more privileges. Assess the privilege requirements for such users and reassign new roles appropriately.

Any local fixed cost added to a cost template in the existing setup is renamed after the upgrade. If you upgraded from vCenter Chargeback 1.0, then the fixed cost name is prefixed with **CT_*id_of_cost_template_fixed_cost***. If you upgraded from vCenter Chargeback 1.0.1, then the fixed cost name is prefixed with **G_*id_of_cost_template_fixed_cost***.

Installing and Upgrading Data Collectors

<div style="text-align: right">

6

</div>

vCenter Chargeback Manager interacts with the vCenter Server and vCenter Server database through a data collector. The data collector synchronizes the information in the vCenter Chargeback Manager database with that in the vCenter Server database.

Other than the data collector that interacts with the vCenter Server database, vCenter Chargeback Manager provides two more data collectors. These are the VMware Cloud Director Data Collector and the vShield Manager Data Collector. These data collectors enable you to integrate VMware Cloud Director with vCenter Chargeback Manager.

vCenter Chargeback Manager 2.0 supports VMware Cloud Director 1.5. It also supports the versions of vShield Manager supported by VMware Cloud Director 1.5.

The VMware Cloud Director Data Collector polls the VMware Cloud Director database for chargeback events. These events details are used to call specific vCenter Chargeback Manager APIs. A chargeback hierarchy for each organization in the VMware Cloud Director setup is created in vCenter Chargeback Manager and also the corresponding allocation details are set on the entities.

By integrating VMware Cloud Director with vCenter Chargeback Manager, you can perform the following tasks:

- Meter and charge for allocation and usage of VMware Cloud Director resources, including virtual datacenters, vApps, templates and media file storage.

- Meter and charge for external network bandwidth, network count, and network services, such as DHCP, NAT, and firewall.

- Deliver multi-tenant chargeback reports.

However, this release does not include support for the following features:

- Charging for storage utilized by partially created or imported virtual machines, vApps, and templates and media files.

- Charging for resources utilized by virtual machines that are created by vShield Edge.

NOTE   Only the vCenter Chargeback Manager related events are processed by the Cloud Director Data Collector. To update the vCloud Director Org hierarchies in vCenter Chargeback Manager, the corresponding vCenter Server must be added to vCenter Chargeback Manager and the vCenter Chargeback Manager data collector must be running to synchronize the vCenter Chargeback Manager database with the vCenter Server database. If the vCenter Chargeback Manager data collector is not installed or is not running, then the changes will not be processed and the changes in the vCenter Server and the vCloud Director Org hierarchy is not accounted for in vCenter Chargeback Manager.

The vShield Manager Data Collector fetches the network statistics from the vShield Manager for the networks included in the VMware Cloud Director setup.

The vShield Manager Data Collector fetches the external traffic information from vShield Manager for the following types of VMware Cloud Director networks:

- Private routed org networks
- Routed vApp networks
- Fenced vApp networks

In the case that a routed or fenced vApp network is connected to a private routed org network, then the external traffic information of the corresponding virtual machine is recorded at both, the vApp network level as well as the org network level.

This chapter includes the following topics:

- "Install vCenter Chargeback Manager Data Collector," on page 44
- "Install VMware Cloud Director Data Collector," on page 46
- "Install vShield Manager Data Collector," on page 48
- "Upgrade Data Collectors," on page 50

Install vCenter Chargeback Manager Data Collector

You can install and run more than one data collector. You can install an individual data collector instance using the data collector installer.

If you are integrating vCenter Chargeback Manager with VMware Cloud Director by installing the VMware Cloud Director Data Collector and vShield Manager Data Collector, then you must install and run more than one instance of the vCenter Chargeback Manager data collector. This ensures that the inventory and statistics information for the vCenter Server instances added to VMware Cloud Director and vCenter Chargeback Manager is synchronised and available in the vCenter Chargeback Manager database even if a data collector instance fails.

Prerequisites

Before you start the installation, ensure that the system time of the machine on which the data collector is being installed is the same as the vCenter Chargeback Manager and vCenter Chargeback Manager database system time. That is, the system time of all these machines are in sync.

Procedure

1   Run the `vCenter-CB-DC.exe` file.

2   Click **Next** on the Introduction screen.

3   Accept the end-user license agreement, and click **Next**.

4   (Optional) If a data collector instance exists on the machine, you can either create a new instance or upgrade the existing instance.

   a   Select the required option.

   b   (Optional) Provide a unique name for the instance.

      The default name is DataCollector. Ensure that the data collector instance name contains only ASCII characters. The installer does not prompt for a name if you are upgrading an existing data collector instance.

   c   Click **Next**.

5   Provide the path for the installation directory, and click **Next**.

    If the specified installation directory exists, ensure that it is empty. If the specified installation directory does not exist, the installer creates the directory. The install path must contain at least one folder. You cannot provide only the drive name. Also, the directory path must contain only ASCII characters.

6   Provide the details of the vCenter Chargeback Manager database that the data collector must synchronize with the vCenter Server databases, and click **Next**.

Option	Description
Database Type	The type of database used to create the vCenter Chargeback Manager database. This can be either **SQL SERVER** or **ORACLE**.
Database URL	The IP address or host name of the system on which the vCenter Chargeback Manager database is installed. For an SQL Server database, you can also provide the vCenter Chargeback Manager database instance name. The database instance name must contain only ASCII characters.
	For Oracle Database, the database URL can be in any of the following formats:
	`IP Address`
	`Host Name`
	For SQL Server, the database URL can be in any of the following formats:
	`IP Address`
	`Host Name`
	`IP Address\Database Instance Name`
	`Host Name\Database Instance Name`
	You can also specify a well formed JDBC URL that starts with 'jdbc' and contains the database name.
Database Port	(Optional) The port on which the database service is listening for requests. If the port number is not specified, the installer uses the default port. For an Oracle database, you must specify the TNS listener port if you are not using the default port 1521. For an SQL Server database, specify the database instance port if you are using a static port.
Database Name	Name of the database in which vCenter Chargeback Manager stores the application-specific data. For Oracle Database, ensure that you provide the service name and not the SID.
SQL Authentication Mode	This option is applicable only for SQL Server databases. For an SQL Server database, the authentication type can be either **SQL Server Authentication** or **Windows Authentication**.
Database Username	The name of the database user. The database user must have privileges to create and delete schema, as well as read from and write to the database. If you select **Windows Authentication** for **SQL Authentication Mode**, you must provide the Windows user account name. The user name must be of the form `DomainName\UserName`. Also, the user must have the `Log on as a service` permission.
Database Password	Password for the user name that you have provided. If you select **Windows Authentication** as the authentication type, you must provide the password for the Windows user account. Ensure that the Windows user account password does not contain any special characters. The installer might fail if the password contains special characters.

    The installer connects to the database and checks whether a vCenter Chargeback Manager schema is present.

7   Review the information displayed on the Pre-Installation Summary screen, and click **Install**.

    The installer starts installing the data collector. If the installation is successful, the URL for accessing vCenter Chargeback Manager is displayed.

8   Note this URL, and click **Done**.

    NOTE   If the installation fails, the uninstaller starts automatically and removes all the components installed.

What to do next

After you install a separate data collector, the Data Collector service starts and runs automatically. You can manually start and stop the service from the **Start > Programs > VMware > VMware vCenter Chargeback** menu.

Install VMware Cloud Director Data Collector

If you want to integrate a vCenter Chargeback Manager instance with a VMware Cloud Director instance, you must have a VMware Cloud Director Data Collector instance installed and running.

You can install a VMware Cloud Director Data Collector instance along with vCenter Chargeback Manager or separately by using the VMware Cloud Director Data Collector installer. Although you can install more than one VMware Cloud Director Data Collector instance, only one instance will be interacting with the VMware Cloud Director database at any given point of time. Another data collector instance will be used only in the case of a failover.

Prerequisites

Before you start the installation, ensure that the system time of the machine on which the data collector is being installed is the same as that on the VMware Cloud Director database, vCenter Chargeback Manager, and vCenter Chargeback Manager database. That is, the system time of all these machines are in sync.

Procedure

1 Run the vCenter–VCLOUD–DC.exe file.

2 Click **Next** on the Introduction screen.

3 Accept the end-user license agreement, and click **Next**.

4 Provide the path for the installation directory, and click **Next**.

If the specified installation directory exists, ensure that it is empty. If the specified installation directory does not exist, the installer creates the directory. The install path must contain at least one folder. You cannot provide only the drive name. Also, the directory path must contain only ASCII characters.

5 Provide the details of the vCenter Chargeback Manager database that the data collector must synchronize with the VMware Cloud Director database, and click **Next**.

Option	Description
Database Type	The type of database used to create the vCenter Chargeback Manager database. This can be either **SQL SERVER** or **ORACLE**.
Database URL	The IP address or host name of the system on which the vCenter Chargeback Manager database is installed. For an SQL Server database, you can also provide the vCenter Chargeback Manager database instance name. The database instance name must contain only ASCII characters.
	For Oracle Database, the database URL can be in any of the following formats:
	IP Address
	Host Name
	For SQL Server, the database URL can be in any of the following formats:
	IP Address
	Host Name
	IP Address\Database Instance Name
	Host Name\Database Instance Name
	You can also specify a well formed JDBC URL that starts with 'jdbc' and contains the database name.

Option	Description
Database Port	(Optional) The port on which the database service is listening for requests. If the port number is not specified, the installer uses the default port. For an Oracle database, you must specify the TNS listener port if you are not using the default port 1521. For an SQL Server database, specify the database instance port if you are using a static port.
Database Name	Name of the database in which vCenter Chargeback Manager stores the application-specific data. For Oracle Database, ensure that you provide the service name and not the SID.
SQL Authentication Mode	This option is applicable only for SQL Server databases. For an SQL Server database, the authentication type can be either **SQL Server Authentication** or **Windows Authentication**.
Database Username	The name of the database user. The database user must have privileges to create and delete schema, as well as read from and write to the database. If you select **Windows Authentication** for **SQL Authentication Mode**, you must provide the Windows user account name. The user name must be of the form DomainName\UserName. Also, the user must have the Log on as a service permission.
Database Password	Password for the user name that you have provided. If you select **Windows Authentication** as the authentication type, you must provide the password for the Windows user account. Ensure that the Windows user account password does not contain any special characters. The installer might fail if the password contains special characters.

If the installer connects to the database and detects a vCenter Chargeback Manager schema, a dialog window is displayed.

6   Enter the VMware Cloud Director database-related information, and click **Next**.

NOTE   If you have an existing VMware Cloud Director data collector instance, ensure that you provide the same database details as provided when installing the existing VMware Cloud Director data collector instance.

Option	Description
Database Type	The type of database used to create the VMware Cloud Director database. The permissible values are **ORACLE** and **SQL Server**.
Database URL	The IP address of the system on which the VMware Cloud Director database is installed. The database URL can be in any of the following formats: *IP Address* *Host Name* You can also specify a well formed JDBC URL that starts with 'jdbc' and contains the database name.
Database Port	(Optional) The port on which the database service is listening for requests. If the port number is not specified, the installer uses the default port. You must specify the TNS listener port if you are not using the default port 1521.
Database Name	Name of the database in which VMware Cloud Director stores the application-specific data. This must be the service name and not the SID.
Database Username	The name of the database user. The database user must have privileges to read the VMware Cloud Director database objects.
Database Password	Password for the user name that you have provided.

If the installer successfully connects to the database, the next screen is displayed.

7   Enter the password for the vCenter Chargeback Manager administrative account and click **Next**.

You must provide the correct password for the data collector to call the vCenter Chargeback Manager APIs.

8   Review the information displayed on the Pre-Installation Summary screen, and click **Install**.

The installer starts installing the data collector. If the installation is successful, the URL for accessing vCenter Chargeback Manager is displayed.

9   Note this URL, and click **Done**.

NOTE If the installation fails, the uninstaller starts automatically and removes all the components installed.

What to do next

After you install a VMware Cloud Director Data Collector instance, the VMware Cloud Director Data Collector service starts and runs automatically. You can manually start and stop the service from the **Start > Programs > VMware > VMware vCenter Chargeback** menu.

Install vShield Manager Data Collector

If you integrate a vCenter Chargeback Manager instance with a VMware Cloud Director instance, you must have a vShield Manager Data Collector instance installed and running to fetch the network statistics from vShield Manager.

You can install a vShield Manager Data Collector instance along with vCenter Chargeback Manager or separately using the vShield Manager Data Collector installer.

Prerequisites

Before you start the installation, ensure that the system time of the machine on which the data collector is being installed is the same as the vCenter Chargeback Manager and vCenter Chargeback Manager database system time. That is, the system time of all these machines are in sync.

The vShield Manager Data Collector can run jobs successfully only if an instance of the VMware Cloud Director Data Collector is installed and running. You must, therefore, ensure that at least one instance of the VMware Cloud Director Data Collector is running.

Procedure

1   Run the `vCenter–VSM–DC.exe` file.

2   Click **Next** on the Introduction screen.

3   Accept the end-user license agreement, and click **Next**.

4   Provide the path for the installation directory, and click **Next**.

If the specified installation directory exists, ensure that it is empty. If the specified installation directory does not exist, the installer creates the directory. The install path must contain at least one folder. You cannot provide only the drive name. Also, the directory path must contain only ASCII characters.

5 Provide the details of the vCenter Chargeback Manager database that the data collector must synchronize with the VMware Cloud Director database, and click **Next**.

Option	Description
Database Type	The type of database used to create the vCenter Chargeback Manager database. This can be either **SQL SERVER** or **ORACLE**.

Database URL	The IP address or host name of the system on which the vCenter Chargeback Manager database is installed. For an SQL Server database, you can also provide the vCenter Chargeback Manager database instance name. The database instance name must contain only ASCII characters.
	
	For Oracle Database, the database URL can be in any of the following formats:
	`IP Address`
	`Host Name`
	
	For SQL Server, the database URL can be in any of the following formats:
	`IP Address`
	`Host Name`
	`IP Address\Database Instance Name`
	`Host Name\Database Instance Name`
	
	You can also specify a well formed JDBC URL that starts with 'jdbc' and contains the database name.

Database Port	(Optional) The port on which the database service is listening for requests. If the port number is not specified, the installer uses the default port. For an Oracle database, you must specify the TNS listener port if you are not using the default port 1521. For an SQL Server database, specify the database instance port if you are using a static port.
Database Name	Name of the database in which vCenter Chargeback Manager stores the application-specific data. For Oracle Database, ensure that you provide the service name and not the SID.
SQL Authentication Mode	This option is applicable only for SQL Server databases. For an SQL Server database, the authentication type can be either **SQL Server Authentication** or **Windows Authentication**.
Database Username	The name of the database user. The database user must have privileges to create and delete schema, as well as read from and write to the database. If you select **Windows Authentication** for **SQL Authentication Mode**, you must provide the Windows user account name. The user name must be of the form `DomainName\UserName`. Also, the user must have the `Log on as a service` permission.
Database Password	Password for the user name that you have provided. If you select **Windows Authentication** as the authentication type, you must provide the password for the Windows user account. Ensure that the Windows user account password does not contain any special characters. The installer might fail if the password contains special characters.

If the installer connects to the database and detects a vCenter Chargeback Manager schema, a dialog window is displayed.

6 Enter the password for the vCenter Chargeback Manager administrative account and click **Next**.

You must provide the correct password for the data collector to call the vCenter Chargeback Manager APIs.

7 Review the information displayed on the Pre-Installation Summary screen, and click **Install**.

The installer starts installing the data collector. If the installation is successful, the URL for accessing vCenter Chargeback Manager is displayed.

8 Note this URL, and click **Done**.

NOTE If the installation fails, the uninstaller starts automatically and removes all the components installed.

What to do next

After you install a VSM Data Collector instance, the VSM Data Collector service starts and runs automatically. You can manually start and stop the service from the **Start > Programs > VMware > VMware vCenter Chargeback** menu.

Upgrade Data Collectors

Upgrading a vCenter Chargeback Manager instance does not automatically upgrade the standalone data collector instances associated with it. You must manually upgrade each such data collector instance.

Prerequisites

Before you upgrade a data collector instance, ensure that you upgrade the corresponding vCenter Chargeback Manager instance.

Procedure

1   Run the vCenter–CB–DC.exe file.

2   Click **Next** on the Introduction screen.

3   Accept the end-user license agreement, and click **Next**.

4   Select **Upgrade Previously Installed Data Collector** and click **Next**.

5   Click **Upgrade** in the Alert dialog box.

6   Click **OK**.

7   Review the information displayed on the Pre-Installation Summary screen, and click **Install**.

The installer starts installing the data collector. If the installation is successful, the URL for accessing vCenter Chargeback Manager is displayed.

8   Note the URL, and click **Done**.

NOTE   If the installation fails, the uninstaller starts automatically and removes all the components installed.

What to do next

If you have installed the VMware Cloud Director Data Collector and vShield Manager Data Collector on a machine different from the one on which the vCenter Chargeback Manager is installed, then these data collectors are not upgraded when you upgrade vCenter Chargeback Manager. To upgrade these data collectors, download the installer for these data collectors from the upgraded vCenter Chargeback Manager and run them on the machine on which these data collectors are running. Ensure that you stop the data collector service before running the installer.

Uninstall vCenter Chargeback Manager

7

If you do not require a vCenter Chargeback Manager instance, you can uninstall the instance.

When you uninstall a vCenter Chargeback Manager instance, the corresponding load balancer, if installed with the instance, and all the embedded data collector instances are also uninstalled. You can optionally delete the corresponding database schema and the vCenter Server plug-ins.

Prerequisites

If you want to uninstall the vCenter Chargeback Manager instance that was initially installed and is part of a cluster, you must first uninstall all the other vCenter Chargeback Manager instances in the cluster before this instance is uninstalled. That is, the vCenter Chargeback Manager instance that includes the load balancer must not be uninstalled before other instances from the cluster are uninstalled.

Procedure

1   Start the uninstaller from the **Start > Programs > VMware > VMware vCenter Chargeback > Uninstall VMware vCenter Chargeback** menu.

   Do not remove the application using Add/Remove Programs. The application is not removed cleanly and you might have to manually delete some files that were not deleted during the uninstall process.

2   Select the required options and click **Uninstall**.

   You can choose to reatin the vCenter Chargeback Manager database or empty the database. Also, if you have registered the application as a vSphere Client plug-in with any of the vCenter Servers added to the application, you can choose to uninstall the plug-ins.

3   Click **Continue** to confirm the uninstallation.

4   Click **Done**.

What to do next

If you uninstall an instance that is part of a cluster, ensure that you manually remove the entries corresponding to the instance from the worker.properties file located at *Installation_Directory*\Apache2.2\conf\. For example, if the instance name is chargeTest, you must remove the following section from the worker.properties file:

```
# Set properties for chargeTest (ajp99)
   worker.chargeTest.type=ajp99
   worker.chargeTest.host=90.0.1.1
   worker.chargeTest.port=8009
   worker.chargeTest.lbfactor=1
```

The entry (ajp99), in this case, is the AJP port of the load balancer.

You must also remove the instance name from the list of instances included in the `worker.balancer.balance_workers` parameter under the `Define the LB worker` section. For the example suggested in the previous step, the entry might be as follows:

```
# Define the LB worker
   worker.balancer.type=lb
   worker.balancer.sticky_session = 1
   worker.balancer.method=R
   worker.balancer.balance_workers=worker1,worker2,chargeTest,sample0
```

Delete the `chargeTest` entry from the list of instances.

Index