VMware vCenter Configuration Manager Installation Guide

vCenter Configuration Manager 5.7

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Contents

About This Book

The *VCM Installation Guide* describes how to install vCenter Configuration Manager (VCM) using the Typical Installation option. This document contains the following information:

- Preliminary steps that prepare you and your domain for installation
- Prerequisites for any server on which you run the Typical Installation option
- Typical Installation steps
- Post-installation steps
- Requirements for VCM managed machines

The *VCM Installation Guide* applies to VCM 5.7, Foundation Checker 5.7, and Service Desk Connector 1.3.0.

Intended Audience

This information is written for experienced Linux, UNIX, Mac OS X, and Windows system administrators who are familiar with managing network users and resources and with performing system maintenance.

To use this information effectively, you must have a basic understanding of how to configure network resources, install software, and administer operating systems. You also need to fully understand your network topology and resource naming conventions.

Document Feedback

VMware welcomes your suggestions for improving our documentation. If you have comments, send your feedback to docfeedback@vmware.com.

VMware VCM Documentation

The VCM documentation consists of the *VCM Installation Guide*, *VCM Administration Guide*, *VCM Advanced Installation Guide*, VCM online help, and other associated documentation.

Technical Support and Education Resources

The following technical support resources are available to you. To access the current version of this book and other books, go to http://www.vmware.com/support/pubs.

Online and Telephone Support
To use online support to submit technical support requests, view your product and contract information, and register your products, go to http://www.vmware.com/support.

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Updated Information

This table provides the update history of the *VCM Installation Guide*.

Revision	Description
EN-001193-01	Corrected SSRS version (page 20).
EN-001193-00	Initial *VCM Installation Guide* for VCM 5.7.

Preparing to Install VCM

<div style="text-align: right; font-size: large;">**1**</div>

Before you work with the Windows machines on which you will install prerequisites and the VCM software, do the following evaluation and preparation tasks.

This chapter includes the following topics:

Typical or Advanced Installation

This guide describes the Typical Installation option. Typical Installation checks for prerequisites and assists you in correcting any that are missing. You then enter a few settings such as domain account credentials and installation paths, and start the installation.

Typical Installation is the best option for the following situations:

- Any single-tier VCM configuration

- Two-tier VCM configurations that do not use Kerberos authentication

- Single-tier or two-tier configurations that use built-in Windows accounts for running VCM logins and services

  Built-in accounts can be selected in the Advanced Installation by entering special values when prompted for account credentials. See the Advanced Installation Help.

The *VCM Advanced Installation Guide* contains further information about installing and configuring your VCM software and environment. See the advanced guide for the following installation topics.

- Using the classic Installation Manager to install VCM

- Any three-tier split installation

- Two-tier split installations that use Kerberos authentication

- Upgrading to this version of VCM

- Migrating VCM to another server or servers

- Maintaining VCM after installation

- Hardware and software requirements for the operating system provisioning server

- Installing, configuring, and upgrading the operating system provisioning server and components

VCM Installation Configurations

VCM supports single-tier, two-tier, and three-tier installation configurations. Before installing VCM, decide on the appropriate configuration for your environment.

Split installations are useful when, for example, site policies limit a VCM user's access to a database server or Web server. In such cases, you might need a split installation with a separate SQL Server machine, or one with separate SQL Server and Web server machines.

Figure 1–1. VCM Installation Configurations
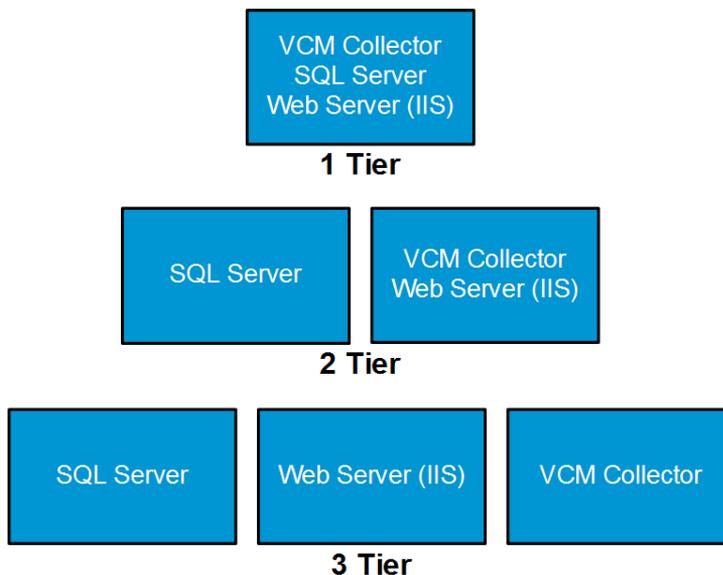
- **Single Tier.** All VCM components reside on a single Windows Server 2008 R2 machine. This configuration includes integrated security by default.

- **Two-Tier Split Installation.** The VCM SQL Server databases reside on a separate Windows Server 2008 R2 machine.

- **Three-Tier Split Installation.** The VCM SQL Server databases and the Web server are both installed on separate Windows Server 2008 R2 machines. To install this configuration, see the *VCM Advanced Installation Guide*.

With split installations, encrypted communication between the tiers is recommended for security.

Create VCM Domain Accounts

VCM requires that you create domain accounts with certain permissions. In the VCM Typical Installation, you have the option to use the built-in Windows accounts in place of some of the accounts.

Before installing VCM, create or identify the domain accounts to use for each of the VCM functions. Keep the credentials on hand for when the installation prompts for an account username and password.

- All of the accounts must be domain accounts and not local machine accounts.

- If you plan to select the built-in accounts option, you only need to prepare the following:

  - The VCM Administrator account for logging in during installation

  - If collecting Windows machine data over the DCOM protocol, the Default Network Authority account

- You can reuse an account for more than one function, but dedicated accounts might be useful for troubleshooting and tracking.

  The Collector, VCM Remote, Tomcat, and vSphere Client VCM Plug-in can be the same account. If you reuse one account, apply the permissions shown for the Collector service account.

IMPORTANT   Never use the service accounts for logging in to the VCM Console or for any other purpose. Logging in to VCM using a service account can lead to unexpected or inconsistent behavior. Services that use the same account as a logged in user might modify the logged in user's current role or the machine group, or log the user out of the system.

Table 1–1. VCM Domain Accounts to Create

Account	Permissions
VCM Administrator	During installation only, local admin on VCM Collector and Web server
	During installation only, system administrator access in VCM SQL Server on the database server
	Must be an interactive account and separate from the other accounts in this table
VCM Collector Service	Local admin on VCM Collector and Web server
	Not a domain administrator
	Not an interactive user account
VCM Remote Service	Local admin on VCM Web server
	Not a domain administrator
	Not an interactive user account
VCM Tomcat Service	Local admin on VCM database server
	Public access on VCM databases
	Not an interactive user account
vSphere Client VCM Plug-in Service	Local admin on VCM Web server
	Not an interactive user account
VCM Default Network Authority	Local admin on Windows machines that VCM collects from using the DCOM Agent
	Depending on enterprise size and for convenience, possibly a separate, domain administrator account with rights on the Windows machines
	Not an interactive user account

VCM Account Configuration

You create accounts for VCM to use as described in ["Create VCM Domain Accounts" on page 10](#). In addition, the installation and subsequent operation of VCM causes further impact on those accounts and other accounts.

Because some accounts, services, and permissions might conflict with site policies, review the following information before installing and operating VCM. You might need to request a variance if a policy restricts VCM operation.

VCM Administrator Account

The VCM Administrator account is the login account used when installing VCM, and possibly in post-installation for administration and maintenance of VCM. At installation, the account becomes an administrator within VCM. You may remove the installing account as an administrator in VCM if another account is added as administrator.

After installation, you may remove the local administrator and system administrator permissions that were needed for installation.

VCM User Accounts

The user accounts are the interactive login accounts to the VCM Console. They have login rights to SQL Server, with user access to the VCM main and UNIX databases.

For functions such as ad-hoc machine discovery, file discovery, report import or export, and uploaded file extraction, you must separately grant the account read/write access to folders under the `CMFiles$` directory on the Web server.

User accounts need login locally rights on the Web server. Login locally is an IIS requirement and is usually already enabled.

Other than the account used when installing VCM, VCM users and administrators have the same permissions and rights in SQL Server and Windows.

Service Accounts

VCM requires or creates accounts under which VCM Windows services run, and VCM configures those account for login as a service.

Because accounts might be subject to password policies, be aware of password issues for all VCM service accounts.

- If a service account password changes, update the service so that it can continue to log in.

- If you replace a service account, configure the new account for login as a service, give it the same permissions, and add it to the same groups.

- If you replace a service account, update the service to use the new account.

IMPORTANT   Never use the service accounts for logging in to the VCM Console or for any other purpose. Logging in to VCM using a service account can lead to unexpected or inconsistent behavior. Services that use the same account as a logged in user might modify the logged in user's current role or the machine group, or log the user out of the system.

Collector Service Account

The Collector service account is the account under which the VCM Collector, VCM Database, and VCM Patch Management services run. At installation, VCM configures the Collector service account with dbo rights and bulk insert rights in SQL Server for the VCM databases.

If the account password changes, update all three services so that they can continue to log in. If you replace the account, configure the new account for login as a service, give it the same permissions, and add it to the CSI_COMM_PROXY_SVC group. Also update all three services to use the new account.

VCM Remote Service Account

The VCM Remote service account is used by the VCM Remote client for anonymous access to the VCMRemote virtual directory on the Web server.

If you change the account or its password, reconfigure anonymous access for the VCMRemote virtual directory by using IIS Manager.

VCM Tomcat Service Account

The Tomcat service account serves as the VCM application programming interface for SQL login to the VCM database server.

vSphere Client VCM Plug-in Service Account

The vSphere Client VCM Plug-in (VCVP) account provides vSphere access over HTTP to VCM managed machines.

The VCM Advanced Installation option prompts for credentials for the VCVP account. Typical Installation does not.

CSI_COMM_PROXY_USR Account

VCM creates a local account called CSI_COMM_PROXY_USR, under which the CM Communication Proxy service runs. The CM Communication Proxy service is used for collection from ESX systems. Note that ESX collections are for logs and kernel data only, and only on ESX, not ESXi.

If the account password changes, update the service so that it can continue to log in. If you replace the account, configure the new account for login as a service, give it the same permissions, and add it to the CSI_COMM_PROXY_SVC group. Also update the CM Communication Proxy service to use the new account.

The CSI_COMM_PROXY_SVC group grants the rights needed for the service to access the data and binaries that it needs.

IIS Application Pool Identity Account

CMAppPool and CMServices are IIS application pools used for VCM virtual directories and Web services. They run under the built-in IIS ApplicationPoolIdentity account. No special configuration or password management is needed for this built-in account.

Network Authority Account

The Network Authority account is for data collection from DCOM Windows machines, data collection from Active Directory, and for Active Directory and NT domain discovery. VCM supports multiple Network Authority accounts but must have at least a default Network Authority account configured. Configure Network Authority accounts in VCM under the Administration slider.

If the account password changes, you must also update the password in VCM.

Network Authority accounts require local administrator permission on any Windows machine that they access, and SQL Server sysadmin rights if collecting SQL Server data. When policies permit, and for convenience, make the Network Authority account a separate, domain administrator account with permissions on Windows machines throughout a large enterprise.

About Network Authority Account Permissions

The VCM Agent requires a variety of permissions on the endpoint system. The DCOM Agent needs to launch and activate DCOM, and all Agents need access to Windows Management Instrumentation (WMI), private registry values, and the Service Control Manager (SCM).

Non-administrative user accounts do not have access to these resources by default, so VMware recommends an account with local administrative rights in the case of DCOM, or the default of the `LocalSystem` account as represented by the CM Agent Delegate in the case of HTTP.

Use of non-administrative Network Authority accounts will require a VMware Professional Services engagement to develop scripts or GPO policies that allow operation of the VCM Agent and access to the desired data sources for collection.

ECMSRSUser Account

VCM creates a local account called ECMSRSUser on the VCM Web server. The account provides Report Server access for VCM users.

The account is a standard user account with no special permissions nor access on VCM databases. The unencrypted account password is stored in `Configuresoft.Ecm.Reports.dll` and cannot be changed.

Alternatively, you can delete or disable ECMSRSUser, and grant VCM users Content Manager rights to the ECM Reports folder in SSRS.

SQL Server Permissions and Constructs

At installation, VCM creates the `vcm_app` certificate login, which is used for signed procedures that need greater access for operations such as re-creating the `VCM_Raw` database or granting users access to VCM databases.

The `vcm_app` certificate login has corresponding users in the VCM databases and is granted the following permissions.

- ALTER ANY DATABASE
- ALTER ANY LOGIN
- AUTHENTICATE SERVER
- CONNECT SQL

At installation, VCM creates the `vcm_app_jobs` certificate login, which is used for signed procedures to execute SQL Server Agent jobs for VCM. The `vcm_app_jobs` certificate login has corresponding users in the VCM and msdb databases and is granted the following permissions.

- AUTHENTICATE SERVER
- CONNECT SQL

The SQL Server Service Broker is used to execute asynchronous operations so that non-interactive, long-running activities do not slow the VCM user interface. VCM enables the Service Broker at installation, and creates and enables the AsyncExecQueue whenever the VCM Collector service starts.

Gather Supporting Software

To install VCM, you need the VCM software plus your operating system and database software. Supporting products might be bundled or standalone, depending on edition type such as Standard or Enterprise. In addition, some software might be needed only for split installations.

Before installing, gather copies of the following software from downloads or media so that you have it on hand when the VCM Installer prompts for it.

- **vCenter Configuration Manager 5.7**

- **Windows 2008 Server R2.** The operating system must be installed before running the VCM Installer.

  - **.NET 3.5 Framework.** The .NET Framework is included with Windows 2008 Server R2 and usually only needs to be enabled.

  - **Internet Information Services.** IIS is included with Windows 2008 Server R2 and usually only needs to be enabled. For VCM, the preferred mode to run IIS is secure SSL mode. You can also run IIS in unsecured mode.

- **SQL Server 2008 R2 or 2012, Standard or Enterprise.** The VCM databases run on SQL Server.

  - **SQL Server Reporting Services.** SSRS is a feature of SQL Server and is part of that installer. In split VCM installations, SSRS can be installed on a separate Windows machine from the one that runs the SQL database, if you have the additional license.

VCM also uses the following software, all of which are available from the Microsoft Download Center or are included with your edition of SQL Server.

- **SQLXML.** The SQLXML extension enables XML support for your SQL Server database.

- **SQL Server Management Tools.** The management tools are a convenient way to install the command-line tools and, for split installations, the native client. Alternatively, you can find separate downloads for the command-line tools and native client from the Microsoft Download Center, if you do not want the full management tools.

  - **SQL Server Command Line Tools.** At runtime, VCM requires SQLCMD for several functions, including Patching downloads. In addition, Bulk Copy Program (BCP) is needed for VCM installation.

    The command line tools are also available in the SQL Server Feature Pack.

  - **SQL Server Native Client.** The native client contains drivers that support native connectivity to SQL Server. In split installations, you must install the native client on the Collector and Web server so that they can communicate with the database server.

Hardware and Software Requirements for VCM Servers

VCM server requirements depend on the number of physical and virtual machines that you want to manage in your environment.

The resources needed to process or physically store collected data varies based factors such as the following:

- Number of machines from which you collect data

- Type of data collected and filters used

- Frequency of collections

- Data retention

Determine the Size of Your Environment

In VCM, the term "managed machines" refers to the servers and workstations that VCM manages, and from which VCM collects data. If you use VCM for Microsoft Active Directory (AD), this total should also include AD objects that you plan to have in your environment in the next 12 to 24 months.

VCM hardware requirements are recommended based on whether your environment contains 1–1000, 1001–2000, 2001–5000, or more managed machines. To determine the number of managed machines on which to base your collector size, consider the number of vCenter Server instances, Windows servers and workstations, Linux or UNIX machines, and virtual machines that you are licensing. Identify any other VCM components that you are licensing.

To determine your total number of managed machines, enter data for your enterprise in the sizing worksheet. In the following example, an enterprise environment contains machines and objects that represent 1377 managed machines.

Table 1–2. Sample Sizing Worksheet

Product	Description	Anticipated Number of Managed Machines in the Next 12–24 Months
VCM	Windows Servers	92
	vSphere/ESX/ESXi Servers	5
	Virtual Machines	50
	Linux or UNIX	100
	Mac	100
	Windows Workstations	920
VCM for Active Directory	Divide total number of AD objects by 100 to determine the approximate "machine count" for your AD environment.	10,000 AD Objects/100 = 100 managed machines to accommodate VCM for AD
	Total Managed Machines:	**1377**

Use the blank worksheet to calculate and record the managed machines in your environment.

Table 1–3. Blank Sizing Worksheet

Product	Description	Anticipated Number of Managed Machines in the Next 12–24 Months
VCM	Windows Servers	
	vSphere/ESX/ESXi Servers	
	Virtual Machines	
	Linux or UNIX	
	Mac	
	Windows Workstations	
VCM for Active Directory	Divide total number of AD objects by 100 to determine the approximate "machine count" for your AD environment.	
	Total Managed Machines:	

Hardware and Disk Requirements By Number of Managed Machines

Use the total number of managed machines from the worksheet to size your environment size (1–1000, 1001–2000, 2001–5000, or more). If you have more than 5000 machines in your environment, contact VMware Technical Support to help you determine your hardware requirements.

If you run SQL Server on a virtual machine, see the *Microsoft SQL Server on VMware Best Practices Guide* at http://www.vmware.com/files/pdf/sql_server_best_practices_guide.pdf. If you run SQL Server in a Hyper-V environment, see *Best Practices and Performance Considerations for Running SQL Server 2008 in a Hyper-V Environment* on the Microsoft Web site.

The requirements in the following tables are based on the following assumptions.

- Daily VCM collections using the default filter set, with additional Microsoft AD security descriptors collected using VCM for AD

- 15 days retention of change data

- Simple recovery mode only

- Daily VCM Patching collections

- No applications other than VCM running on the server

VCM for AD collections cause the TempDB database to grow significantly. If you have a fully populated Microsoft Active Directory and plan to perform frequent AD collections, increase your hardware requirements.

Longer data retention, additional Windows Management Instrumentation (WMI), registry filters, and custom information collections also add to the requirements.

Table 1–4. Minimum Hardware Requirements to Support 1–1000 Managed Machines

	Single Tier	2-Tier Database	2-Tier Web/Collector
Processor	Dual Xeon or single Dual Core 2GHz	Dual Xeon or single Dual Core 2GHz	Dual Xeon or single Dual Core 2GHz
RAM	8GB	8GB	4GB

	Single Tier	2-Tier Database	2-Tier Web/Collector
Separate Disk Channels	2	2	1

Table 1–5. Minimum Hardware Requirements to Support 1001–2000 Managed Machines

	Single Tier	2-Tier Database	2-Tier Web/Collector
Processor	Quad Xeon or two Dual Core 2GHz	Quad Xeon or two Dual Core 2GHz	Dual Xeon or single Dual Core 2GHz
RAM	12GB	12GB	4GB
Separate Disk Channels	3	3	2

Table 1–6. Minimum Hardware Requirements to Support 2001–5000 Managed Machines

	Single Tier	2-Tier Database	2-Tier Web/Collector
Processor	Eight-way Xeon or four Dual Core 2GHz	Eight-way Xeon or four Dual Core 2GHz	Dual Xeon or single Dual Core 2GHz
RAM	16GB	16GB	8GB
Separate Disk Channels	4	4	2

The space allocations in the following table do not include space for backups. Allocate backup space that is equal to the size of the VCM data for a single full backup, or larger to keep multiple partial backups.

Table 1–7. Minimum Disk Configuration Requirements by Number of Managed Machines

Number of VCM Managed Machines	RAID Channel and RAID Level	Partitions	Usable Space
1–500	Channel 0 – RAID 1	OS	36GB
		Collector Data Files	36GB
		TempDB	36GB
		SQL Log Files	28GB
	Channel 1 – RAID 0+1 (recommended) or RAID 10	SQL Data Files	56GB

Number of VCM Managed Machines	RAID Channel and RAID Level	Partitions	Usable Space
501–1000	Channel 0 – RAID 1	OS	36GB
		Collector Data Files	36GB
	Channel 1 – RAID 1	TempDB	56GB
		SQL Log Files	56GB
	Channel 2 – RAID 0+1 (recommended) or RAID 10	SQL Data Files	113GB
1001–2000	Channel 0 – RAID 1	OS	36GB
		Collector Data Files	54GB
	Channel 1 – RAID 1	TempDB	113GB
	Channel 2 – RAID 1	SQL Log Files	113GB
	Channel 3 – RAID 0+1 (recommended) or RAID 10	SQL Data Files	227GB
2001–5000	Channel 0 – RAID 1	OS	36GB
		Collector Data Files	113GB
	Channel 1 – RAID 1	TempDB	227GB
	Channel 2 – RAID 1	SQL Log Files	227GB
	Channel 3 – RAID 0+1 (recommended) or RAID 10	SQL Data Files	456GB

Database Sizing for Managed vCenter Server Instances

Use the following requirements to plan the size of your SQL Server database depending on the number of hosts and guests per vCenter Server managed by VCM. Guest collections include only the virtual machine data that vCenter provides and do not include any in-guest data. In-guest collections are separate from vCenter collections.

These requirements are in addition to the base VCM storage requirements, and are based on an estimated 10% data change per day times 15 days of data retention.

Table 1–8. VCM Database Sizing per vCenter Server Instance

Hosts	Guests	Est. Daily Change	Data Retention in Days	Data Size
25	250	10%	15	3GB
50	500	10%	15	6GB
250	2500	10%	15	30GB

The best practice in production environments is to have the Managing Agent process the requests for a single vCenter Server. Dedicate one Managing Agent machine for each vCenter Server. In a single vCenter Server instance environment, the VCM Collector can be the Managing Agent.

A single Managing Agent can manage multiple vCenter Server instances depending on your collection schedules and when potential job latency is not an issue, such as when a single Managing Agent must process multiple requests serially. A single Managing Agent can manage multiple vCenter Server instances as long as only one vCenter Server is collected at a time.

When job latency is not a problem, and depending on your collection schedules, you might dedicate a single Managing Agent for every five vCenter Server instances or 100 hosts. You could dedicate one Managing Agent to a vCenter Server that manages 100 hosts, or a collection of four vCenter Server instances that each manage 10 hosts could share a Managing Agent.

Sizing Impact on Software Edition Requirements

Use the total number of managed machines that you identified in "Determine the Size of Your Environment" on page 16 to locate your environment size: 1–1000, 1001–2000, 2001–5000, or more. If you have more than 5000 machines in your environment, contact VMware Technical Support for your specific requirements.

VCM supports Standard and Enterprise editions of SQL Server 2008 R2 or 2012.

NOTE Do not run VCM in a production environment when using only an evaluation version of SQL Server. Evaluation versions are not supported for production.

Table 1–9. Minimum Software Edition Requirements by Number of VCM Managed Machines

Software Component	Number of Managed Machines		
	1–1000	1001–2000	2001–5000
Operating System	Windows Server 2008 R2	Windows Server 2008 R2	Windows Server 2008 R2 Enterprise Edition
SQL Version	SQL Server 2008 R2 or 2012, Standard Edition (64-bit)	SQL Server 2008 R2 or 2012, Standard Edition (64-bit)	SQL Server 2008 R2 or 2012, Standard Edition (64-bit)
SSRS Version	SQL Server 2008 R2 or 2012 Reporting Services	SQL Server 2008 R2 or 2012 Reporting Services	SQL Server 2008 R2 or 2012 Reporting Services

Additional Requirements for Virtual Machine VCM Servers

These sections apply only when installing VCM on a virtual machine.

VCM can place heavy workloads on the database, so installing the database on a virtual machine requires adequate settings. You should provision a VCM virtual machine similar to one that runs a high throughput OLTP database application.

Follow these guidelines to install VCM in a development, test, or IT environment. For large scale environments, you might need to expand these requirements.

IMPORTANT Do not install VCM on a virtual machine on an ESX server that has over-allocated resources.

Prerequisites

- Address the non-virtual hardware and software requirements. See "Hardware and Software Requirements for VCM Servers" on page 15.

- Follow best practices whenever you install SQL Server on a virtual machine. See the *Microsoft SQL Server on VMware Best Practices Guide* available on the VMware Web site at http://www.vmware.com.

Procedure

1. "Configure the Disk to Install VCM on a Virtual Machine" below

   Configure the disk for the virtual machine. For large scale environments, you might need to alter the requirements.

2. "Configure the CPU to Install VCM on a Virtual Machine" on the next page

   Configure the CPU for the virtual machine. For large scale environments, you might need to alter the requirements.

3. "Configure the Memory to Install VCM on a Virtual Machine" on the next page

   Allocate the memory for the virtual machine. For large scale environments, you might need to alter the requirements.

Configure the Disk to Install VCM on a Virtual Machine

Configure the disk for the virtual machine. For large scale environments, you might need to alter the requirements.

Prerequisites

- Keep the spindle count consistent and allocate a sufficient number of spindles to the database files when you migrate VCM from a physical machine to a virtual machine.

- Place the database data files on multiple logical unit numbers (LUNs).

- Create a TEMPDB data file for each virtual CPU that is allocated to the VCM Collector.

- Use paravirtual SCSI (PVSCSI) controllers for the database disks to provide greater throughput and lower CPU utilization, which improves VCM performance.

- Maintain a 1:1 mapping between the number of virtual machines and the number of LUNs on a single ESX host to avoid disk I/O contention.

Procedure

1. Start vCenter Server.

2. Select your virtual machine.

3. Click the **Resource Allocation** tab.

4. In the CPU pane, click **Edit**.

5. In the Virtual Machine Properties dialog box, click the **Resources** tab.

6. In the Resource Allocation pane, click **Disk** and update the disk resource allocation to meet the needs of your environment.

7. Click **OK**.

What to do next

Configure the CPU for the virtual machine. See "Configure the CPU to Install VCM on a Virtual Machine" below.

Configure the CPU to Install VCM on a Virtual Machine

Configure the CPU for the virtual machine. For large scale environments, you might need to alter the requirements.

Prerequisites

■ Test the workload in your planned virtualized environment to verify that the physical CPU resources on the ESX host adequately meet the needs of guest virtual machines.

■ Provision multiple virtual CPUs only if the anticipated workload will use them. Over-provisioning might result in higher virtualization overhead.

■ Install the latest version of VMware Tools on the guest operating system.

Procedure

1. Start vCenter Server.

2. Select your virtual machine.

3. Click the **Resource Allocation** tab.

4. In the CPU pane, click **Edit**.

5. In the Virtual Machine Properties dialog box, click the **Resources** tab.

6. In the Resource Allocation pane, click **CPU** and change the CPU resource allocation.

7. Click **OK**.

What to do next

Configure the memory for the virtual machine. See "Configure the Memory to Install VCM on a Virtual Machine" below.

Configure the Memory to Install VCM on a Virtual Machine

Allocate the memory for the virtual machine. For large scale environments, you might need to alter the requirements.

Prerequisites

■ Verify that the ESX host has sufficient cumulative physical memory resources to meet the needs of the guest virtual machines. Do not install VCM on an ESX server that has over allocated resources.

■ On the ESX host, enable memory page sharing and memory ballooning to optimize memory.

■ To reduce or avoid disk I/O, increase the database buffer cache.

Procedure

1. Start vCenter Server.

2. Select your virtual machine.

3. Click the **Resource Allocation** tab.

4. In the Memory pane, click **Edit**.

5. In the Virtual Machine Properties dialog box, click the **Resources** tab.

6. In the Resource Allocation pane, click **Memory** and change the memory resource allocation.

7. Click **OK**.

Common Prerequisites for All VCM Servers

2

All Windows machines that become VCM servers require the following prerequisites.

This chapter includes the following topics:

Install and Configure Windows Server 2008 R2

Install the Windows Server 2008 R2 operating system on each Windows machine that serves as a tier in your configuration.

Prerequisites

- Decide on a valid DNS computer name with no underscores for use when the Windows installation prompts for a machine name. If you attempt to change the machine name after a machine is identified as a Collector, problems might occur with VCM, SQL Server, and SQL Server Reporting Services.

Procedure

1. Install Microsoft Windows Server 2008 R2 on your Windows machine.

2. During the installation, you can configure several options.

Option	Description
Regional and Language Options	Determines how numbers, dates, currencies, and time settings appear. ■ Language: Setting for your language. The default is English. ■ Time and currency format: Determines how numbers, dates, currencies, and time settings appear. The default is English (United States). ■ Keyboard or input method: Allows text entry for multiple languages. The default is US.
Disk Configuration	Allows you to separate the machine disk drive into partitions to store data in different partitions. You can create new disk partitions and delete existing partitions. After you configure the disk, select a partition to install Windows Server 2008 R2 Edition.
Product Key	When the installation prompts, enter your product key.
Licensing Modes	Windows Server 2008 R2 Standard edition supports a single license that is included with the product key.
Administrator Password	The installation setup creates an account called administrator. To log in, you must create a password that complies with the criteria. The password must have the following attributes. ■ Minimum of six characters ■ Does not contain "administrator" or "admin" ■ Contains uppercase letters ■ Contains lower case letters ■ Contains numbers ■ Contains at least one non-alphanumeric character

3. Perform the initial configuration tasks to set the time zone and the computer name.

What to do next

Disable Remote Desktop. See "Disable the Remote Desktop Session Host" below.

Disable the Remote Desktop Session Host

A Remote Desktop Session Host server hosts Windows-based programs for Remote Desktop Services clients.

If the Remote Desktop Session Host role service is enabled, you must disable it to avoid changes to settings for new connections, modifications of existing connections, or removal of connections.

Procedure

1. Click **Start** and select **All Programs > Administrative Tools > Server Manager**.

2. In the navigation pane, expand **Roles** and click **Remote Desktop Services**.

3. In the Remote Desktop Services pane, scroll down to Role Services.

4. Click the **Remote Desktop Session Host** role service to highlight it.

5. Click **Remove Role Services**.

6. Deselect the Remote Desktop Session Host role service and follow the prompts to finish disabling the Remote Desktop Session host role.

What to do next

Join the machine to the domain. See "Join the VCM Server to the Domain" below.

Join the VCM Server to the Domain

A Windows machine on which you install VCM must be a member of the domain.

NOTE   This procedure requires a restart.

Procedure

1. Log in with a local administrator account.

2. Click **Start**, right-click **Computer**, and click **Properties**.

3. Under the **Computer name, domain, and workgroup settings** section, click **Change settings**.

4. Click **Change**.

5. In the **Member of** section, select **Domain**, and type the name of the domain to join.

6. Click **OK**.

7. Type the username and password of the domain account with permissions to add Windows machines to the domain.

8. Click **OK**, and follow the dialogs and prompts through the process of restarting the Windows machine.

What to do next

After the Windows machine restarts, add the VCM domain accounts as local administrators on the Windows machine. See "Add VCM Domain Accounts as Local Administrators" below.

Add VCM Domain Accounts as Local Administrators

The domain accounts that you create for VCM must have local administrator privileges on Windows machines where you install VCM.

Prerequisites

- Create the domain accounts that VCM requires. See "Create VCM Domain Accounts" on page 10.

Procedure

1. Log in with a local administrator account.

2. Select **Start** > **Administrative Tools** > **Computer Management**.

3. On the left, navigate to **Computer Management (Local)** > **System Tools** > **Local Users and Groups** > **Groups**.

4. On the right, double-click **Administrators**.

5. Click **Add**.

6. For the object name, type the domain and account name, separated by a backslash.

   For example: `mydomain\vcmadmin`

7. Click **OK**.

8. Click **OK**, and close the Computer Management window.

What to do next

Log in as the VCM administrator. See "Log in as VCM Administrator" below.

Log in as VCM Administrator

Before you start the VCM Installer, log in to the Windows machine with the VCM administrator domain account.

Prerequisites

- Add the VCM administrator domain account as a local Windows machine administrator. See "Add VCM Domain Accounts as Local Administrators" on the previous page.

Procedure

- Log in with the VCM administrator domain account.

What to do next

Start the VCM Installer.

VCM Installation

3

The following sections describe a typical VCM installation. To perform an advanced installation, see the *VCM Advanced Installation Guide*.

This chapter includes the following topics:

Start the VCM Installer

To begin installing VCM, start the VCM Installer.

Prerequisites

■ Log in using the VCM administrator domain account. See "Log in as VCM Administrator" on page 28.

Procedure

1. Start the installation from a network location or insert the VCM installation media into the Windows machine.

   If you started the VCM Installer from a network location or if the initial screen does not appear, navigate to the media root directory or the file share and double-click `Setup.exe`.

   After a moment, the initial page appears.

2. Select **Typical Installation**.

3. Accept the license agreement, and confirm that you are an authorized user and that you have read the agreement.

4. Click **Next**.

   A progress bar appears while the VCM Installer checks for prerequisites.

5. (Optional) Select the option to view the full check results when the VCM Installer finishes checking.

6. After the VCM Installer finishes checking, click **Next**.

   The prerequisites page or basic information page appears.

What to do next

Address any missing prerequisites. If the VCM Installer found that all prerequisites were met, the basic information page appears, where you enter settings for VCM installation.

What the Installer Checks For

The VCMTypical Installation checks to make sure that prerequisites are enabled and installed.

- .NET Framework 3.5

- Internet Information Services (IIS)

- SQLXML

- SQL Server Reporting Services (SSRS)

- An installed instance of SQL Server, on the current machine or one that the current machine can connect to.

In addition, the Typical Installation checks to make sure that a VCM Agent is not installed.

Prerequisites

Correct missing prerequisites before entering basic or additional information, and before clicking the button to start the installation.

Prerequisites

- Log in using the VCM administrator domain account.

- Start the VCM Installer, select Typical Installation, and allow the VCM Installer to check for prerequisites.

Procedure

1. "Add the VCM Database Server" on the facing page.

   Add the VCM database server as a prerequisite before starting the VCM installation.

2. "Add SQL Server Reporting Services" on page 32.

   Add SQL Server Reporting Services (SSRS) as a prerequisite before starting the VCM installation.

3. "Add SQLXML" on page 34.

   Add SQLXML as a prerequisite before starting the VCM installation.

4. "Add SQL Server Utilities" on page 34.

   Add SQL Server utilities as a prerequisite before starting the VCM installation.

5. "Configure IIS" on page 35.

   VCM requires Internet Information Services (IIS). If IIS is not configured on the Windows machine, the VCM Installer configures it when you start the VCM installation.

6. "Configure .NET Framework 3.5" on page 36.

   VCM requires Microsoft .NET Framework 3.5. If the .NET Framework is not configured on the

Windows machine, the VCM Installer configures it when you start the VCM installation.

7. "Remove the VCM Agent" on page 36.

VCM does not operate correctly when a previous VCM Agent is already installed on the Windows machine. If an existing VCM Agent is detected, the VCM Installer removes it when you start the VCM installation.

What to do next

Enter basic information. You may also enter optional, additional information and recommended settings.

Add the VCM Database Server

Add the VCM database server as a prerequisite before starting the VCM installation.

Prerequisites

- Decide whether to install a single-tier or two-tier configuration. See "VCM Installation Configurations" on page 10.

- Log in using the VCM administrator domain account.

- Start the VCM Installer, select Typical Installation, and allow the VCM Installer to check for prerequisites.

- For SQL Server evaluation download, the server must be able to connect to the Internet.

Procedure

1. On the left, click **Prerequisites**.

2. Under **VCM Database Server**, from the drop-down menu, select a SQL Server database instance name. For an instance name to appear in the menu, the SQL Server Browser Service must be enabled on the database server.

   Select the instance based on how many tiers you need.

   - **Single-tier configuration.** The instance resides on the current machine.

   - **Two-tier configuration.** The instance resides on another Windows machine, one that the current machine can connect to.

3. If you do not see the SQL Server instance name in the list, click the refresh button to find instances that the VCM Installer can detect.

   To be detected, an instance must be SQL Server 2008 R2 or 2012 and have the SQL Server Browser Service enabled.

4. (Optional) Type an instance name, click **Validate** to ensure that the current machine can connect to it, and click **OK**.

   - For a default SQL installation, type the name of the database server machine.

   - For a named SQL instance, type the name in *server-name\instance-name* format.

   - For SQL failover clusters, type the virtual name for the SQL cluster.

5. If you do not have a SQL Server instance , click **Install a New Instance** to install an instance on the current machine, which creates a single-tier configuration.

   a. Browse to a copy of SQL Server 2008 R2 or 2012, Standard or Enterprise, and enter the product license if your edition requires one.

   b. If you do not have a copy of SQL Server, make sure that the server is connected to the Internet, and click **Download Evaluation Version**. The VCM Installer opens a browser to the Microsoft Web site.

   > **NOTE**   Do not run VCM in a production environment when using only an evaluation version of SQL Server. Evaluation versions are not supported for production.

   c. Click **OK**.

   It might take up to 30 minutes to install SQL Server.

What to do next

Add SQL Server Reporting Services (SSRS) as a prerequisite before starting the VCM installation.

See "Add SQL Server Reporting Services" below.

Connections Between Tiers During Installation

In any split installation, the separate VCM database server and VCM Collector must connect to each other during the installation. The connections support the following process for configuring the VCM database server.

1. The VCM Installer validates that the Collector can connect to the SQL instance on the database server, typically over default port 1433.

2. The VCM Installer opens a temporary network share on the Collector so that the database server can access database backup files needed for installation.

3. The VCM Installer performs database restore operations to create new VCM databases using VCM 5.6 database backup files from the network share.

4. The VCM Installer configures the new databases to make any customizations that the installing user specified, such as initial database size or growth percentage.

5. The VCM Installer runs scripts to upgrade the restored databases to VCM 5.7.

If site policies do not allow for network share connections between the two machines, you must manually perform the database restore operation using the VCM 5.6 database backup files. The backup files are part of the VCM installation ISO download or media.

Perform the manual database restore operation before clicking **Install** to install VCM.

Add SQL Server Reporting Services

Add SQL Server Reporting Services (SSRS) as a prerequisite before starting the VCM installation.

Prerequisites

- Log in using the VCM administrator domain account.

- Start the VCM Installer, select Typical Installation, and allow the VCM Installer to check for prerequisites.

- For SQL Server evaluation download, the server must be able to connect to the Internet.

Procedure

1. On the left, click **Prerequisites**.

2. In **SQL Server Reporting Services Web Service URL**, type the address for the SSRS server.

   The default is: `http://{server-name}:80/ReportServer`

3. Click **Validate**.

4. Click **OK**.

If you do not have an SSRS server, install one by running the SQL Server 2008 R2 or 2012, Standard or Enterprise installer. Follow the prompts to add SSRS.

Alternatively, run the SQL Server evaluation installer to add an evaluation version of SSRS.

What to do next

Add SQLXML as a prerequisite before starting the VCM installation.

See .

About SSRS

SQL Server Reporting Services (SSRS) provides server-based reports for VCM. You install the SSRS feature by selecting it when you run the SQL Server Installer.

NOTE Installing SSRS on a different system from your SQL Server database might require an additional SQL Server license.

To support VCM reporting, you must install SSRS in one of the following locations:

- VCM SQL Server database server

- VCM Web server

  In split VCM configurations, to authenticate users and client applications that connect to SSRS on the Web server, configure Windows Basic authentication.

Configure Basic Authentication for the Report Server

When SSRS is installed on a system other than the VCM database server, that system must authenticate users and client applications that connect to SSRS.

In split VCM configurations, configure Windows Basic authentication for SSRS whenever SSRS is installed on aVCM Collector-Web server or Web server instead of the database server.

Procedure

1. On the VCM Collector-Web server or Web server, stop the SSRS service.

2. Navigate to the `rsreportserver.config` file.

   By default: `C:\Program Files\Microsoft SQL Server\{reporting-services-instance}\Reporting Services\ReportServer\rsreportserver.config`

3. Open `rsreportserver.config` in a text editor.

4. Locate the `<AuthenticationTypes>` XML code.

```
<Authentication>
   <AuthenticationTypes>
      <RSWindowsNegotiate/>
      <RSWindowsNTLM/>
   </AuthenticationTypes>
   ...
</Authentication>
```

5. Replace any existing `<AuthenticationTypes>` parameters with one `<RSWindowsBasic/>` parameter.

```
<Authentication>
   <AuthenticationTypes>
      <RSWindowsBasic/>
   </AuthenticationTypes>
   ...
</Authentication>
```

6. Save and close `rsreportserver.config`.

7. Start the SSRS service.

Add SQLXML

Add SQLXML as a prerequisite before starting the VCM installation.

Prerequisites

- Log in using the VCM administrator domain account.

- Start the VCM Installer, select Typical Installation, and allow the VCM Installer to check for prerequisites.

- For SQLXML download, the server must be able to connect to the Internet.

Procedure

1. On the left, click **Prerequisites**.

2. Under **SQL Server Support Components**, click **Install SQLXML**.

   a. Browse to a copy of SQLXML.

   b. If you do not have a copy of SQLXML, make sure that the server is connected to the Internet, and click **Download**.

   c. Click **OK**.

      It takes a few moments to install SQLXML.

What to do next

Add SQL Server utilities as a prerequisite before starting the VCM installation.

See <u>"Add SQL Server Utilities" below</u>.

Add SQL Server Utilities

Add SQL Server utilities as a prerequisite before starting the VCM installation.

VCM requires the SQL Server native client and SQL Server command-line tools. See <u>"About SQL Server Utilities" on the facing page</u>.

Prerequisites

- Log in using the VCM administrator domain account.

- Start the VCM Installer, select Typical Installation, and allow the VCM Installer to check for prerequisites.

- For SQL Server native client and SQL Server command-line tools downloads, the server must be able to connect to the Internet.

Procedure

1. On the left, click **Prerequisites**.

2. Under **SQL Server Support Components**, click **Install SQL Server Utilities**.

3. Browse to copies of the utilities, and install them.

4. If you do not have copies of the utilities, make sure that the server is connected to the Internet, and click **Download**.

   The VCM Installer opens a browser to the Microsoft Web site, where you can locate and download free copies of the utilities.

5. After installing the utilities, click **Recheck** to make the VCM Installer detect their presence.

What to do next

VCM requires Internet Information Services (IIS). If IIS is not configured on the Windows machine, the VCM Installer configures it when you start the VCM installation.

See "Configure IIS" below.

About SQL Server Utilities

If you install SQL Server locally to create a single-tier VCM configuration, the utilities prerequisite is already met.

If you create a split VCM configuration, where SQL Server is installed on a separate database server, the other VCM server, the Collector-Web server, requires the following SQL Server utilities so that it can communicate with the remote database server.

- SQL Server native client

- SQL Server command-line tools

There are different sources for the utilities. The SQL Server Management Tools software includes both. the SQL Server Feature Pack includes the command-line tools. You can also find separate downloads for both from the Microsoft Download Center. Both utilities are free and do not require a license.

In a split VCM configuration, locate installers for the utilities, and install them on the Collector-Web server.

Configure IIS

VCM requires Internet Information Services (IIS). If IIS is not configured on the Windows machine, the VCM Installer configures it when you start the VCM installation.

Prerequisites

- Log in using the VCM administrator domain account.

- Start the VCM Installer, select Typical Installation, and allow the VCM Installer to check for prerequisites.

Procedure

1. On the left, click **Prerequisites**.

2. Under **Internet Information Services**, note whether IIS will be configured.

When you start the installation, the VCM Installer configures IIS in encrypted or unencrypted mode and creates the VCM Web server.

What to do next

VCM requires Microsoft .NET Framework 3.5. If the .NET Framework is not configured on the Windows machine, the VCM Installer configures it when you start the VCM installation.

See "Configure .NET Framework 3.5" below.

Configure .NET Framework 3.5

VCM requires Microsoft .NET Framework 3.5. If the .NET Framework is not configured on the Windows machine, the VCM Installer configures it when you start the VCM installation.

Prerequisites

- Log in using the VCM administrator domain account.

- Start the VCM Installer, select Typical Installation, and allow the VCM Installer to check for prerequisites.

Procedure

1. On the left, click **Prerequisites**.

2. Under **.NET Framework 3.5**, note whether .NET Framework 3.5 will be configured.

When you start the installation, the VCM Installer configures .NET Framework 3.5.

What to do next

VCM does not operate correctly when a previous VCM Agent is already installed on the Windows machine. If an existing VCM Agent is detected, the VCM Installer removes it when you start the VCM installation.

See "Remove the VCM Agent" below.

Remove the VCM Agent

VCM does not operate correctly when a previous VCM Agent is already installed on the Windows machine. If an existing VCM Agent is detected, the VCM Installer removes it when you start the VCM installation.

Prerequisites

- Log in using the VCM administrator domain account.

- Start the VCM Installer, select Typical Installation, and allow the VCM Installer to check for prerequisites.

Procedure

1. On the left, click **Prerequisites**.

2. Under **VCM Agent**, note whether the VCM Agent will be removed.

When you start the installation, the VCM Installer removes any existing VCM Agent.

What to do next

Click **Next**, and enter the basic settings needed for installation. See "Basic Information" below.

Basic Information

Before you start the installation, you must add license keys, select service accounts, and select an installation folder.

Prerequisites

Click **Prerequisites**, and correct any missing installation requirements. See "Prerequisites" on page 30.

Procedure

1. "Add VCM License Keys" below.

   Supply at least one suite, server, or workstation VCM license key before clicking the button to start the installation.

2. "Add the Services and Login Accounts" on the next page.

   Select the accounts under which VCM services and logins run.

3. "Select the VCM Installation Folder" on the next page.

   Select the folder in which to install VCM.

4. "Enable HTTPS" on page 39.

   Select whether to access the VCM Console over encrypted HTTPS.

What to do next

Enter optional, additional information and recommended settings, or start the installation.

Add VCM License Keys

Supply at least one suite, server, or workstation VCM license key before clicking the button to start the installation.

Prerequisites

■ Obtain at least one suite, server, or workstation license key for VCM.

■ Click **Prerequisites**, and correct any missing installation requirements. See "Prerequisites" on page 30.

Procedure

1. On the left, click **Basic Information**.

2. Under **License Keys**, type or paste a key to activate VCM, and click **Add**.

3. To obtain a different key or otherwise manage your license keys, click the link to open the MyVMware.com Web site.

4. To remove a key that you added, select the key and click **Remove**.

What to do next

Select the accounts under which VCM services and logins run.

See "Add the Services and Login Accounts" on the next page.

Add the Services and Login Accounts

Select the accounts under which VCM services and logins run.

Prerequisites

- Click **Prerequisites**, and correct any missing installation requirements. See "Prerequisites" on page 30.

Procedure

1. On the left, click **Basic Information**.

2. Under **VCM Accounts**, select one of the following options.

   - **Use Built-in Accounts.** Run VCM logins and services under built-in Windows operating system accounts.

   - **Use One Account for All Components.** Run all VCM logins and services under the same domain account.

     The account must be different than the VCM administrator account for logging in to install VCM.

3. If you selected the domain account option, type the account details:

   - Domain and account name, separated by a backslash

   - Account password

4. If you selected the domain account option, click **Validate**.

What to do next

Select the folder in which to install VCM.

See "Select the VCM Installation Folder" below.

Built-in or Domain Accounts

To decide whether to use built-in accounts or domain accounts for VCM logins, consider your site policies, tracking requirements, and how much account creation and maintenance you are willing to perform.

- **Built-in accounts.** Built-in accounts are useful if you do not want to create or maintain domain accounts for VCM service logins. A common reason for the built-in approach is that domain accounts are often subject to password expiration policies. An expired password affects VCM operations, and a changed password creates a mismatch that requires maintenance to resynchronize the password in VCM.

  The built-in account option runs VCM logins under `NT Authority\System` for Windows services and `NT Authority\IUSR` for IIS components.

- **Domain accounts.** Domain accounts provide for better tracking and fault isolation within tools such as the Windows Event Log, where you might want to easily distinguish VCM events from other events.

Select the VCM Installation Folder

Select the folder in which to install VCM.

Prerequisites

- Click **Prerequisites**, and correct any missing installation requirements. See "Prerequisites" on page 30.

Procedure

1. On the left, click **Basic Information**.

2. Under **Install Path**, type the folder path you want, or click the ellipsis button to browse to a folder.

   The default folder is: `{drive}:\Program Files (x86)\VMware\VCM`

   The default drive letter is the drive that has the most free space.

What to do next

Select whether to access the VCM Console over encrypted HTTPS.

See "Enable HTTPS" below.

Enable HTTPS

Select whether to access the VCM Console over encrypted HTTPS.

Prerequisites

- Log in using the VCM administrator domain account.

- Start the VCM Installer, select Typical Installation, and allow the VCM Installer to check for prerequisites.

Procedure

1. On the left, click **Prerequisites**.

2. To access the VCM Console over encrypted SSL (recommended), leave the default option of **Use HTTPS** selected.

   When the option is enabled and selected, the VCM Installer generates a self-signed certificate for authentication.

   NOTE   If the system is already configured with an HTTPS binding, that certificate is used for accessing the VCM Console over encrypted SSL, and the HTTPS option is disabled.

   ---

3. (Optional) To use a different certificate, click the **here** link.

   a. From the drop-down menu, select a certificate.

   b. Click **OK**.

When you start the installation, the VCM Installer enables IIS in encrypted mode.

What to do next

Enter optional, additional information and recommended settings, or start the installation.

See "Additional Information" below, see "Recommended Options" on page 43, or click **Install** to start the installation.

Additional Information

Enter optional, additional settings before you start the installation.

Prerequisites

- Click **Prerequisites**, and correct any missing installation requirements. See <u>"Prerequisites" on page 30</u>.

- Add license keys, select service accounts, and select an installation folder. See <u>"Basic Information" on page 37</u>.

Procedure

1. <u>"Select Separate Services and Login Accounts" below</u>.

   (Optional) Select separate accounts under which VCM services and logins run.

2. <u>"Change the VCM Console Virtual Directory Name" below</u>.

   (Optional) Change the VCM Console virtual directory name to a name other than the default.

3. <u>"Change the VCM Remote Virtual Directory Name" on the facing page</u>.

   (Optional) Change the VCM Remote virtual directory name to a name other than the default.

4. <u>"Configure Additional Database Settings" on the facing page</u>.

   (Optional) Configure the VCM database name, size and growth settings, and folders.

5. <u>"Select Separate Installation Folders" on page 42</u>.

   (Optional) Select separate folders under which to install VCM components.

What to do next

Configure recommended options, or start the installation.

Select Separate Services and Login Accounts

(Optional) Select separate accounts under which VCM services and logins run.

Prerequisites

- Become familiar with and create the VCM accounts. See <u>"Create VCM Domain Accounts" on page 10</u>.

- Click **Prerequisites** and correct any missing installation requirements. See <u>"Prerequisites" on page 30</u>.

- Click **Basic Information** and enter the basic installation settings. See <u>"Basic Information" on page 37</u>.

Procedure

1. On the left, click **Additional Information**.

2. In **User Credentials**, select the tab for the service or login you want.

3. Type the account details:

   - Domain and account names, separated by a backslash

   - Account password

What to do next

(Optional) Change the VCM Console virtual directory name to a name other than the default.

See <u>"Change the VCM Console Virtual Directory Name" below</u>.

Change the VCM Console Virtual Directory Name

(Optional) Change the VCM Console virtual directory name to a name other than the default.

When you log in to the VCM Console, the name appears after the Web server name or IP address. For example: `https://myserver/VCM`

Prerequisites

- Click **Prerequisites** and correct any missing installation requirements. See "Prerequisites" on page 30.

- Click **Basic Information** and enter the basic installation settings. See "Basic Information" on page 37.

Procedure

1. On the left, click **Additional Information**.

2. Under User Credentials, click the **VCM Remote** tab.

3. In the **Console Virtual Directory Name** text box, type the name you want.

   The default is **VCM**.

What to do next

(Optional) Change the VCM Remote virtual directory name to a name other than the default.

See "Change the VCM Remote Virtual Directory Name" below.

Change the VCM Remote Virtual Directory Name

(Optional) Change the VCM Remote virtual directory name to a name other than the default.

When you log in to VCM Remote, the name appears after the Web server name or IP address. For example: `https://myserver/VCM Remote`

Prerequisites

- Click **Prerequisites** and correct any missing installation requirements. See "Prerequisites" on page 30.

- Click **Basic Information** and enter the basic installation settings. See "Basic Information" on page 37.

Procedure

1. On the left, click **Additional Information**.

2. Under User Credentials, click the **VCM Remote** tab.

3. In the **VCM Remote Virtual Directory Name** text box, type the name you want.

   The default is **VCMRemote**.

What to do next

(Optional) Configure the VCM database name, size and growth settings, and folders.

See "Configure Additional Database Settings" below.

Configure Additional Database Settings

(Optional) Configure the VCM database name, size and growth settings, and folders.

Prerequisites

- Click **Prerequisites** and correct any missing installation requirements. See "Prerequisites" on page 30.

- Click **Basic Information** and enter the basic installation settings. See "Basic Information" on page 37.

Procedure

1. On the left, click **Additional Information**.

2. In Additional Information, click the **Database** tab.

3. Edit the following settings:

Option	Description
Database Name	Name of the VCM database. The default is VCM.
Initial Size (GB)	Initial size of the VCM database, in gigabytes
Growth %	Amount by which the VCM database will be allowed to grow before requiring administration or maintenance
Data File Path	Folder and MDF file in which to store SQL Server primary data files for the VCM, Collector, Raw, and UNIX databases. Some SQL database system administrators require that you place the data files and log files on separate drives, and often require that the files be on a drive or partition that is separate from the operating system drive or partition.
Log File Path	Folder and LDF file in which to store the SQL Server transaction log files for the VCM, Collector, Raw, and UNIX databases. After installation, monitor the size of the SQL log file to see how much space it needs in a production environment. Carefully implement your recovery mode and backup strategy so that the file does not grow larger than the database. Some SQL database system administrators require that you place the data files and log files on separate drives, and often require that the files be on a drive or partition that is separate from the operating system drive or partition.

What to do next

(Optional) Select separate folders under which to install VCM components.

See .

Select Separate Installation Folders

(Optional) Select separate folders under which to install VCM components.

You can install the following VCM components into separate folders.

- Collector Data
- Database Components
- Web Console
- Tomcat Server and API

The Collector data folder holds managed machine data until that data is written to the VCM database. The folder content is dynamic and changes as collections occur, and it can be placed on slower performing storage.

The database, Web console, and Tomcat folders hold binaries that support those respective functions and are installed into separate folders if you want better fault isolation and troubleshooting capability.

Prerequisites

- Click **Prerequisites** and correct any missing installation requirements. See "Prerequisites" on page 30.

- Click **Basic Information** and enter the basic installation settings. See "Basic Information" on page 37.

Procedure

1. On the left, click **Additional Information**.

2. In Additional Information, click the **File System** tab.

3. Type the folder paths you want, or click the ellipsis button to browser to folders.

What to do next

Configure recommended options or start the installation. See "Recommended Options" below.

Recommended Options

Before starting the installation, configure optional, recommended settings that allow users to log in and start using VCM as soon as installation completes.

Prerequisites

- Click **Prerequisites**, and correct any missing installation requirements. See "Prerequisites" on page 30.

- Add license keys, select service accounts, and select an installation folder. See "Basic Information" on page 37.

- Configure additional information See "Additional Information" on page 39.

Procedure

- "Configure vCenter Server Access" on the next page

  Configure vCenter Server access options so that VCM can collect host and guest data from vCenter Server instances when installation is complete.

- "Download and Install Compliance Content" on the next page

  VMware provides predefined compliance templates that are based on hardening guides and published industry security standards. Download and install selected compliance templates directly to the VCM database so that they are ready for use shortly after installation is complete.

- "Configure VCM Logins" on page 45

  Add accounts so that users can log in and run VCM after installation is complete.

What to do next

- Click **Install** to start the installation with the current prerequisite, basic, additional, and optional settings.

Configure vCenter Server Access

Configure vCenter Server access options so that VCM can collect host and guest data from vCenter Server instances when installation is complete.

Prerequisites

- Click **Prerequisites** and correct any missing installation requirements. See "Prerequisites" on page 30.

- Click **Basic Information** and enter the basic installation settings. See "Basic Information" on page 37.

- Click **Additional Information** and enter optional, additional settings. See "Additional Information" on page 39.

Procedure

1. On the left, click **vCenter Servers**.

2. In **vCenter Server**, type the name of the vCenter Server.

3. In **vCenter Type**, select whether this is a vAppvCenter Server or a physical (Windows) vCenter Server.

4. In **Domain**, type the domain to which the vCenter Server belongs.

5. In **Port**, type the port used by the VMware Infrastructure SDK on the vCenter Server instances.

   The default value is 443.

6. In **User ID**, type a vCenter Server instance user name.

   The user must have a vCenter Server administrative role or an unrestricted read only role.

7. In **Password**, type the password for the vCenter Server instance user ID.

8. In **Confirm Password**, type the password again.

9. In **Ignore Untrusted SSL Certificate**, select a certificate option.

   - **Yes** ignores the requirement for a valid signed certificate.

   - **No** requires that you add a valid signed certificate.

10. If you selected **No**, in **Thumbprint**, type or paste the certificate thumbprint string.

11. Click **Add** to add the vCenter Server to the list of vCenter Servers that VCM will connect to.

Repeat the process to configure additional vCenter Servers.

What to do next

Add compliance templates directly to the VCM database so that they are ready for use shortly after installation is complete. See "Download and Install Compliance Content" below.

Download and Install Compliance Content

VMware provides predefined compliance templates that are based on hardening guides and published industry security standards. Download and install selected compliance templates directly to the VCM database so that they are ready for use shortly after installation is complete.

Prerequisites

- Click **Prerequisites** and correct any missing installation requirements. See "Prerequisites" on page 30.

- Click **Basic Information** and enter the basic installation settings. See "Basic Information" on page 37.

- Click **Additional Information** and enter optional, additional settings. See "Additional Information" on page 39.

Procedure

1. On the left, click **Compliance Content**.

2. Select an option to get compliance templates directly from the VMware Center for Policy and Compliance Internet site, or from previously downloaded templates on a local file system.

3. Select one or more compliance templates to install.

4. Highlight a compliance template, and review or edit its description.

What to do next

Add accounts so that users can log in and run VCM after installation is complete. See "Configure VCM Logins" below.

Configure VCM Logins

Add accounts so that users can log in and run VCM after installation is complete.

Prerequisites

- Click **Prerequisites** and correct any missing installation requirements. See "Prerequisites" on page 30.

- Click **Basic Information** and enter the basic installation settings. See "Basic Information" on page 37.

- Click **Additional Information** and enter optional, additional settings. See "Additional Information" on page 39.

Procedure

1. On the left, click **VCM Logins**.

2. In **Domain**, type the domain to which the user or group belongs. The Collector must also be a member of the domain.

3. In **User/Group name**, type the user account name or group name.

4. In **Description**, type a short description of this user or group.

5. Use the arrow buttons to select the VCM roles that apply to the user or group.

6. Add or remove the user or group in the list of VCM accounts that will be enabled when installation completes.

What to do next

Click **Install** to start the installation with the current prerequisite, basic, additional, and optional settings.

Post-Installation

4

After installing VCM, do the following post-installation tasks to complete the installation and configuration of your VCM environment.

This chapter includes the following topics:

On-Access Antivirus Settings

Antivirus applications that include an on-access file scanner might reduce performance or cause errors in VCM, especially in large scale environments.

Because of the high amount of access that certain VCM files and folders are subject to, configure on-access scanners to exclude VCM database files and the folder on the Collector where VCM stages data.

Exclusions for SQL Server database files include the following file type extensions:

- .MDF SQL Server data files
- .LDF SQL Server data files
- .NDF SQL Server data files
- .BAK SQL Server backup files
- .TRN SQL Server backup files

The default data folder on the Collector is:

```
C:\Program Files (x86)\VMware\VCM\
```

SQL Server Database Settings

Configure the database settings for VCM to optimize SQL Server performance.

Procedure

1. Click **Start**.

2. Select **All Programs > Microsoft SQL Server {version} > SQL Server Management Studio**.

3. Right-click the SQL instance that you installed and select **Properties**.

4. In the Select a page area, select **Database Settings**.

5. Configure the following settings.

   - **Default index fill factor.** Sets a percentage value for the amount of free space in each index page when the page is rebuilt. Set the fill factor to 80% to keep 20% free space available in each index page. This setting is part of the SQL maintenance plan wizard. If you configure the default fill factor using this setting, keep free space in an index when you run a maintenance plan.

   - **Recovery interval (minutes).** Configures the approximate amount of time that SQL Server takes to run the recovery process. Set the value to 5. The default setting is 0, which causes SQL Server to adjust this value and base the values on the historical operation of the server. In large environments, the recovery interval can affect the overall performance of VCM. Because VCM constantly updates how it interacts with SQL Server to process activities whose intervals differ, such as an inspection request and a compliance run, the server expends much time constantly adjusting this value. By setting the recovery interval to 5 minutes, SQL Server no longer must tune this value.

6. Click **OK** to save the settings.

Configure SQL Server Processor Settings

Configure the SQL Server Processor settings to set the maximum worker threads or boost the SQL Server priority.

Procedure

1. Click **Start**.

2. Select **All Programs > Microsoft SQL Server {version} > SQL Server Management Studio**.

3. Right-click the SQL instance that you installed and select **Properties**.

4. In the navigation pane, select **Processors**.

5. In the Enable processors area, select **Automatically set I/O affinity mask for all processors**.

6. Select **I/O Affinity** for all processors in the Enable processors list.

7. Configure the following settings as needed for your configuration and restart the SQL Server service for the changes to take effect.

- To remove a processor from SQL Server and reserve it for the OS, uncheck the check box next to the processor. Remove the processor that the network card will use so that network communication does not affect SQL Server. Most network cards use the first processor, but some Intel network cards use the last processor.

- When hyperthreading is enabled, the processor list normally starts at 0 and lists the number of physical cores, and then repeats to include the hyperthread-created processors. For example, to unlink the first core from SQL in a four-CPU hyperthreaded system, which includes eight processors according to the OS, clear the check boxes next to CPU 0 and CPU 4. This is the preferred logical processor enumeration sequence recommended to BIOS vendors by Intel as part of its Netburst architecture. A BIOS that uses this preferred sequence shows the two threads of the first Hyper-threaded CPU as logical CPU 0 and 1. To confirm which algorithm is used, verify with the BIOS vendor or compare the SQL Server processor affinity options with and without hyperthreading enabled.

8. Click **OK** to save the settings.

Use SQLIO to Determine I/O Channel Throughput

SQLIO is a tool that determines the I/O capacity of a SQL configuration. To predict how well VCM will function on a particular I/O configuration and to obtain a baseline of how well the I/O subsystem functions, run SQLIO before you install VCM.

After you download and install SQLIO, configure the following SQLIO settings to ensure an accurate report of I/O throughput.

- 64K Block Size

- 4 Threads

- 2GB File Size minimum

- Sequential I/O

When you execute SQLIO, verify that you create baseline information for each I/O channel (logical disk) to be used for VCM data, as well as testing both read and write operations.

About VCM Databases

Data associated with VCM is stored in its SQL Server databases.

All VCM databases are installed in the same SQL Server instance and must not be manually moved to separate instances.

Table 4–1. VCM SQL Server Databases

Database Name	Description
VCM	Contains configuration data for the VCM application itself, collected data from Window systems and virtual infrastructure, change details from all systems, and results of patch and compliance assessments. The base name VCM is a default that may be changed.
VCM_Coll	Provides operational state information for the Collector service, mainly used to track details of running jobs and last contact state of managed client systems.
VCM_UNIX	Contains the collected managed machine data gathered from any Linux, UNIX, or Mac Agents in the environment.

Database Name	Description
VCM_Raw	For performance improvement, a database that temporarily holds collection data before transformation into the VCM and VCM_UNIX databases. The raw database should not be backed up and should not be included in maintenance plans.

Hardware and Operating System Requirements for VCM Managed Machines

5

VCM collects data from Windows and UNIX machines that VCM manages. The VCM Agent is supported on many different machine and operating system types.

This chapter includes the following topics:

VCM Agent Support on Non-English Windows Platforms

If you install the VCM Agent on non-English (non-ENU) Windows machines, and collect data from these machines, review the following dependencies and limitations.

- You might need additional language packs on Windows machines where VCM administrators run the VCM Web console interface to display non-western data that VCM collects from these machines.

- Non-English versions of Microsoft patches in Spanish, French, and Danish are currently supported.

- Compliance rules that refer to Services must use the internal names rather than the display names, because the display names might be localized.

VCM Managed Machine Requirements

VCM can manage various machines and operating systems. The table below lists the supported VCM Agents, operating system, and hardware platforms.

If the list of supported machines and operating systems does not include your specific combination of platform and operating system, contact VMware Technical Support to confirm whether your configuration is supported by a later version of VCM.

Machines that are noted with a specific Agent version are supported with the Agent version listed. For machines that are noted with support up to the a certain Agent version, you could install an earlier version of the Agent on these platforms, but you cannot install a newer Agent, which means that you cannot use the latest features on those machines. Contact VMware Technical Support for previously supported Agents.

The following x64 platforms are tested.

- Windows: Intel64 and AMD64

- Linux: Intel64 and AMD64

- Solaris: Intel64

Itanium is not supported for Linux, UNIX, or Windows, except for HP-UX for Itanium servers.

Machines marked with an asterisk (*) include a pre-VCM 5.2.1 Agent and might not report the name of the operating system correctly. You should upgrade the Agents on these machines.

Table 5–1. Agent Operating System and Hardware Requirements

Agent	Supported Operating System	Supported Hardware Platform	Platforms To Be Upgraded
Windows	Microsoft Windows 2003 SP2	x86 and x64	
	Microsoft Windows 2003 R2	x86 and x64	
	Microsoft XP Professional SP3	x86 and x64	
	Microsoft Vista Business (including SP1)	x86 and x64	*
	Microsoft Vista Ultimate (including SP1)	x86 and x64	*
	Microsoft Vista Enterprise (including SP1)	x86 and x64	*
	Microsoft Windows Server 2008	x86 and x64	*
	Microsoft Windows Server 2008 R2	x86 and x64	*
	Microsoft Windows 7 Business	x86 and x64	
	Microsoft Windows 7 Ultimate	x86 and x64	
	Microsoft Windows 7 Enterprise	x86 and x64	*
	Microsoft Windows 8 Enterprise	x86 and x64	
	Microsoft Windows Server 2012 Datacenter	x86 and x64	
	Microsoft Windows Server 2012 Standard	x86 and x64	
	Microsoft Windows Server 2012 Essentials	x86 and x64	
Linux and UNIX	AIX 6L, 6.1, 7.1	RISC and PowerPC	
	CentOS 5.0–5.10, and 6.0 (Not supported for Patching)	x86 and x64	

Agent	Supported Operating System	Supported Hardware Platform	Platforms To Be Upgraded
	ESX 4.1, 4.1 Update 1 ESXi 4.1, 4.1 Update 1, Update 2, Update 3 ESXi 5.0, 5.0 Update 1 ESXi 5.1		
	HP-UX 11i v1.0 (11.11) (up to 5.4 Agent only) (If you install the Agent on HPUX 11.11, patch PHSS_30966 is required.) Supported in trusted mode in the default configuration.	PA-RISC	
	HP-UX 11i v2.0 (11.23) (up to 5.4 Agent only)	Itanium	
	HP-UX 11i v2.0 (11.23) (up to 5.4 Agent only)	PA-RISC	
	HP-UX 11i v3.0 (11.31)	Itanium	
	HP-UX 11i v3.0 (11.31)	PA-RISC	
	Oracle Enterprise Linux (OEL) 5.0–5.10, and 6.0 (Not supported for Patching)	x86 and x64	
	Red Hat Enterprise Linux 5.0–5.10, 6.0–6.4 Server, Desktop with Workstation, and Advanced Platform	x86 and x64	
	Solaris 10 (Certified and verified on Solaris 10 zfs and custom information data class collections on both zfs and vxfs.)	SPARC, SPARC-V9, x86, and x64	
	Solaris 11 (Not supported for Patching)	SPARC, SPARC-V9, x86, and x64	
	SUSE Linux Enterprise Server (SLES) 10.0–10.2 (up to 5.5.0 Agent only) SUSE Linux Enterprise Server (SLES) 10.3–10.4, 11.0–11.2	x86 and x64	
Mac OS X (Servers and Workstations)	Mac OS X 10.6 (up to 5.5.0 Agent only) Mac OS X 10.7 and 10.8	Intel-based Apple platforms only	
Active Directory	Microsoft Windows 2000	x86	
	Microsoft Windows 2003	x86 and x64	
	Microsoft Windows 2003 R2	x86 and x64	
	Microsoft Windows 2008	x86 and x64	
VCM Remote	Supports the same platforms as the VCM Windows Agent.		

Linux, UNIX, and Mac OS Agent Files

VCM Linux, UNIX, and Mac OS Agent files are architecture specific. When you install the Agent using VCM, the target operating systems are evaluated and the corresponding Agent is installed. If you are manually installing the Agent on the target machine, you must ensure that you use to correct Agent binary packages.

The Agent packages are located on the Collector in `\Program Files (x86) \VMware\VCM\Installer\Packages` by default.

Table 5–2. VCM Linux, UNIX, and Mac OS Agent Files

Operating System Version	Agent Binary
Red Hat Enterprise Linux 5.0–5.10, 6.0–6.4 SUSE Linux Enterprise Server 10.0–10.4, 11.0–11.2 Oracle Enterprise Linux (OEL) 5.0–5.10, and 6.0 CentOS 5.0–5.10, and 6.0	`CMAgent.5.7.1.Linux`
Solaris 10 and 11 for SPARC	`CMAgent.5.7.0.SunOS`
Solaris 10 and 11 for x86	`CMAgent.5.7.0.SunOS.x86.5.10`
HP-UX 11i 1.0 and 2.0 (11.11 and 11.23 for PA-RISC)	`CMAgent.5.4.0.HP-UX.11.pa`
HP-UX 11i 3.0 (11.31 for PA-RISC)	`CMAgent.5.7.0.HP-UX.11.pa`
HP-UX 11i 2.0 (11.23 for Itanium)	`CMAgent.5.4.0.HPUX.11.ia64`
HP-UX 11i 3.0 (11.31 for Itanium)	`CMAgent.5.7.0.HPUX.11.ia64`
AIX 6L, 6.1, 7.1	`CMAgent.5.7.0.AIX.5`
Mac OS X 10.6	`CMAgent.5.5.0.Darwin`
Mac OS X 10.7, 10.8	`CMAgent.5.7.0.Darwin`

Windows Custom Information Supports PowerShell 2.0

Windows Custom Information (WCI) uses PowerShell as the scripting engine and the element-normal XML format as the output that is inserted into the VCM database.

WCI supports PowerShell 2.0 and works with later versions of PowerShell.

■ PowerShell 2.0 is the base requirement for WCI in VCM, because of its ability to set the execution policy at the process level.

■ You can run WCI PowerShell collection scripts against Windows machines that have PowerShell 1.0 installed, although this usage is not supported or tested. If the collection scripts do not use PowerShell 2.0 commands, any of your WCI filters that use the in-line method to pass a WCI script to PowerShell will operate correctly.

With PowerShell 2.0, you can set the script signing policies at the machine, user, and process levels. The process level runs a single execution of `powershell.exe`.

In VCM, Windows Custom Information (WCI) uses script type information in the collection filter to determine how to execute PowerShell and how to pass the script to it.

For more information, see the *VCM Administration Guide*.

Supported OS Provisioning Target Systems

Use OS provisioning to install the following operating system on machines with at least 1GB RAM.

Table 5–3. Supported Operating Systems

Operating System	Versions
Red Hat Enterprise Linux (RHEL)	(Server only) 5.0, 5.2, 5.4, 5.5, 5.6, 5.8, 6.0, 6.2, 6.3, 32-bit and 64-bit
SUSE Linux Enterprise Server (SLES)	10.3, 32-bit and 64-bit 11.1, 32-bit and 64-bit 11.2, 32-bit and 64-bit (Custom import as 11.1)
Windows Server 2008 R2	64-bit - Std, Ent, Web, DC, StdCore, EntCore, WebCore, DCCore
	SP1 - i386 and 64-bit - Std, Ent, DC, StdCore, EntCore, DCCore
	SP2 - i386 and 64-bit - Std, Ent, DC, StdCore, EntCore, DCCore
Windows 7 Pro	i386 and 64-bit, Retail, Volume
Windows 2003	R2 SP2 - i386 and 64-bit - Std, Ent

For more information about installing the OS Provisioning Server and using the OS provisioning options in VCM are available in the *VCM Administration Guide*.

Software Provisioning Requirements

VCM Software Provisioning provides the components to create software provisioning packages, publish the packages to repositories, and install and remove software packages on target machines.

Table 5–4. Software Provisioning Operating System and Hardware Requirements

Supported Operating System	Supported Hardware Platform
Microsoft Windows 7	x86, x64
Microsoft Windows Server 2008 R2	x64
Microsoft Windows Server 2008 SP2	x86, x64
Windows Vista SP2	x86, x64
Microsoft Windows XP SP3	x86
Microsoft Windows XP SP2	x64
Microsoft Windows Server 2003 R2 SP2	x86, x64
Microsoft Windows Server 2003 SP2	x86, x64

Your system must meet the requirements for VCM Software Provisioning components and software.

Table 5–5. Software Provisioning Component Requirements

Software Provisioning Component	Description	Requirements
VMware vCenter Configuration Manager Package Studio	Application used to the create the software packages.	.NET 3.5.1 or higher
Software Repositories	File system used to store the shared software packages.	.NET 3.5.1 and IIS 6, 7, or 7.5
Package Manager	Application on each managed machine that downloads packages from repositories, and installs and removes the software contained in the packages.	.NET 3.5.1 or higher

You can use any virtual machine guest on VMware ESX and ESXi Servers that meets these requirements for any of the VCM Software Provisioning components.

Linux and UNIX Patch Assessment and Deployment Requirements

VCM 5.7 supports UNIX patch assessments and deployments for various machine types and operating systems. The PLS files used for UNIX patch assessments require 20MB of disk space.

Table 5–6. Linux and UNIX Patch Assessment and Deployment Operating System and Hardware Requirements

Supported Operating System	Supported Hardware
AIX 6.1	RISC and PowerPC
AIX 7.1	RISC and PowerPC
HP-UX 11i v1.0 (11.11) (up to 5.4 Agent only)	PA-RISC
HP-UX 11i v2.0 (11.23) (up to 5.4 Agent only)	Itanium
HP-UX 11i v2.0 (11.23) (up to 5.4 Agent only)	PA-RISC
HP-UX 11i v3.0 (11.31)	Itanium
HP-UX 11i v3.0 (11.31)	PA-RISC
Mac OS X 10.6 (up to 5.5.0 Agent only)	Intel-based Apple platforms only
Mac OS X 10.7, 10.8	Intel-based Apple platforms only
Red Hat Enterprise Linux 5.0, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 6.0, 6.1, 6.2, 6.3, Server, Desktop with Workstation, and Advanced Platform	x86 and x64 (includes Intel and AMD architectures, excludes Itanium)
Solaris 10	SPARC, SPARC-V9, x86, and x64
SUSE Linux Enterprise Server (SLES) 10.0–10.2 (up to 5.5.0 Agent only) SUSE Linux Enterprise Server (SLES) 10.3–10.4, 11.0–11.2	x86 and x64 (includes Intel and AMD architectures, excludes Itanium)

VCM 5.7 provides UNIX patch assessment content in a new format for the following operating systems.

- Red Hat RHEL 5 and 6

- SUSE SLES 10.0–10.4 and 11.0–11.2

For information about the new content format, see the *VCM Administration Guide* or the VCM online help.

Support for VMware Cloud Infrastructure

Use VCM to collect data from vCenter Server, vCloud Director, and vShield Manager. The collection runs on the supported platforms using the VMware API/SDK through a Managing Agent.

To collect ESX Linux Data Types from the ESX Service Console OS, including ESX Logs, you use an Agent Proxy.

Cloud and Virtualization Infrastructure Platforms

Use the VMware product interoperability matrix to determine the cloud and virtualization infrastructure platforms from which VCM can collect. See partnerweb.vmware.com/comp_guide2/sim/interop_matrix.php.

Managing Agent Requirements

To collect virtual environments data, you use Managing Agent machines. A Managing Agent is a Windows machine running Windows 7, 64-bit, or Windows Server 2008, 64-bit.

Agent Proxy Requirements for VMware ESX and ESXi

To collect ESX Service Console OS Linux data types, including ESX logs, you use an Agent Proxy rather than installing the VCM Agent directly on the ESX Servers.

When collecting data from ESX Servers, you must configure at least one VCM Agent Proxy machine. You can configure the Collector as the Agent Proxy or configure standalone Agent Proxy machines. The Collector communicates with the Agent Proxy and the Agent Proxy then directly communicates with the ESX Servers using SSH and/or Web Services for necessary data collection actions. The data is processed by the Agent Proxy and relayed to the Collector.

The minimum operating system and hardware requirements for each Agent Proxy machine are based on the following criteria.

- Number of machines from which you are collecting data

- Type of data collected and filters used

- Frequency of collections

- Data retention

Minimum Operating System Requirements for Agent Proxy Machines

The Agent Proxy machine must be running Windows Server 2008 R2 or Windows Server 2003 SP2. For more information to install and configure the Agent Proxy, see the *VCM Administration Guide*.

Minimum Hardware Requirements for Agent Proxy Machines

The Agent Proxy is installed on the Collector by default. Although the Agent Proxy is available on the Collector, it requires special configuration to operate. You must configure an Agent Proxy server to collect data from ESX Servers. If more than 50 ESX Servers are managed, additional Agent Proxy servers must be configured to maintain the ratio of one agent proxy for each 50 ESX Servers.

The designated VCM for Agent Proxy servers should meet the following minimum requirements for physical hardware or virtual machines. An Agent Proxy server meeting these requirements can manage approximately 50 ESX Servers.

Physical Requirements for Virtualization Agent Proxy

- **Processor.** Single Xeon or single-core 2GHz minimum

- **RAM.** 4GB minimum

- **Disk Space.** Each Agent Proxy requires an additional 93MB of disk space, above the 200MB required for the standard Agent. You will also need:

  - 4MB per ESX server for data model storage

  - 150MB per ESX server for Agent master files

Virtual Requirements for Virtualization Agent Proxy

- **CPU.** One virtual CPU, 2GHz, on a supported ESX host machine.

- **RAM.** 4GB minimum reservation on a supported ESX host machine.

- **Storage.** Each Agent Proxy requires an additional 93MB of disk space, above the 200MB required for the standard Agent on a supported ESX platform. You will also need:

  - 4MB per ESX server for data model storage

  - 150MB per ESX server for Agent master files

vCenter Operations Manager Integration Features

You can configure the following versions vCenter Operations Manager with VCM 5.7. Different integrated versions of vCenter Operations Manager support different features.

Table 5–7. vCenter Operations Manager Integration

vCenter Operations Manager Version	VCM Features in vCenter Operations Manager
5.0.x	VCM change events
5.6, 5.7	VCM change events, compliance template results, and machine groups

FIPS Requirements

If your organization must conform to the Federal Information Processing Standards (FIPS), the following tables list the VCM supported standards.

FIPS for Windows

For the following Windows platforms, VCM uses the Microsoft CryptoAPI and the Microsoft Cryptographic Service Providers (CSPs), which is included with Microsoft Windows.

Table 5–8. FIPS Support for Windows Machines

Operating System	Version	Hardware Platform	FIPS Module Certificate
.NET	3	cil	894
Windows Vista	1	x86	899

Operating System	Version	Hardware Platform	FIPS Module Certificate
Windows Vista	1	x86 and 64-bit	894
Windows Vista	1	x86 and 64-bit	893
Windows Vista	1	x86 and 64-bit	892
Windows 2003	SP2	x86 and 64-bit	875
Windows 2003	SP1	x86 and 64-bit	382
Windows 2003	SP1	x86 and 64-bit	381
Windows 2003	Gold	x86 and 64-bit	382
Windows 2003	Gold	x86 and 64-bit	381
Windows XP	SP2	x86	240
Windows XP	SP2	x86	238
Windows XP	SP1	x86	240
Windows XP	Gold	x86	240
Windows XP	Gold	x86	238
Windows 2000	All	x86	103
Windows 2008	1	x86 and 64-bit; Itanium is not supported.	See "Cryptographic RSA Enhanced Validated Modules" below and "Cryptographic DSS Enhanced Validated Modules" on page 60.
Windows Server 2008 R2	RTM		
Windows All	2000	x86	76

Cryptographic RSA Enhanced Validated Modules

The Microsoft Cryptography API (CAPI) supports the following validated versions of RSA enhanced modules, and the operating systems for which the testing is valid.

Table 5–9. RSA Enhanced Validated Modules

RSAENH Validated Operating Systems	Validated Versions (Links to Security Policy)	FIPS Certificate #	FIPS Version Validated
Windows 2000	5.0.2150.1	#76	140–1
Windows 2000 SP1	5.0.2150.1391	#103	140–1
Windows 2000 SP2	5.0.2195.2228	#103	140–1
Windows 2000 SP3	5.0.2195.3665	#103	140–1
Windows XP	5.1.2518.0	#238	140–1
Windows XP SP1	5.1.2600.1029	#238	140–1
Windows XP SP2	5.1.2600.2161	#238	140–1

RSAENH Validated Operating Systems	Validated Versions (Links to Security Policy)	FIPS Certificate #	FIPS Version Validated
Windows XP Professional SP3	5.1.2600.5507	#989	140–2
Vista Ultimate Edition	6.0.6000.16386	#893	140–2
Vista Ultimate Edition SP1	6.0.6001.22202	#1002	140–2
Windows Server 2008	6.0.6001.22202	#1010	140–2

Cryptographic DSS Enhanced Validated Modules

The Microsoft Cryptography API (CAPI) supports the following validated versions of DSS enhanced modules, and the operating systems for which the testing is valid.

Table 5–10. DSS Enhanced Validated Modules

DSSENH Validated Operating Systems	Validated Versions (Links to Security Policy)	FIPS Certificate #	FIPS Version Validated
Windows 2000	5.0.2150.1	#76	140–1
Windows 2000 SP1	5.0.2150.1391	#103	140–1
Windows 2000 SP2	5.0.2195.2228	#103	140–1
Windows 2000 SP3	5.0.2195.3665	#103	140–1
Windows XP	5.1.2518.0	#240	140–1
Windows XP SP2	5.1.2600.2133	#240	140–1
Windows XP Professional SP3	5.1.2600.5507	#990	140–2
Vista Ultimate Edition	6.0.6000.16386	#894	140–2
Vista Ultimate Edition SP1	6.0.6001.18000	#1003	140–2
Windows Server 2008	6.0.6001.18000	#1009	140–2

FIPS for VCM Agent Proxies

The VCM Agent Proxy uses the OpenSSL FIPS v1.1.2, which is validated to the 918 certificate.

Agent Sizing Information

The disk space requirements are fairly constant for a Windows, UNIX, Linux, Mac OS X, or AD managed machine that runs a VCM Agent. Each machine requires no more than 200MB to run an Agent. However, the recommended memory to run the HP-UX Agent is 1GB.

The following information identifies the data files for default collections only. A 20MB overlap exists between the Agent Proxy Agent and the Active Directory Agent when both Agents are installed on the same machine.

Use the following information as a general guideline. Factors such as the types of data collected can affect the sizing. VMware makes every effort to validate the numbers but cannot guarantee that the quoted sizing information is accurate for all installations.

Windows Machines

For several components, the projected data file sizing information can vary. The data file size is the estimated amount after an initial data collection using the default filter set.

Table 5–11. Windows Agents and Component File Sizes

Agent Type	Installed File Size	Data File Size	Projected Data File Size
VCM Agent used as Managing Agent This default Agent includes Extension for Provisioning and Managing Agent.	130–135MB	200MB–1GB	The projected data file sizing information can vary depending on the size of your vCenter Server instances and the number of hosts and guests.
Agent Proxy for Virtualization	VCM Agent +40MB	See VCM Agent data file sizes	The projected data file size is determined the same as the default Agent.
VCM Agent used for Provisioning This default Agent includes Extension for Provisioning and Managing Agent.	130–135MB	10–20MB	The projected data file sizing information can vary depending on your collection filter set, and is determined by collected data types and actions. The size can vary from 10–20MB to more than 100MB. The File System-File Structure and System Logs data types can cause large data growth.
VCM Agent without Extension for Provisioning	70–76MB	10–20MB	The projected data file size is determined the same as the default Agent.
Active Directory Agent	VCM Agent +30MB	See VCM Agent data file sizes	The projected data file size is determined the same as the default Agent.
VCM Remote Client	VCM Agent +2MB (installs or upgrades Agent)	See VCM Agent data file sizes	The projected data file size is determined the same as the default Agent.
Patching Agent	VCM Agent +2MB	See VCM Agent data file sizes	The projected data file size is determined the same as the default Agent.

Agent Type	Installed File Size	Data File Size	Projected Data File Size
Package Manager (installed with VCM Agent Extension for Provisioning), which includes the database and cratecache.	Package Manager 4MB Database 140KB Cratecache 0MB	n/a	**Package Manager.** The application that installs and removes packages. Size remains fixed. **Database.** Metadata about packages. Increased size based on number of installed packages. For example, installing one package increased the size from 140KB to 141KB. **Cratecache.** Packages downloaded to the machine from Software Repository. Increased size is based on the number of installed packages and the size of the packages, and changes if packages are cleaned from the cratecache after package installation or removal.
Package Studio	5MB	n/a	Increased size of the files depends on which `*.prj` and `*.crate` files are saved locally.
Software Repository	5KB	n/a	Increased size of the files is based on the number of packages published to the repository from Package Studio.

Linux and UNIX Machines

The projected data file sizing information for Linux and UNIX machines information can vary depending on your collection filter set and is determined by collected data types and actions. The size can vary from 10–20MB to more than 100MB. The most likely data types to cause large data growth are File System-File Structure and System Logs.

The data file size is the estimated amount after an initial data collection with the default filter set.

Table 5–12. Linux and UNIX Agents File Sizes

Agent Type	Installed File Size	Data File Size
CMAgent.5.7.0.AIX.5	60–80MB	5–20MB
CMAgent.5.4.0.HP-UX.11.pa	120–125MB	45MB
CMAgent.5.7.0.HP-UX.11.pa	80MB	5–16MB
CMAgent.5.4.0.HP-UX.11.ia64	120–125MB	45MB
CMAgent.5.7.0.HP-UX.11.ia64	80MB	5–16MB
CMAgent.5.7.0.Linux	30–50MB	5–70MB

Agent Type	Installed File Size	Data File Size
CMAgent.5.7.0.SunOS	80–90MB	25MB
CMAgent.5.7.0.SunOS.x86.5.10	80–90MB	35MB

Mac OS X Machines

The projected data file sizing information for Mac OS X machines can vary depending on your collection filter set and is determined by collected data types and actions. The size can vary from 10–20MB to more than 100MB. The most likely data types to cause large data growth are File System-File Structure and System Logs.

The data file size is the estimated amount after an initial data collection with the default filter set.

Table 5–13. Mac OS X Agent File Sizes

Agent Type	Installed File Size	Data File Size
CMAgent.5.7.0.Darwin	120MB	40MB

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