



# Introduction and Data Center Topology For Your System

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This chapter provides an introduction, a data center overview, and VMware vCenter requirements for your system.

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## Introducing Cisco Webex Meetings Server

Cisco Webex Meetings Server (CWMS) is a secure, fully virtualized, private cloud (on-premises) conferencing solution that combines audio, video, and internet to reduce conferencing costs and extend your investments in Cisco Unified Communications.

Like other Cisco Webex products, it offers real-time collaboration tools, including document, application, and desktop sharing, annotation tools, full host control for effective meeting management, an integrated participant list with active talker, and video switching, recording, and playback. This product utilizes high quality video, so the video sharing experience is crisp and clear.

You can deploy and manage this conferencing solution in your private cloud, behind the firewall in your data center. It is designed for Cisco UCS servers and VMware vSphere. (For specific requirements, see [Minimum Hardware Requirements](#).) It features a rapid virtual deployment and powerful tools for administrators to configure and manage the system and see key system metrics.

In addition, mobile users can attend and participate in meetings. For supported devices, see [Operating Systems Requirements for Mobile Devices](#).

### Important Considerations For Your System

Note the following:

- Forward proxies—not recommended, though you may use forward proxies with restrictions. For complete details, refer to the *Cisco Webex Meetings Server Troubleshooting Guide*.
- Reverse proxies—only the Internet Reverse Proxy server included with this product is supported.
- NAT—supported when it meets the requirements for this system. For complete details, see [Using NAT With Your System](#).
- Single data centers—deployments within a single data center are supported for all releases of Cisco Webex Meetings Server. For complete details, see [Deploying a Single Data Center](#).
- Multi-data centers—data centers running Cisco Webex Meetings Server Release 2.5 or higher can be joined to create a system comprised of multiple data centers. For complete details, see the *About Multi-data Center* in the [Cisco Webex Meetings Server Administration Guide](#).
- Storage Server—Each data center in a multi-data center system must have a separate storage server. The same storage server cannot support more than one data center.
- High-availability system—defined as a system with redundant virtual machines running the same version of Cisco Webex Meetings Server. If the primary system (in a single data center system) fails, the high-availability system continues service. The redundant high-availability virtual machines must be co-located in the same data center with the primary virtual machines. The primary and high-availability system virtual machines must be on the same VLAN or subnet.

You cannot join high-availability systems to create a multi-data center environment.

- Internet Reverse Proxy (IRP) Server—is defined as a virtual machine placed as a proxy between the external Internet and a company's internal network to provide public access to CWMS. An Internet Reverse Proxy server is required to allow users to schedule and attend meetings from mobile devices or to provide secured access to your Webex Site from the Internet. An Internet Reverse Proxy server is not required if you are going to limit access to Cisco Webex Meetings Server to your internal network. (Deploy an IRP virtual machine by using the same OVA file you use to deploy your administration virtual machine. The IRP virtual machine must be on the same subnet as the Public Virtual IP address.)
- Virtual IP (VIP) Address—used to communicate with the Admin, Media, and Web virtual machines within a data center.
- Private Virtual IP (VIP) address—configured on the Admin virtual machine and is associated to the Administration Site URL. The private VIP can also be associated with the Webex Site URL if the address is configured in the internal DNS server in a Split-Horizon DNS deployment or deployments without an Internet Reverse Proxy server.
- Public Virtual IP (VIP) address—configured on the Internet Reverse Proxy virtual machine and is associated with the Webex Site URL only. The Webex Site URL on the external DNS servers must be resolvable to the Public Virtual IP address to provide users access to the Webex Site from the Internet. A public virtual IP address is not configured on the system if there is no Internet Reverse Proxy server.




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**Caution**

If you disregard our recommendations and requirements when deploying a system, you will not receive support from Cisco. Cisco is not responsible for any problems you might encounter as a result of not following our guidance.

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### New and Changed Features for Cisco Webex Meetings Server

For a list of new and changed features, see the "New and Changed Features for Cisco Webex Meetings Server" in the *Release Notes for Cisco Webex Meetings Server* at [Release Notes](#).

## Information for Cisco Unified MeetingPlace Customers

Because of architectural differences, there is no migration path (for existing user accounts, customizations, and meetings) from Cisco Unified MeetingPlace to Cisco Webex Meetings Server. These are two distinct products.

You can ease the transition for your users by continuing to support both Cisco Unified MeetingPlace and Cisco Webex Meetings Server while encouraging your users to switch to the new system.

## Deploying a Single Data Center

Cisco Webex Meeting Server (CWMS) can be deployed as a Single-data Center (SDC) system and optionally as a High Availability (HA) system or a Multi-data Center (MDC) system (see [Redundancy in HA or MDC Deployments](#)). A SDC system (including a system with HA support) requires only Host licenses after a trial period. A MDC system requires a minimum of two MDC feature licenses, Host licenses, and there is no MDC trial period.

## Joining Single Data Centers to Create a Multi-data Center (MDC) System

You can join two data centers that are running Cisco Webex Meeting Server Release 2.5 or higher to form a single Multi-data Center (MDC) system. A maximum of two data centers can be joined. The difference between a Multi-data Center and a High Availability system is that a High Availability system must be co-located and functions as a backup system. In an MDC system, the data centers can be located in different geographic locations and both data centers contribute to system processing. See [Redundancy in HA or MDC Deployments](#). One license must be purchased for each CWMS data center in an MDC system. MDC licenses should be purchased before you attempt to deploy an MDC system. (A system with a single data center does not need a feature license.) For details on how to prepare your data centers to be joined, the Join process, and how to carry over data from one data center to another when the Join process is complete, refer to the "Joining Data Centers to Create a Multi-data Center (MDC) System" chapter in the *Cisco Webex Administration Guide* (<http://www.cisco.com/c/en/us/support/conferencing/webex-meetings-server/products-installation-guides-list.html>).

## Using VMware vSphere with Your System



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**Important**

This product only installs on a VMWare vSphere virtualization platform. VMWare Tools for CWMS are automatically installed during system deployment and should not be upgraded manually. See [docwiki.cisco.com/wiki/VMWare\\_Tools](http://docwiki.cisco.com/wiki/VMWare_Tools) for more information on VMWare Tools.

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- Cisco Webex Meetings Server is designed to work on any equivalent Cisco UCS Server that meets or exceeds the system requirements. However, to save you time, we recommend using standard Cisco UCS servers. For complete details on the hardware and VMWare requirements, see [Minimum Hardware Requirements](#).
- Purchase VMWare vSphere 5.5 or 6.0 for use as the hypervisor platform for Cisco Webex Meetings Server.  
Complete one of the following:
  - Buy vSphere directly from Cisco on the GPL (Global Price List). Cisco is an approved VMWare partner and distributor.
  - Purchase vSphere directly from VMWare through enterprise agreements you have with VMWare.

## Advantages of Deploying a System on VMware vSphere

This section explains why VMware vSphere and vCenter are integral to using this Cisco Webex product and lists some considerations.

### Deployment of the System

- This product is packaged as a VMware vSphere compatible OVA virtual appliance and not as a collection of software packages on a DVD. You must have vCenter to deploy the OVA or the product will not install.
- By packaging it as a virtual appliance we enable rapid deployment; in some cases in under an hour.
- To facilitate rapid installations with the OVA virtual appliance, you can select automatic system deployment for most system sizes. Simply provide vCenter credentials and we will deploy all the virtual machines for your system without manual intervention. This innovation will minimize your labor costs and time.




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**Note** The OVA template creates two virtual NICs for each virtual machine. However, only the Admin virtual machines uses both virtual NICs. For all other Cisco Webex Meetings Server (CWMS) virtual machines, only one virtual NIC is used and the other one is disconnected.

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- CWMS requires you to run VMware ESXi or the corresponding VMware ESXi installable Cisco ISO Image. Both these editions contain the necessary drivers required to support the Cisco UCS Servers that are required by CWMS. For more information, see [http://www.cisco.com/en/us/docs/unified\\_computing/ucs/release/notes/ol\\_26617.pdf](http://www.cisco.com/en/us/docs/unified_computing/ucs/release/notes/ol_26617.pdf).

### Easy Recovery From System Errors

If the change does not meet your expectations, by using VMware Data Recovery you can revert system-impacting changes rapidly and without a system redeployment.

## vSphere Considerations

Note the following considerations:

- You can move your virtual machine to another ESXi host. However, you must retain the layout of the virtual machines on the new ESXi host. In other words, if you plan to move a Media virtual machine that is co-resident with a Web virtual machine, then you must either move it to a separate ESXi host (where it is the only virtual machine) or move it to an ESXi host that already has a Web virtual machine.



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**Note** Your destination ESXi host must conform to the same system requirements as the source ESXi host.

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The following VMware features are not supported with CWMS:

- VMotion and Storage VMotion (Although you can move your virtual machines, you may not do so by using these tools.)
- VMware Distributed Resource Schedule (DRS)
- vSphere High Availability (HA)
- vSphere clustering and resource sharing
- Cloning a virtual machine

## vSphere Best Practices

- We recommend that you do not use virtual machine snapshots. If you decide to use snapshots, then after confirming your system changes, either commit the snapshots or remove them as soon as possible. Keeping a snapshot for any period of time will result in severe performance degradation.
- For SAN environments, deploy disk images to a SAN with high IOPS numbers.  
For an 800-user system, the average IOPS for an OVA deployment is 506 (max IOPS is 855) for the Admin virtual machine and 475 (max IOPS is 652) for a Media virtual machine. Once these virtual machines are created and powered on, then you can enter the case-sensitive URL and continue the system deployment in a web browser. The average IOPS for a primary system is 108 (max IOPS is 1558) and 163 (max IOPS is 1736) for a secondary system.
- Verify that there is enough free space on your SAN. Snapshots are stored on the same SAN.
- Deploy a 10GB network for the quickest deployment and bandwidth for future growth.
- We recommend that you manage all virtual machines by using the same vCenter. This allows for an easier restoration should you need to recover your system.

For more information on network bandwidth, see [Network Bandwidth Requirements](#).

## vCenter Server Requirements

In addition to vSphere, vCenter Server is also required.

- To deploy this virtual appliance, you must also use vCenter to deploy and manage the virtual machines in your system. This product will not work without vCenter Server.

- Cisco recommends backups and snapshots of the system ahead of important system-impacting operations. Creating backups permits you to roll back the changes in case the update does not meet your expectation. You may automate backups and snapshots using vCenter.
- CWMS supports vSphere Standard Edition.

### vSphere Edition For the 800 and 2000 User Systems

- The 800 and 2000 user systems comprise virtual machines that require between 30 and 40 vCPUs. These virtual machines use these vCPUs to perform very compute intensive tasks such as SSL encoding or decoding, mixing audio streams, and so on.

For complete information on vCPU requirements, see [Resources Consumed by CWMS and the ESXi Host](#).

- At minimum, you must purchase the vSphere 5.0 Enterprise Plus edition or the vSphere 5.1 Enterprise edition, as the lower-end vSphere editions do not support the number of required vCPUs.

## IOPS and Storage System Performance

### Expected Maximum IOPS and Throughput

The following table shows the expected maximum Input/Output Operation Per Second (IOPS) and throughput values for maximum load on the system.

System Size	Virtual Machine	Maximum Input/Output Operations (IOPS)	Maximum Read Megabytes per Second	Maximum Write Megabytes per Second
50 user system	Admin	450	1	15
	DMZ	70	0.3	0.3
250 user system	Admin	1400	1	25
	Media	150	1	10
	DMZ	110	0.4	0.6
800 user system	Admin	1400	3	50
	Media	300	1	30
	DMZ	150	1	1.5
2000 user system	Admin	1600	2.5	60
	Media	300	1	25
	Web	200	3	1.5
	DMZ	200	1.5	3

### IOPS for System Reboot for a 2000 User System

The following table shows IOPS information for a 2000 user system for the boot (reboot) process.

Virtual Machines in a 2000 User System	IOPS for System Boot (Reboot)	IOPS for Minor Update
Admin	2300	3000
Media	2000	2000
Web	1500	2000
Web	1000	2000

### IOPS for Backup for a 2000 User System

The following table shows IOPS information for a 2000 user system for a backup done during the off hours.

Admin Virtual Machine for a 2000 User System	IOPS for Backup	Maximum Read Megabytes per Second	Maximum Write Megabytes per Second
1 GB Backup	2000	220	300
12 GB Backup	5000	320	600

## Installing VMware vSphere ESXi and Configuring Storage

Cisco Webex Meetings Server is a software-based solution. It is not a combination hardware and software package. You can choose what to purchase and how to provision your hardware platforms, as long as the hardware meets or exceeds CPU, memory, and storage requirements.

You can deploy Cisco Webex Meetings Server on Cisco UCS Servers that meet our minimum specifications. Or you can choose to deploy this product on newer and higher-end UCS Servers that exceed our minimum specifications.

Multiple RAID controller and network options are available. You can choose to use SAN storage instead of local RAID. We do not provide details about every storage configuration that you may choose.

For more information, see the *Cisco UCS Servers RAID Guide*: [http://www.cisco.com/en/US/docs/unified\\_computing/ucs/c/sw/raid/configuration/guide/RAID\\_GUIDE.html](http://www.cisco.com/en/US/docs/unified_computing/ucs/c/sw/raid/configuration/guide/RAID_GUIDE.html).

### Setting the Write Cache on a RAID Controller

For optimal system performance, configure the Default Write setting on your RAID controller. You can set Default Write to three settings: *Write Back with BBU*, *Write Through*, or *Always Write Back*. Some guidelines for selecting the appropriate setting for Default Write on your Cisco UCS Servers are:

- **Write Back with BBU**—Use this setting if you have installed a battery backup unit on your RAID controller. If the system experiences a power loss, the battery backup unit preserves the content of the controller cache memory.

If the battery backup unit fails or goes offline to a re-learn cycle, the Write Back with BBU setting automatically fails back to **Write Through** cache. Without a working battery backup unit, the Write

Through setting is safer although you may notice performance degradation on the I/O subsystem of the host machine.

- **Write Through**—Use this setting and enable the cache explicitly (using the Disk Cache option) if you must remove the battery backup unit for repairs. This setting gives you better, but not optimal performance. After you replace the faulty battery, you can safely return the Default Write setting to Write Back with BBU mode.
- **Always Write Back**—Use this setting if the host that houses your RAID controller is connected to an uninterruptible power supply unit.




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**Note** When you create a RAID array using SSD drives, you can set **Disk Cache Policy** to the default: **Unchanged**.

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## Joining Meetings

End users sign in to the Webex site, where they can schedule, start, and join meetings. This website includes real-time conferencing elements that facilitate online meetings. Users can join meetings through a browser or through a client on their desktops.

For more information about the end user experience, sign in to your Webex site and click **Help**.

### Windows Users

This document assumes that users have Windows Administrator privileges on their PCs, sufficient to allow them to join Webex meetings. If this is not true, you can push Webex applications to users by using desktop management software such as IBM Tivoli. See [Configure Your Application Download Settings](#).

- Microsoft Internet Explorer users can install an ActiveX control or Java plug-in, download the Webex Meetings application installer, or run the application in a temporary system folder (such as TFS). The first time the user joins a meeting, the client software is downloaded and automatically installed.
- Google Chrome and Mozilla Firefox users can install a Java plug-in, download the Webex Meetings application, or run the application in a temporary system folder. The client software is downloaded and automatically installed the first time the user joins a meeting.

It is not necessary to change any of the ActiveX, Java plug-in, Webex Meetings application installer, or TFS settings.

### Mac Users

- If Java is enabled, the client software is downloaded and automatically installed the first time the user joins a meeting. (Java is turned off by default in Mac OS X Lion version 10.7 and OS X Mountain Lion version 10.8.)
- If Java is disabled, the user can download and install the Webex Meetings application.



### Multi-data Center System Users

Your Webex site can use self-signed certificates instead of certificates from a well-known Certificate Authority. After you join your data center to another data center, users must install a certificate for each data center in the Trusted Root Certification Authorities store before they start or join a meeting.

### Using Chrome and FireFox Browsers

If you use Chrome 32 and later or Firefox 27<sup>1</sup> and later, you might see a prompt to install a Cisco Webex plug-in. Select **Download** and follow the instructions to install the required plug-in.



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**Note** After installing the plug-in, some browsers require that you enable it.

- If you use Chrome, click the plug-in icon that appears on the top right of your page. Select the **Always allow plug-ins...** option and then click **Done**.
- If you use Firefox, click the plug-in icon that appears at the beginning of your URL (before https:) and then click **Allow and Remember**.

If the meeting does not start automatically, refresh the page.

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If you use the Chrome browser to start a Webex meeting or to play a Webex recording, you might need to add the Cisco Webex extension to Chrome. This is a one-time installation.

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<sup>1</sup> The exact versions of Chrome and Firefox that are affected by this policy have not been finalized as of the publishing of this document.

