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WebEx-scheduling deployments support multinode configurations with active-active redundancy. Multinode systems support up to 14,400 audio ports and 14,400 web sessions.

Note: A WebEx-scheduling deployment with a single-node is supported in Release 8.5 MR2 (8.5.4) and later. For earlier releases, contact your Cisco Account Manager who can work with Product Management to define a deployment that best addresses your needs.

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Hardware and Software Requirements

Note: Cisco Unified MeetingPlace Release 8.5 does not support interoperability between different releases. All servers within a system must be running the same version of software.

WebEx-scheduled deployments require the following components:

Component	Requirement
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<p>Cisco Unified MeetingPlace Application Server</p>	<p>Hardware</p> <p>See the Application Server Requirements.</p> <p>For information about installing the Cisco Unified MeetingPlace Application Server software, see the <i>Installation, Upgrade, and Migration Guide for Cisco Unified MeetingPlace Release 8.5</i> at http://www.cisco.com/en/US/products/sw/ps5664/ps5669/prod_installation_guides_list.html</p> <p>Software</p> <ul style="list-style-type: none"> • Cisco Unified MeetingPlace Application Server Release 8.5/Express Media Server (EMS) • Cisco Security Agent Release 6.0.1.112 <p>Notes:</p> <ul style="list-style-type: none"> • The Express Media Server is a set of software modules that reside co-resident with the Application Server software. During installation, you will have the option to choose either the Hardware Media Server or the Express Media Server. For details about the EMS, see the Express Media Server Requirements. • The Cisco Security Agent software is packaged and installed during the Application Server installation. For details, see the "Using Cisco Security Agent (CSA) on the Application Server" in the <i>Configuration Guide for Cisco Unified MeetingPlace Release 8.5</i> at http://www.cisco.com/en/US/products/sw/ps5664/ps5669/products_installation_and_configuration_guides_list.html
<p>Meeting Director</p>	<p>Maximum of two Meeting Directors per system</p> <ul style="list-style-type: none"> • If your system has five or more Conferencing nodes, Meeting Director components must be installed on dedicated hardware servers. For hardware specifications, see the Application Server Requirements. • If your system has four or less Conferencing nodes, Meeting Director components can be installed co-resident with the Application Server/Express Media Server. <p>Note: The Cisco Unified MeetingPlace Application Server WebEx TSP supports SOCKS Web Proxy servers (not HTTP proxy). Allow direct firewall access to WebEx Site IPs directly. Note that there are often delays when proxy servers are used. Make sure that the integration to Cisco WebEx is continuously maintained without delays, otherwise it will affect user response times.</p>
<p>MeetingPlace Conference Manager</p>	<p>Java JRE 6.0 or later and Java Web Start</p> <p>Note: For best performance, we recommend that you install the latest Java JRE.</p>
<p>Cisco Unified Communications Manager (CUCM)</p>	<p>Hardware</p> <p>Cisco Media Convergence Server (MCS)</p> <ul style="list-style-type: none"> • Make sure that the specific Cisco MCS model supports the number of SIP sessions that are required for the Cisco Unified MeetingPlace system. • For information about physically installing the Cisco MCS, see the documentation at this location: http://www.cisco.com/en/US/products/hw/voiceapp/ps378/prod_installation_guides_list.html

	<p>Software</p> <ul style="list-style-type: none"> • CUCM 7.0(2), 7.1(5), 8.0(3), 8.5(1), 8.6(1), 9.0(1), 9.1*(SIP trunk only) • CUCM-SME 7.1(3), 8.5 <p>Notes:</p> <ul style="list-style-type: none"> • If you have a multinode deployment, we recommend that each site have a dedicated Cisco Unified Communications Manager associated with it. • CUCM 8.6 is supported in Cisco Unified MeetingPlace Release 8.5.2 and later. • CUCM 9.0 is supported in Cisco Unified MeetingPlace Release 8.5.4 and later. • CUCM 9.1 SIP trunking only, customers with CUCM-MP LDAP dependencies can't upgrade/in defect with the directory schema. • Ad-hoc (SCCP) meetings are supported in Cisco Unified MeetingPlace Release 8.5.2 and later. meetings are not supported with CUCM 8.5. • CUCM 8.0(3) is the only release that supports SIP Refers for multinode Cisco Unified MeetingPlace. Open a case with Cisco TAC against the Cisco Unified Communications Manager to obtain the Engineering Special (ES) or Service Update (SU) version of CUCM 8.0(3).
<p>Hardware Media Server (HMS)</p>	<p>If your deployment requires a HMS, see the Hardware Media Server Requirements.</p> <p>Notes:</p> <ul style="list-style-type: none"> • During installation, you will have the option to choose either the Hardware Media Server or the Software Media Server. You do not require both. • The Hardware Media Server should be on the same local network segment as the Application Server. Cisco Unified MeetingPlace does not support Hardware Media Server blades that are remotely located.
<p>Cisco WebEx Node</p> <p>Note: This is an optional component.</p>	<p>Hardware</p> <p>Release 8.5 supports Cisco WebEx Node for both MCS/UCS or Webex Node for ASR. If your deployment requires a Cisco WebEx Node, see the Cisco WebEx Node Requirements.</p> <p>Notes:</p> <ul style="list-style-type: none"> • Using Cisco WebEx Node for MCS in a WebEx-scheduling deployment has certain limitations and is therefore not recommended for new deployments. If the WebEx Node is currently installed on a system, that can remain in place. For a list of limitations, see the "Limitations and Restrictions" section of the <i>Release Notes for Cisco Unified MeetingPlace Release 8.5</i> at http://www.cisco.com/en/US/products/sw/ps5664/ps5669/prod_release_notes_list.html. • If you include Cisco WebEx Node for MCS as part of your deployment, you must have at least two Conferencing nodes built (one as the primary and one as the secondary MBD) before installing Cisco WebEx Node for MCS. <ul style="list-style-type: none"> ◆ The previous note does not apply if you are using Release 8.5 MR2 in a WebEx-scheduling deployment with a single node. Release 8.5 MR2 or later are the only releases that support

	<p style="text-align: center;">WebEx-scheduling deployments with a single node.</p> <p>Software</p> <p>Cisco WebEx Node Release 8.5</p> <p>Cisco Unified MeetingPlace Release 8.5 does not support an upgrade of Cisco WebEx Node for MCS to from a previous release. All installations of Cisco WebEx Node for MCS must be new installations.</p>
Cisco WebEx integration	<ul style="list-style-type: none"> • Cisco WebEx Meeting Center, Cisco WebEx Meeting Center Pro, or Cisco WebEx Enterprise Edition (supports Meeting Center, Event Center and Training Center) <ul style="list-style-type: none"> ◆ Event Center and Training Center are not supported on Apple Mac systems. ◆ Event Center supports the Audio Broadcast feature that reduces the need for all participants into a MeetingPlace audio meeting. Connection to the audio system is limited to those participants designated as Speakers. All other attendees receive the audio, video, and web conferencing components in multiple HTTPS streams via their PC. • WebEx Business Suite (WBS) 27 SP27 or later • WebEx XML API Release 5.7 or later • WebEx Federated SSO is supported with WebEx XML API. For information about WebEx Federated SSO see http://developer.webex.com/web/meetingservices/sso <p>Notes:</p> <ul style="list-style-type: none"> • If your site is on a version earlier than WBS 27 SP25, contact your Cisco WebEx Client Success Manager (CSM) to request an upgrade to the minimum version required for use with Cisco Unified MeetingPlace Release 8.5. • You must have both WBS 27 SP27 and WebEx XML API Release 5.7 or later to use the WebEx-MeetingPlace Automatic Configuration feature. • WBS27 FR23 and later offers a new capability for supporting Dual Audio vendors on the same system. For more information, see the "New Features" section of the <i>Release Notes for Cisco Unified MeetingPlace Release 8.5</i>. • Network Based Recordings (NBR) are not supported for internal meetings on systems configured with WebEx Node on MCS or UCS. NBR are fully supported for all meeting types on systems configured with Cisco Webex Node on ASR. • The WebEx end-user client interface supports any HTTP or SOCKS proxy server based on browser. • Cisco Unified MeetingPlace Release 8.5 does not support WebEx-scheduling configurations in which the WebEx site is tightly integrated with WebEx Connect. This is because in such integrations, users are managed by the WebEx Connect Org Administration. Cisco Unified MeetingPlace Release 8.5 users are managed through either the Cisco Unified MeetingPlace or Cisco WebEx administration. <p>For system capacity information, see System Capacity Quick Reference Tables.</p>
Video option	See the Video Requirements .

License Requirements

This release of Cisco Unified MeetingPlace uses active host-based licensing. The system uses an audit mechanism to track the number of users who have actively created meetings and compares that to the number of licenses that are installed. An alarm is raised when the number of users who create meetings exceeds the number of licenses installed.

Licenses are for both audio conferencing and standards-based video conferencing in Cisco Unified MeetingPlace.

Notes:

- System capacity is directly affected if you use Cisco Unified MeetingPlace video. For more information, see [System Capacity Quick Reference Tables](#).
- If you have no licenses installed the system will allow only a single meeting at a time.
- If you are completing a Cisco UCS installation under VMware, note that the Cisco Unified MeetingPlace system produces a randomly generated 12-digit "MAC address" that you will require for licensing. To obtain the MAC address, make sure that you install the Meeting Directors first. You can then obtain the randomly generated MAC address and register your license key.

Integration Requirements

Deployments configured for WebEx-scheduling use WebEx Productivity Tools. For more information, see the *Productivity Tools Release Notes* available from the Support > User Guides link on your Cisco WebEx Site or by accessing the WebEx Productivity Tools section from the following link:
<http://support.webex.com/support/system-requirements.html>

Note: If your deployment requires Cisco WebEx Network Based Recording (NBR) with conferencing nodes located outside of the USA or London, contact your WebEx Customer Service Manager (CSM) to place an order to uncheck the ?Country Code Restriction?. This enables NBR dial-out to international nodes.

Deployment Requirements

Nodes

The MeetingPlace Application Server has two separate functions that may be active on the same node or may be separated between nodes.

Meeting Director nodes: The Meeting Director module controls where meetings are placed. It also maintains communication with WebEx. We recommend that you have two ?Meeting Director? nodes in a system so that if one fails the control is automatically passed to the backup.

Conferencing nodes: The Conferencing module controls the traditional audio/video conferencing. The Meeting Director assigns meetings to a specific Conferencing node. When a call comes into a conferencing node but the user wants to attend a meeting on a different conferencing node then the call is referred to the

target node.

In small systems up to four nodes, you can place the Meeting Director and Conferencing functions on the same node. Whenever the system is larger we recommend that the Meeting Director run on a node with no Conferencing.

The Release 8.5 system supports up to 16 nodes.

Sites

Groups of nodes are organized into a site. We recommend that the nodes within a site are homogenous so that the user experience is common within all nodes of a site. Release 8.5 supports a maximum of four nodes per site.

Redundancy

When sizing a system, we recommend that you size each site for the desired number of conferencing nodes and then add one additional node. For example, if a site requires 3000 ports we recommend that you include three nodes that each have a capacity of 1500 ports for a total of 4500 ports. This ensures that you will support full capacity while simultaneously servicing any one node.

Multinode Deployment Restrictions

You may deploy each site in a multinode deployment as either:

- Hardware Media Server with Cisco Unified MeetingPlace standard-definition (SD) Video Blades
- Hardware Media Server with high-definition (HD) Video Blades
- Express Media Server

Release 8.5 does not support a mixture of Express Media Servers and Hardware Media Servers within a MeetingPlace site.

Sites that include a Hardware Media Server cannot contain both SD and HD Video Blades.

WebEx-scheduling deployments do not support the Failover Server feature. Multinode configuration is used instead to support any failover requirements.

Network Requirements

Bandwidth and Latency

These network requirements do not include the media bandwidth:

- Audio RTP normal VoIP codec sizing is applicable

- Video RTP normal video bandwidth sizing is applicable
- Refer to [WAN Bandwidth Recommendations](#) for Web HTTPS Cisco WebEx web bandwidth sizing.

WAN Bandwidth Recommendations

- 4 Mbps minimum bandwidth for the WAN link between any two nodes. Nodes can be standalone Meeting Directors, root nodes or leaf nodes.
- Two data centers with WAN and two Servers in each data center requires 4 Mbps

RTT Latency Recommendations

- 200 ms or less round-trip time (RTT) maximum if you expect approximately one minute for Meeting Director Primary to Secondary failover to occur
- Adding a new node requires a maximum latency of 200 ms RTT (there is a timeout after 30 minutes)

DNS Recommendations

- All FQDNs of Meeting Director Nodes (if applicable), Conferencing Nodes and Cisco WebEx Nodes are required for DNS resolution between all servers
- No multiple names to IPs
- Reverse IP lookup required
- Classless DNS not supported
- CUCM needs to have DNS enabled to resolve the MP hostnames for the SIP Refer commands to be successful.

Customer Network to Cisco WebEx Cloud Requirements

- Meeting Director to Cisco WebEx cloud must be able to establish connections outbound TCP 443 only to the Internet (only SOCKS proxy is supported)
 - ◆ Bandwidth for TSP API and user profile synchronization is minimal
- Cisco WebEx Node for ASR or MCS must be able to establish connections outbound TCP 443 only to the Internet (no web proxy supported)
 - ◆ Bandwidth is dependent on the total number of *external* meetings with data sharing in progress; what is being shared affects bandwidth used. Internal Meetings do not have any bandwidth impact to the Cisco WebEx collaboration cloud.

Customer Network to Cisco WebEx Cloud IP Ranges for Firewall Settings

To ensure traffic to and from the WebEx domain is routed appropriately through your firewall or proxy servers, review the settings below:

Web browser exceptions:

- Add an exception for the entire webex.com domain = *.webex.com.

- At the minimum, the following addresses should be added as exceptions:
YOURSITENAME.webex.com and akamaicdn.webex.com.
- ActiveX and/or JavaScript will need to be allowed through the firewall and web browsers should be configured to not restrict ActiveX and/or JavaScript.
- We ask that WebEx sites are not cached (content, IP-path) on proxy servers.
 - ◆ Cisco WebEx Production IP Exceptions
 - ◇ 64.68.96.0/19 (CIDR) or 64.68.96.0 - 64.68.127.255 (net range)
 - ◇ 66.114.160.0/20 (CIDR) or 66.114.160.0 - 66.114.175.255 (net range)
 - ◇ 66.163.32.0/20 (CIDR) or 66.163.32.0 - 66.163.47.255 (net range)
 - ◇ 209.197.192.0/19 (CIDR) or 209.197.192.0 - 209.197.223.255 (net range)
 - ◇ 208.8.81.0/24 (CIDR) or 208.8.81.0 - 208.8.81.255 (net range)
 - ◇ 210.4.192.0/20 (CIDR) or 210.4.192.0 - 210.4.207.255 (net range)
 - ◇ 62.109.192.0/18 (CIDR) or 62.109.192.0 - 62.109.255.255 (net range)
 - ◇ 173.243.0.0/20 (CIDR) or 173.243.0.0 - 173.243.15.255 (net range)
 - ◇ 114.29.192.0/19 (CIDR) or 114.29.192.0 - 114.29.223.255 (net range)

Incoming Ports Used in WebEx-Scheduling Deployments

Use these tables to make sure that your firewalls do not block access from Cisco Unified MeetingPlace to users or integrated systems, and to make sure that you do not block communication among the Cisco Unified MeetingPlace components and servers.

Notes:

- Signaling between Cisco Unified MeetingPlace and Cisco Unified Communications Manager must be TCP.
- In order to add a new node to the deployment, port 22 must be accessible to that server from all nodes in the cluster.

Protocol	Source	Destination	Port Type	Ports	Port Usage	Special Requirements
Meeting Directors						
HTTP	Each Conferencing node	Both Meeting Directors	TCP	61080	To Meeting Broker Director on Meeting Director nodes from Meeting Broker Agent on each Conference node	-
HTTPS	Each Conferencing node	Both Meeting Directors	TCP	61443	To Meeting Broker Director on Meeting Director nodes from Meeting	-

					Broker Agent on conference nodes	
Application Server/Express Media Server						
SSH	Administrator PC	Application Server	TCP	22	Secure access	Expose to system administrators; optional
HTTP HTTPS	Administrator PC	Application Server	TCP	80, 443	Administrator web access for both MeetingPlace Applications Admin and Cisco WebEx Site Admin	
SNMP	Administrator PC	Application Server	UDP	161	SNMP configuration	Expose to system administrators; optional
--	WebEx Node for MCS TSP (Telephony Agent)	Application Server (Telephony Adapter)	TCP	7676	Telephony service connection, exchange telephony event and so on	--
SIP	Cisco Unified Communications Manager (CUCM)	Application Server	TCP UDP	5060	SIP B2BUA; UDP optional	--
HTTP	Cisco IP Phones PhoneView XML application	Application Server	TCP	8080	HTTP services used by Cisco Unified MeetingPlace PhoneView XML on IP Phones (optional)	--
SSH	Cisco WebEx Node	Application Server	TCP	22	MeetingPlace recording use	--
RTP/RTCP	Phones, video devices, gateway	Application Server/EMS	UDP	16384 - 20479	Voice and video (audio portion only) media	-
RTP/RTCP	Video devices	Application server/EMS	UDP	20480 - 24576	Video media	-
Hardware Media Server (HMS)						
FTP	Application server	HMS	TCP	21	Retrieving log files	Expose to system administrators
Telnet		HMS	TCP	23	Telnet	

	Application server					Expose to system administrators
HTTP	Application server	HMS	TCP	80	Web user interface	Expose to system administrators
NTP	Application server	HMS	UDP	123	Network Time Protocol	--
SNMP	Application server	HMS	UDP	161	SNMP configuration	Expose to system administrators
MPI	Application server	HMS	TCP	2010	MPI (Pompa control protocol)	--
DCI	Application server	HMS	TCP	3333	DCI (DCS control protocol)	--
XML control	Application server	HMS	TCP	3336	XML control	--
XML cascading	Application server	HMS	TCP	3337	XML cascading	--
File server	Application server	HMS	TCP	3340	File server	--
SIP	Application server	HMS	TCP UDP	5060	SIP	--
RTP/RTCP	Phones	HMS	UDP	16384-32526	Audio Media	--
RTP/RTCP	--	HMS	UDP	20000-21799	Video Media	--
Video Blade control	HMS - Audio Blade	HMS - Video Blade	TCP	2944-2945	Video Blade control (H.248)	--
Cisco WebEx Node for MCS (including WebEx Cloud)						
HTTP/HTTPS/WebEx Meeting Protocol	Meeting client, browser	Meeting Server in Cisco WebEx Node	TCP	443	Check meeting status, internal	--
HTTP/HTTPS/WebEx Meeting Protocol	Meeting client	Meeting Server in Cisco WebEx Node	TCP	443	Meeting connection, internal	--
TCP/WebEx Meeting Protocol	Meeting client	Meeting Server in Cisco WebEx Node	TCP	1270-1279	Meeting connection	--
HTTP/WebEx Meeting Protocol	Meeting client	Meeting Server in Cisco WebEx Node	TCP	2000-2009	Meeting connection	--
UDP SNMP	SNMP client	Cisco WebEx Node	UDP	161	SNMP events (optional)	--
NTP	Application Server	Cisco WebEx Node	UDP	123	Network Time Protocol communication	--
User PC/Phones/Gateways						

RTP/RTCP	Application Server	Cisco Unified Personal Communicator (CUPC), IP Phones, Gateways	UDP	16384-32526	Voice and video	--
Cisco Unified Communications Manager (CUCM)						
SIP	Application Server	CUCM	TCP UDP	5060	SIP	--
SCCP	Phones	CUCM	TCP	2000	--	--
SIP	CUPC	CUCM	TCP UDP	5060	--	--
AXL	Application Server	CUCM	TCP	8443	AXL SOAP connection	--

Outgoing Ports Used in WebEx-Scheduling Deployments

Use these tables to make sure that your firewalls do not block access from Cisco Unified MeetingPlace to users or integrated systems, and to make sure that you do not block communication among the Cisco Unified MeetingPlace components and servers.

Note: Signaling between Cisco Unified MeetingPlace and Cisco Unified Communications Manager must be TCP.

Protocol	Source	Destination	Port Type	Ports	Usage	Special Requirements
Meeting Directors (always two Meeting Directors)						
WebEx APIs	Both Meeting Directors	Cisco WebEx cloud	TCP	443	Telephony Service provider (TSP) Links dual to Cisco WebEx cloud via internet outbound only. There are two socket connections with SSLv3. Enabled to communicate to the Cisco WebEx cloud outbound. No HTTPS proxy is supported (SOCKS proxy can be configured).	Only outbound firewall to Cisco WebEx cloud, TSP then is a two-way API data stream
HTTP	Both Meeting Directors	Each Conference node	TCP	61080	To Meeting Broker Director on Meeting Director nodes from Meeting Broker Agent on each Conference node	--
HTTPS	Both Meeting Directors	Each Conference node	TCP	61443	To Meeting Broker Director on Meeting Director nodes from Meeting Broker Agent on all Conference nodes	--
Application Server/ Express Media Server						
MP_REPL	Application Servers	Meeting Directors	TCP	2008	Database replication between the Conference nodes and both Meeting Directors	Optional, only if multinode deployment is

						configured
XML	Application Server (leaf nodes)	Two Meeting Director nodes	TCP	10443	All leaf Conference nodes initiate TSPP on both Meeting Director nodes from Cisco WebEx Adapter on both primary and secondary MDs; persistent connections	--
SIP	Application Servers	CUCM	TCP UDP	5060	SIP trunk; UDP optional	For Call-back feature only
HTTPS	Application Server	CUCM	TCP	8443	Directory sync with CUCM AXL SOAP API (used only with MeetingPlace-managed profiles)	--
Cisco WebEx Node for MCS (including Cisco WebEx Cloud)						
HTTPS	Cisco WebEx Node for MCS	Cisco WebEx cloud	TCP	443	Tunnel control and meeting information from the Cisco WebEx Node to the Cisco WebEx cloud. Multiple outbound TCP 443 connections will be created to the Cisco WebEx cloud as external meetings are started. Shared content is sent to the Cisco WebEx cloud for guest users to view during meetings. No Web HTTPS or SOCKS proxy is allowed from the Cisco WebEx Node to the Cisco WebEx cloud.	Only outbound firewall to Internet, these TCP connections also check for NTP clocking to synch to the Cisco WebEx cloud for correct conferencing time coordination.
--	Cisco WebEx Node for MCS	Application Server	TCP	22	Recording use	--
--	Cisco WebEx Node for MCS	Application Server	TCP	7676	Accept the connection from the Cisco WebEx Node	--
Users						
Cisco WebEx cloud	--	--	TCP	443	Outbound TCP 443 (HTTPS) requests to join and schedule meetings. Any profiled users on Cisco Unified MeetingPlace must be allowed to access the Cisco WebEx cloud outbound.	Only outbound firewall to Internet

End User Requirements for Web Conferencing

See the following link for supported web browser and operating system information:

<http://support.webex.com/support/system-requirements.html>

- Linux operating system on client desktops are not supported on Meeting Center/Event Center/Training Center.

- Apple Mac operating system on client desktops are supported on Meeting Center only. It is not supported on Event Center or Training Center.