



## CISCO UNIFIED CALLMANAGER 4.2 TCP AND UDP PORT USAGE

This document provides a list of the TCP and UDP ports that Cisco CallManager 4.2 uses for intracluster connections and for communications with external applications or devices. It provides important information for the configuration of firewalls, Access Control Lists (ACLs), and quality of service (QoS) on a network when an IP Communications solution is implemented. Cisco has not verified all possible configuration scenarios for these ports. If you are having configuration problems using this list, contact Cisco technical support for assistance.

While virtually all protocols are bidirectional, this document gives directionality from the session originator perspective. In some cases, the administrator can manually change the default port numbers, though Cisco does not recommend this as a best practice. Be aware also that Cisco CallManager opens several ports strictly for internal use. This document does not include these ports.

Ports in this document specifically get called out for Cisco CallManager 4.2. Some ports change from one release to another, and new ports may be introduced in future releases. Therefore, make sure that you are using the correct version of this document for the version of Cisco CallManager that is being used.

Configuration of firewalls, ACLs, or QoS will vary depending on topology, placement of telephony devices, and services relative to the placement of network security devices, and which applications and telephony extensions are in use. Also, bear in mind that ACLs vary in format with different devices and versions.

From (Sender)	To (Listener)	Dest. Port	Purpose
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Intracluster Ports Between Cisco CallManagers			
CCM	CCM	135 / TCP	Microsoft Remote Procedure Call (RPC)
CCM	CCM	137 / TCP & UDP	Microsoft Netbios name service
CCM	CCM	138 / UDP	Microsoft Netbios datagram service



Cisco CallManager 4.2 TCP and UDP Port Usage

Intracluster Ports Between Cisco CallManagers (continued)			
CCM	CCM	139 / TCP	Microsoft Netbios session service
CCM	CCM	445 / TCP	Microsoft Server Message Block (SMB)
CCM (DB)	CCM (DB)	1433 / TCP	SQL
CCM (CDLM)	CCM (CEF)	2552 / TCP	Cisco Unified CallManager database change notification
CCM (RIS Server)	CCM (RIS Server)	2555 / TCP	Real-time Information Services (RIS) database server
CCM (RIS Client)	CCM (RIS Server)	2556 / TCP	Real-time Information Services (RIS) database client
CCM (CDLM)	CCM (TFTP)	3000 / UDP	Receive change notification from Cisco Unified CallManager database
CCM (CDLM)	CCM (IP VMS)	3001 / UDP	Database change notification from publisher server to applications
CCM (CDLM)	CCM (DNA)	3020 / UDP	Dialed Number Analyzer (DNA) plug-in database change notification
CCM (DB)	CCM (DB)	3372 / TCP	SQL distributed transaction coordinator requests (Note: MS DTC is used for intracluster database communication)
CCM (CDLM)	CCM	7727 / TCP	Application database change notification, CTI, voice messaging, and so on
CCM (DB)	CCM (CDLM)	8001 / TCP	Client database change notification
CCM (SDL)	CCM (SDL)	8002 / TCP	Intracluster communication service
CCM (SDL)	CCM (SDL)	8003 / TCP	Intracluster communication service
CCM (IIS)	CCM (Tomcat)	8009 / TCP	Internal Tomcat requests



Cisco CallManager 4.2 TCP and UDP Port Usage

Intracluster Ports Between Cisco Unified CallManagers (continued)			
CCM (IIS)	CCM (IPMA)	8111 / TCP	IP Manager / Assistant (IPMA) web requests
CCM (IIS)	CCM (EM App)	8222 / TCP	Extension Mobility (EM) web requests
CCM (IIS)	CCM (WebDialer)	8333 / TCP	WebDialer web requests
CCM (IIS)	CCM (EM Service)	8444 / TCP	Extension Mobility (EM) service requests
CCM (IIS)	CCM (SOAP)	8555 / TCP	Apache-SOAP web requests
CCM (IIS)	CCM (IPMA)	8666 / TCP	IP Manager / Assistant (IPMA) web requests for non-default locales
CCM (IIS)	CCM (Tomcat)	8777 / TCP	Tomcat manager web requests
CCM (IIS)	CCM (CAR)	9007 / TCP	CDR Analysis and Recording (CAR) web requests
CCM (DB)	CCM (DB)	Ephemeral above 49151 (usually 49152 – 65534) / TCP	SQL distributed transaction coordinator responses (Note: MS DTC is used for intracluster database communication)

Windows & Common Ports			
Endpoint	CCM	7	Internet Control Message Protocol (ICMP) This protocol number carries echo-related traffic. It does not constitute a port as indicated in the column heading.
CCM	Endpoint		
Endpoint	CCM (DNS Server)	53 / UDP	Cisco Unified CallManager acting as a DNS server or DNS client (Note: Cisco recommends that Cisco Unified CallManager not act as a DNS server and that all IP telephony applications and endpoints use static IP addresses instead of hostnames.)
CCM	DNS Server		
Endpoint	CCM (DHCP Server)	67 / UDP	Cisco Unified CallManager acting as a DHCP server (Note: Cisco does not recommend running DHCP server on Cisco Unified CallManager.)
CCM	DHCP Server	68 / UDP	Cisco Unified CallManager acting as a DHCP client (Note: Cisco does not recommend running DHCP client on Cisco Unified CallManager. Configure Cisco Unified CallManager with static IP addresses instead.)



## Cisco CallManager 4.2 TCP and UDP Port Usage

Windows & Common Ports (continued)			
Endpoint	CCM (TFTP)	69, then Ephemeral / UDP	Trivial File Transfer Protocol (TFTP)
CCM	NTP Server	123 / UDP	Network Time Protocol (NTP)
SNMP Server	CCM	161 / UDP	SNMP service response (requests from management applications)
CCM	SNMP Server	162 / UDP	Send SNMP trap to management application
Endpoint	CCM (DHCP Server)	2535 / UDP	Allows hosts to request multicast address allocation services from a DHCP server. (Note: Cisco does not recommend running DHCP server on Cisco Unified CallManager.)
Term Serv Client	CCM	3389 / TCP	Microsoft Windows Terminal Services
VNC Client	CCM	5900 / TCP	VNC Viewer
Centralized TFTP	Alternate TFTP	6970, then Ephemeral / TCP	Centralized TFTP File Locator Service

Between Cisco Unified CallManager and LDAP Directory			
CCM	DC Directory	102 / TCP	Directory Access Protocol (DAP) for DC Directory. Closed when external directory is used.
CCM	DC Directory	8404 / TCP	Local Directory Access Protocol (LDAP) for DC Directory. Closed when external directory is used.
CCM	DC Directory	8405 / TCP	Local Directory Access Protocol over TLS/SSL (LDAPS) for DC Directory. Closed when external directory is used. Formerly called SLDAP.
CCM	External Directory	389 / TCP	Local Directory Access Protocol (LDAP) query to external directory (Active Directory, Netscape Directory). Closed when DC Directory is used.
CCM	External Directory	636 / TCP	Local Directory Access Protocol over TLS/SSL (LDAPS) query to external directory (Active Directory, Netscape Directory). Closed when DC Directory is used. Formerly called SLDAP.



Web Requests from CCMAdmin or CCMUser to Cisco Unified CallManager			
Browser	CCM	80 / TCP	HyperText Transport Protocol (HTTP)
Browser	CCM	443 / TCP	HyperText Transport Protocol over SSL (HTTPS)

Signaling, Media, and Other Communication Between Phones and Cisco Unified CallManager			
Phone	CCM (TFTP)	69, then Ephemeral / UDP	Trivial File Transfer Protocol (TFTP) used to download firmware and configuration files.
Phone	CCM	80 / TCP	Phone URLs for XML applications, authentication, directories, services, and so on. These ports get configured on a per-service basis.
Phone	CCM	2000 / TCP	Skinnny Client Control Protocol (SCCP)
Phone	CCM	2443 / TCP	Secure Skinnny Client Control Protocol (SCCPS)
Phone	CAPF	3804 / TCP	Certificate Authority Proxy Function (CAPF) listening port for issuing Locally Significant Certificates (LSCs) to IP phones.
IP VMS	Phone	16384 – 32768 / UDP	Real-Time Protocol (RTP), Secure Real Time Protocol (SRTP). ((Note: Cisco Unified CallManager only uses 24576-32768 though other devices use the full range.)
Phone	IP VMS		

PC Behind the Phone to the Phone			
VTA	Phone	4224 / TCP	Cisco VT Advantage between phone and PC



Cisco CallManager 4.2 TCP and UDP Port Usage

Signaling, Media and Other Communication Between Gateways and Cisco Unified CallManager			
Gateway	CCM	50	Encapsulating Security Payload (ESP) This protocol number carries encrypted IPSec traffic. It does not constitute a port as indicated in the column heading.
CCM	Gateway		
Gateway	CCM	500 / UDP	Internet Key Exchange (IKE) for IP Security protocol (IPSec) establishment.
CCM	Gateway		
Gateway	CCM (TFTP)	69, then Ephemeral / UDP	Trivial File Transfer Protocol (TFTP)
CCM	Gatekeeper	1718 / TCP	Gatekeeper (H.225) Discovery
Gatekeeper	CCM	1719 / UDP	Gatekeeper (H.225) RAS
Gateway	CCM	1720 / TCP	H.225 signaling services for H.323 gateways and Intercluster Trunk (ICT)
CCM	Gateway		
Gateway	CCM	Ephemeral / TCP	H.225 signaling services on gatekeeper-controlled trunk
CCM	Gateway		
Gateway	CCM	Ephemeral / TCP	H.245 signaling services for establishing voice, video and data
CCM	Gateway		
Gateway	CCM	2000 / TCP	Skinny Client Control Protocol (SCCP)
Gateway	CCM	2427 / UDP	Media Gateway Control Protocol (MGCP) gateway control
Gateway	CCM	2428 / TCP	Media Gateway Control Protocol (MGCP) gateway backhaul
Gateway	CCM	5060 / TCP	Session Initiation Protocol (SIP) Gateway and Intercluster Trunk (ICT)
CCM	Gateway		
Gateway	CCM	5060 / UDP	Session Initiation Protocol (SIP) Gateway and Intercluster Trunk (ICT)
CCM	Gateway		
Gateway	CCM	16384 – 32768 / UDP	Real-Time Protocol (RTP), Secure Real-Time Protocol (SRTP). (Note: Cisco Unified CallManager only uses 24576-32768 though other devices use the full range.)
CCM	Gateway		



## Cisco CallManager 4.2 TCP and UDP Port Usage

<b>Communication Between Applications and Cisco Unified CallManager</b>			
IPC App	CCM	80 / TCP	AXL / SOAP API for programmatic reads from or writes to the Cisco Unified CallManager database that is used by third parties such as billing or telephony management applications
CTL Client	CCM (CTL Provider)	2444 / TCP	Certificate Trust List (CTL) Provider listening service in Cisco Unified CallManager
IPC App	CCM	2748 / TCP	CTI application server
IPC App	CCM	2789 / TCP	JTAPI application server
IPMA Console	CCM	2912 / TCP	IP Manager / Assistant (IPMA) server
Attendant Console	CCM	1099-1129 / TCP	Attendant Console (AC) JAVA RMI Registry server
Attendant Console	CCM	3223 / UDP	Attendant Console (AC) server line state port receives ping and registration message from and sends line states to the attendant console server.
Attendant Console	CCM	4321 / UDP	Attendant Console (AC) database change notification listening port
Attendant Console	CCM	Ephemeral / TCP	Attendant Console (AC) RMI server bind port



## Glossary

**AXL / SOAP:** Cisco Communications XML Layer / Simple Object Access Protocol - API used by applications to read from or write to the Cisco Unified CallManager database.

**CAPF:** Certificate Authority Proxy Function – Used to load X.509 digital certificates into IP Phones.

**CAR:** CDR Analysis and Recording

**CDLM:** Cisco Database Layer Monitor - Used to synchronize the database with what is running in active memory.

**CEF:** Cisco Extended Function (not the more familiar Cisco Express Forwarding that is used in IOS)

**CTI:** Computer Telephony Integration - Provides a link between telephone systems and computers to facilitate incoming and outgoing call handling and control; the physical link between a telephone and server.

**CTL Client:** Certificate Trust List Client - Application that creates the Certificate Trust List that gets loaded into IP phones. It comprises a plug-in that comes with Cisco Unified CallManager that can be run on any computer that a) has IP connectivity to all Cisco Unified CallManagers in the cluster and b) has a USB port.

**DNA:** Dialed Number Analyzer

**EM:** Extension Mobility servlet

**Ephemeral Ports:** In virtually all cases, consider the source ports for the preceding protocols as ephemeral, meaning random within a specified range. When an outgoing request is made, the application solicits the host device for a port from its ephemeral pool. In a few cases, the destination port also acts as ephemeral, meaning that both the source and destination ports are random.

**IIS:** Internet Information Services web server

**IPMA:** IP Manager / Assistant servlet

**IP VMS:** Cisco IP Voice Media Streaming Application - Used for music on hold, annunciator, conference bridge, media termination point (MTP), and so on.

**JTAPI:** Java Telephony Application Program Interface - Sun's telephony programming interface for Java. It provides a set of classes and interfaces that provide access to call control and telephony device control as well as media and administrative services.

**LDAP:** Local Directory Access Protocol - Used to validate user credentials against the designated directory service.

**LDAPS:** Local Directory Access Protocol over TLS/SSL - Used to validate user credentials against the designated directory service.

**MS DTC:** Microsoft Distributed Transaction Coordinator - SQL service uses MS DTC for distributed transactions across all servers in the cluster.

**RIS:** Real-Time Information Services database - Used by the Real-Time Monitoring Tool (RTMT) in the Serviceability application.

**RPC:** Remote Procedure Call - Used by all Windows services for interprocess communication, including Cisco Unified CallManager.

**SDL:** Signal Distribution Layer Link - Used for intracluster communications.

**TFTP:** Trivial File Transfer Protocol - Used to load firmware and configurations into phones, gateways, and so on.



## References

### Firewall Application Inspection Guides

PIX 6.3 Application Inspection Configuration Guide

[http://www.cisco.com/en/US/products/sw/secursw/ps2120/products\\_configuration\\_guide\\_chapter09186a008017278b.html#wp1063233](http://www.cisco.com/en/US/products/sw/secursw/ps2120/products_configuration_guide_chapter09186a008017278b.html#wp1063233)

PIX 7.0 Application Inspection Configuration Guide

[http://www.cisco.com/univercd/cc/td/doc/product/multisec/asa\\_sw/v\\_70/config/inspect.htm#wp1313159](http://www.cisco.com/univercd/cc/td/doc/product/multisec/asa_sw/v_70/config/inspect.htm#wp1313159)

IOS 12.4 Configuring Context-Based Access Control

[http://www.cisco.com/en/US/products/ps6350/products\\_configuration\\_guide\\_chapter09186a00804a41c5.html](http://www.cisco.com/en/US/products/ps6350/products_configuration_guide_chapter09186a00804a41c5.html)

IOS 12.4 Configuring IP Access Lists

[http://www.cisco.com/en/US/products/ps6350/products\\_configuration\\_guide\\_chapter09186a0080430e5b.html](http://www.cisco.com/en/US/products/ps6350/products_configuration_guide_chapter09186a0080430e5b.html)

### IP Telephony Configuration and Port Utilization Guides

Cisco Unified CallManager Security and Virus Protection Guides

[http://www.cisco.com/univercd/cc/td/doc/product/voice/c\\_callmg/sec\\_vir/index.htm](http://www.cisco.com/univercd/cc/td/doc/product/voice/c_callmg/sec_vir/index.htm)

Cisco CRS 4.0 (IP IVR and IPCC Express) Port Utilization Guide

[http://www.cisco.com/univercd/cc/td/doc/product/voice/sw\\_ap\\_to/apps\\_4\\_0/english/administ/ixpt401.pdf](http://www.cisco.com/univercd/cc/td/doc/product/voice/sw_ap_to/apps_4_0/english/administ/ixpt401.pdf)

Cisco ICM / IPCC Enterprise and Hosted Editions 7.0(0) Port Utilization Guide

[http://www.cisco.com/application/pdf/en/us/quest/products/ps1001/c1067/ccmigration\\_09186a00805abe34.pdf](http://www.cisco.com/application/pdf/en/us/quest/products/ps1001/c1067/ccmigration_09186a00805abe34.pdf)

Cisco CallManager Express Security Guide to Best Practices

[http://www.cisco.com/en/US/netsol/ns340/ns394/ns165/ns391/networking\\_solutions\\_design\\_guidance09186a00801f8e30.html](http://www.cisco.com/en/US/netsol/ns340/ns394/ns165/ns391/networking_solutions_design_guidance09186a00801f8e30.html)

Cisco Unity Express Security Guide to Best Practices

[http://www.cisco.com/en/US/netsol/ns340/ns394/ns165/ns391/networking\\_solutions\\_design\\_guidance09186a00801f8e31.html#wp41149](http://www.cisco.com/en/US/netsol/ns340/ns394/ns165/ns391/networking_solutions_design_guidance09186a00801f8e31.html#wp41149)

### IETF TCP/UDP Port Assignment List

Internet Assigned Numbers Authority (IANA) IETF assigned Port List

<http://www.iana.org/assignments/port-numbers>



## Cisco CallManager 4.2 TCP and UDP Port Usage



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