CISCO UNIFIED COMMUNICATIONS MANAGER 6.0 TCP AND UDP PORT USAGE

This document provides a list of the TCP and UDP ports that Cisco Unified Communications Manager (formerly Cisco Unified CallManager) 6.0 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.

Note: 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 Unified Communications Manager opens several ports strictly for internal use. This document does not include these ports.

Ports in this document apply specifically to Cisco Unified Communications Manager Release 6.0. 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 Unified Communications Manager that is installed.

Installing Cisco Unified Communications Manager 6.0 software automatically installs the following network services for serviceability and activates them by default:

- Cisco Log Partition Monitoring (to monitor and purge the common partition; no custom common port used)
- Cisco Trace Collection Service (see table for TCTS port usage)
- Cisco RIS Data Collector (see table for RIS server port usage)
- Cisco AMC Service (see table for AMC port usage)

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.

Note: You can also configure Multicast MOH ports in Cisco Unified Communications Manager Administration. Because the administrator specifies the actual port values, this document does not contain port values for multicast MOH.

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From (Sender)	To (Listener)	Dest. Port	Purpose
Intracluster Ports Between Cisco Unified Communications Managers			
Endpoint	Unified CM	514 / UDP	System logging service
Unified CM	RTMT	1090, 1099 / TCP	Cisco AMC Service for RTMT performance monitors, data collection, logging, and alerting
Unified CM (DB)	Unified CM (DB)	1500, 1501 / TCP	Database connection (1501 / TCP is the secondary connection)
Unified CM (DB)	Unified CM (DB)	1515 / TCP	Database replication between nodes during installation
Endpoint	Unified CM (DHCP-S)	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 Communications Manager.)
Unified CM (CLDM)	Unified CM (DB)	2552 / TCP	Allows subscribers to receive Cisco Unified Communications Manager database change notification
Unified CM (RIS)	Unified CM (RIS)	2555 / TCP	Real-time Information Services (RIS) database server
Unified CM (RIS)	Unified CM (RIS)	2556 / TCP	Real-time Information Services (RIS) database client for Cisco RIS
Unified CM (CDLM)	Unified CM (TFTP)	3000 / UDP	Receive change notification from Cisco Unified Communications Manager database
Unified CM (DRF)	Unified CM (DRF)	4040 / TCP	DRF Master Agent
Endpoint	Unified CM (DRF)	4343 / TCP	DRF Local Agent
Unified CM (Tomcat)	Unified CM (SOAP)	5001 – 5010 / TCP	SOAP monitor
Endpoint	License Manager	5555 / TCP	License Manager to listen to license request

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Intracluster Ports Between Cisco Unified Communications Managers (continued)			
Unified CM (RTMT)	Unified CM (TCTS)	Ephemeral / TCP	Cisco Trace Collection Tool Service (TCTS) -- the backend service for RTMT Trace & Log Central (TLC)
Unified CM	Certificate Manager	7070 / TCP	Certificate Manager service
Unified CM (CDLM)	Unified CM	7727 / TCP	Application database change notification, CTI, voice messaging, and so on
Unified CM (DB)	Unified CM (CDLM)	8001 / TCP	Client database change notification
Unified CM (SDL)	Unified CM (SDL)	8002 / TCP	Intracluster communication service
Unified CM (SDL)	Unified CM (SDL)	8003 / TCP	Intracluster communication service (to CTI)
Unified CM	CMI Manager	8004 / TCP	Intracluster communication between Cisco Unified Communications Manager and CMI Manager
Unified CM (Tomcat)	Unified CM (Tomcat)	8005 / TCP	Internal listening port used by Tomcat shutdown scripts
Unified CM (Tomcat)	Unified CM (Tomcat)	8009 / TCP	Internal Tomcat requests
Unified CM (IPSec)	Unified CM (IPSec)	8500 / UDP	Intracluster replication of system data by IPSec Cluster Manager
Unified CM (RIS)	Unified CM (RIS)	8888 - 8889 / TCP	RIS Service Manager status request and reply

Common Service Ports			
Endpoint	Unified CM	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.
Unified CM	Endpoint		
Unified CM	Endpoint	22 / TCP	Secure FTP service, SSH access
Endpoint	Unified CM (DNS Server)	53 / UDP	Cisco Unified Communications Manager acting as a DNS server or DNS client (Note: Cisco recommends that Cisco Unified Communications Manager not act as a DNS server and that all IP telephony applications and endpoints use static IP addresses instead of hostnames.)
Unified CM	DNS Server		

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Common Service Ports (continued)			
Endpoint	Unified CM (DHCP Server)	67 / UDP	Cisco Unified Communications Manager acting as a DHCP server (Note: Cisco does not recommend running DHCP server on Cisco Unified Communications Manager.)
Unified CM	DHCP Server	68 / UDP	Cisco Unified Communications Manager acting as a DHCP client (Note: Cisco does not recommend running DHCP client on Cisco Unified Communications Manager. Configure Cisco Unified Communications Manager with static IP addresses instead.)
Endpoint or Gateway	Unified CM	69, 6969, then Ephemeral / UDP	Trivial File Transfer Protocol (TFTP) service to phones and gateways
Endpoint	Unified CM	111 / TCP and UDP	Remote Procedure Call
Unified CM	NTP Server	123 / UDP	Network Time Protocol (NTP)
SNMP Server	Unified CM	161 / UDP	SNMP service response (requests from management applications)
Unified CM	SNMP Server	162 / UDP	Send SNMP trap to management application
SNMP Server	Unified CM	199 / TCP	Native SNMP agent listening port for SMUX support
Unified CM	Unified CM	6161 / UDP	Used for communication between Master Agent and Native Agent to process Native agent MIB requests
Unified CM	Unified CM	6162 / UDP	Used for communication between Master Agent and Native Agent to forward notifications generated from Native Agent
Centralized TFTP	Alternate TFTP	6970, then Ephemeral / TCP	Centralized TFTP File Locator Service
Unified CM	Unified CM	7161 / TCP	Used for communication between SNMP Master Agent and subagents
SNMP Server	Unified CM	7999 / TCP	Cisco Discovery Protocol (CDP) agent communicates with CDP executable
Unified CM	Unified CM	61441 / UDP	Cisco Unified Communications Manager applications send out alarms to this port via UDP. Cisco Unified Communications Manager MIB agent listens on this port and generates SNMP traps per Cisco Unified Communications Manager MIB definition.

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Between Cisco Unified Communications Manager and LDAP Directory			
Unified CM	External Directory	389 / TCP	Lightweight Directory Access Protocol (LDAP) query to external directory (Active Directory, Netscape Directory)
External Directory	Unified CM		
Unified CM	External Directory	636 / TCP	Lightweight Directory Access Protocol over TLS/SSL (LDAPS) query to external directory (Active Directory, Netscape Directory). Formerly called SLDAP.
External Directory	Unified CM		

Web Requests from CCMAdmin or CCMUser to Cisco Unified Communications Manager			
Browser	Unified CM	80, 8080 / TCP	Hypertext Transport Protocol (HTTP)
Browser	Unified CM	443, 8443 / TCP	Hypertext Transport Protocol over SSL (HTTPS)

Web Requests from Cisco Unified Communications Manager to Phone			
Unified CM ▪ QRT ▪ RTMT ▪ Find and List Phones page ▪ Phone Configuration page	Phone	80 / TCP	Hypertext Transport Protocol (HTTP)

Signaling, Media, and Other Communication Between Phones and Cisco Unified Communications Manager			
Phone	Unified CM (TFTP)	69, then Ephemeral / UDP	Trivial File Transfer Protocol (TFTP) used to download firmware and configuration files
Phone	Unified CM	8080 / TCP	Phone URLs for XML applications, authentication, directories, services, and so on. You can configure these ports on a per-service basis.
Phone	Unified CM	2000 / TCP	Skinny Client Control Protocol (SCCP)
Phone	Unified CM	2443 / TCP	Secure Skinny Client Control Protocol (SCCPS)
Phone	Unified CM (CAPF)	3804 / TCP	Certificate Authority Proxy Function (CAPF) listening port for issuing Locally Significant Certificates (LSCs) to IP phones

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Signaling, Media, and Other Communication Between Phones and Cisco Unified Communications Manager			
Phone	Unified CM	5060 / TCP and UDP	Session Initiation Protocol (SIP) phone
Unified CM	Phone		
Phone	Unified CM	5061 TCP and UDP	Secure Session Initiation Protocol (SIPS) phone
Unified CM	Phone		
IP VMS	Phone	16384 - 32767 / UDP	Real-Time Protocol (RTP), Secure Real-Time Protocol (SRTP) (Note: Cisco Unified Communications Manager only uses 24576-32767 although other devices use the full range.)
Phone	IP VMS		

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

Signaling, Media, and Other Communication Between Gateways and Cisco Unified Communications Manager			
Gateway	Unified CM	47, 50, 51	Generic Routing Encapsulation (GRE), Encapsulating Security Payload (ESP), Authentication Header (AH). These protocols numbers carry encrypted IPSec traffic. They do not constitute a port as indicated in the column heading.
Unified CM	Gateway		
Gateway	Unified CM	500 / UDP	Internet Key Exchange (IKE) for IP Security protocol (IPSec) establishment
Unified CM	Gateway		
Gateway	Unified CM (TFTP)	69, then Ephemeral / UDP	Trivial File Transfer Protocol (TFTP)
Unified CM	Gate-keeper	1718 / TCP	Gatekeeper (H.225) Discovery
Gatekeeper	Unified CM	1719 / UDP	Gatekeeper (H.225) RAS
Gateway	Unified CM	1720 / TCP	H.225 signaling services for H.323 gateways and Intercluster Trunk (ICT)
Unified CM	Gateway		
Gateway	Unified CM	Ephemeral / TCP	H.225 signaling services on gatekeeper-controlled trunk
Unified CM	Gateway		

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Signaling, Media, and Other Communication Between Gateways and Cisco Unified Communications Manager (continued)			
Gateway	Unified CM	Ephemeral / TCP	H.245 signaling services for establishing voice, video, and data
Unified CM	Gateway		
Gateway	Unified CM	2000 / TCP	Skinny Client Control Protocol (SCCP)
Gateway	Unified CM	2427 / UDP	Media Gateway Control Protocol (MGCP) gateway control
Gateway	Unified CM	2428 / TCP	Media Gateway Control Protocol (MGCP) backhaul
Gateway	Unified CM	5060 / TCP and UDP	Session Initiation Protocol (SIP) gateway and Intercluster Trunk (ICT)
Unified CM	Gateway		
Gateway	Unified CM	5061 / TCP and UDP	Secure Session Initiation Protocol (SIPS) gateway and Intercluster Trunk (ICT)
Unified CM	Gateway		
Gateway	Unified CM	16384 - 32767 / UDP	Real-Time Protocol (RTP), Secure Real-Time Protocol (SRTP) (Note: Cisco Unified Communications Manager only uses 24576-32767 although other devices use the full range.)
Unified CM	Gateway		

Communication Between Applications and Cisco Unified Communications Manager			
CTL Client	Unified CM CTL Provider	2444 / TCP	Certificate Trust List (CTL) provider listening service in Cisco Unified Communications Manager
Cisco Unified Communications App	Unified CM	2748 / TCP	CTI application server
Cisco Unified Communications App	Unified CM	2749 / TCP	TLS connection between CTI applications (JTAPI/TSP) and CTIManager
Cisco Unified Communications App	Unified CM	2789 / TCP	JTAPI application server
Unified CM Assistant Console	Unified CM	2912 / TCP	Cisco Unified Communications Manager Assistant server (formerly IPMA)
Unified CM Attendant Console	Unified CM	1099-1129 / TCP	Cisco Unified Communications Manager Attendant Console (AC) JAVA RMI Registry server

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Communication Between Applications and Cisco Unified Communications Manager (continued)			
Unified CM Attendant Console	Unified CM	1101 / TCP	RMI server sends RMI callback messages to clients on these ports.
Unified CM Attendant Console	Unified CM	1102 / TCP	Attendant Console (AC) RMI server bind port -- RMI server sends RMI messages on these ports.
Unified CM Attendant Console	Unified CM	3223 / UDP	Cisco Unified Communications Manager Attendant Console (AC) server line state port receives ping and registration message from and sends line states to the attendant console server.
Unified CM Attendant Console	Unified CM	3224 / UDP	Cisco Unified Communications Manager Attendant Console (AC) clients register with the AC server for line and device state information.
Unified CM Attendant Console	Unified CM	4321 / UDP	Cisco Unified Communications Manager Attendant Console (AC) clients register to the AC server for call control.
Cisco Unified Communications App	Unified CM	8443 / TCP	AXL / SOAP API for programmatic reads from or writes to the Cisco Unified Communications Manager database that third parties such as billing or telephony management applications use.

Communication Between CTL Client and Firewalls			
CTL Client	TLS Proxy Server	2444 / TCP	Certificate Trust List (CTL) provider listening service in a PIX firewall

Special Ports on HP Servers			
Endpoint	HP SIM	280 / TCP	HTTP port to HP SIM
Endpoint	HP SIM	2301 / TCP	HTTP port to HP agent
Endpoint	HP SIM	2381 / TCP	HTTPS port to HP agent
Endpoint	Compaq Mgmt Agent	25375, 25376, 25393 / UDP	COMPAQ Management Agent extension (cmaX)
Endpoint	HP SIM	50000 - 50004 / TCP	HTTPS port to HP SIM

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Glossary

AXL / SOAP: Cisco Unified Communications XML Layer / Simple Object Access Protocol – API that applications use to read from or write to the Cisco Unified Communications Manager database.

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

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

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. This plug-in comes with Cisco Unified Communications Manager and can be run on any computer that a) has IP connectivity to all Cisco Unified Communications Managers in the cluster and b) has a USB port.

DRF: Disaster Recovery Framework

Ephemeral Ports: In virtually all cases, source ports are 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 is also ephemeral, meaning that both the source and destination ports are random.

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: Lightweight Directory Access Protocol – Used to validate user credentials against the designated directory service.

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

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

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

RTMT: Real-Time Monitoring Tool

SDL: Signal Distribution Layer Link – Used for intracluster communications.

SOAP: Simple Object Access Protocol

TCTS: Trace Collection Tool Service – The backend service for RTMT Trace & Log Central (TLC)

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

Tomcat: Web server

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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

PIX 7.1 Application Inspection Configuration Guide
http://www.cisco.com/en/US/products/ps6120/products_configuration_guide_chapter09186a008054c520.html

FWSM 3.1 Application Inspection Configuration Guide
http://www.cisco.com/en/US/products/hw/switches/ps708/products_module_configuration_guide_chapter09186a0080577c72.html

IOS 12.4 Configuring Context-Based Access Control
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

IP Telephony Configuration and Port Utilization Guides

Cisco CRS 4.0 (IP IVR and IPCC Express) Port Utilization Guide
http://www.cisco.com/application/pdf/en/us/guest/products/ps6488/c1067/ccmigration_09186a00804e14fa.pdf

Cisco ICM / IPCC Enterprise and Hosted Editions 7.0(0) Port Utilization Guide
http://www.cisco.com/application/pdf/en/us/guest/products/ps1001/c1067/ccmigration_09186a00805abe34.pdf

Cisco Unified Communications Manager Express Security Guide to Best Practices
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

IETF TCP/UDP Port Assignment List

Internet Assigned Numbers Authority (IANA) IETF assigned Port List
http://www.iana.org/assignments/port-numbers

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