



Troubleshooting Overview

This chapter provides the necessary background information and available resources to troubleshoot the Cisco CallManager.

The chapter covers following topics:

- [Cisco CallManager](#)
- [Serviceability](#)
- [Hardware and Software Compatibility](#)
- [General Model of Problem Solving](#)
- [Network Failure Preparation](#)
- [IP Telephony Networks](#)
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Cisco CallManager

Cisco CallManager provides the software-based, call-processing component of the Cisco IP Telephony Solutions for the Enterprise, part of Cisco AVVID (Architecture for Voice, Video and Integrated Data).

The Cisco CallManager system extends enterprise telephony features and functions to packet telephony network devices such as IP phones, media processing devices, voice-over-IP (VoIP) gateways, and multimedia applications. Additional data, voice, and video services such as unified messaging, multimedia

conferencing, collaborative contact centers, and interactive multimedia response systems interact through Cisco CallManager open telephony application program interface (API).

The Cisco CallManager system includes a suite of integrated voice applications for performing voice conferencing and manual attendant console functions. Because of this suite of voice applications, no need exists for special-purpose, voice-processing hardware.

Supplementary and enhanced services such as hold, transfer, forward, conference, multiple-line appearances, automatic route selection, speed dial, last-number redial, and other features extend to IP phones and gateways. Because Cisco CallManager is a software application, enhancing its capabilities in production environments requires only upgrading software on the server platform.

Distribution of Cisco CallManager and all Cisco IP Phones, gateways, and applications across an IP network provides a distributed, virtual telephony network. This architecture improves system availability and scalability. Call admission control ensures that voice quality of service (QoS) is maintained across a constricted WAN link and automatically diverts calls to alternate public switched telephone network (PSTN) routes when WAN bandwidth is not available.

Cisco CallManager Administration, a web-based interface to the database, provides remote device and system configuration and serviceability. This interface also provides access to HTML-based online help for users and administrators.

Serviceability

Administrators can use the Cisco CallManager Administration Serviceability Tool (AST) to troubleshoot system problems. AST, a web-based tool, provides the following services:

- Alarms—Saves Cisco CallManager services alarms and events for troubleshooting and provides alarm message definitions.
- Trace—Saves Cisco CallManager services trace information to various log files for troubleshooting. Administrators can configure, collect, and analyze trace information.

- **Real-Time Monitoring**—Monitors real-time behavior of the components in a Cisco CallManager cluster.
- **Control Center**—Views status of Cisco CallManager services. Administrators use Control Center to start and stop services.

Access AST from Cisco CallManager Administration by choosing Applications from the menu bar. Installing the Cisco CallManager software automatically installs Serviceability and makes it available.

Refer to the *Cisco CallManager Serviceability Administration Guide* and the *Cisco CallManager Serviceability System Guide* for detailed information and configuration procedures on the serviceability tools.

Hardware and Software Compatibility

Refer to the *Cisco CallManager Compatibility Matrix* document for compatible versions of all Cisco CallManager components.

General Model of Problem Solving

When troubleshooting a telephony or IP network environment, define the specific symptoms, identify all potential problems that could be causing the symptoms, and then systematically eliminate each potential problem (from most likely to least likely) until the symptoms disappear.

The following steps provide guidelines to use in the problem-solving process.

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- Step 1** Analyze the network problem and create a clear problem statement. Define symptoms and potential causes.
 - Step 2** Gather the facts that you need to help isolate possible causes.
 - Step 3** Consider possible causes based on the facts that you gathered.
 - Step 4** Create an action plan based on those causes. Begin with the most likely problem and devise a plan in which you manipulate only one variable.
 - Step 5** Implement the action plan, performing each step carefully while testing to see whether the symptom disappears.

- Step 6** Analyze the results to determine whether the problem has been resolved. If it has, the process is complete.
- Step 7** If the problem has not been resolved, create an action plan based on the next most probable cause on your list. Return to [Step 4](#) and repeat the process until the problem has been solved.
- Make sure that you undo anything that you changed while implementing your action plan. Remember that you want to change only one variable at a time.
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**Note**

If you exhaust all the common causes and actions (either those outlined in this document or others that you have identified in your environment), contact Cisco TAC.

Network Failure Preparation

You can always recover more easily from a network failure if you are prepared ahead of time. To determine if you are prepared for a network failure, answer the following questions:

- Do you have an accurate physical and logical map of your internetwork that outlines the physical location of all of the devices on the network and how they are connected as well as a logical map of network addresses, network numbers, and subnetworks?
- Do you have a list of all network protocols that are implemented in your network for each of the protocols implemented and a list of the network numbers, subnetworks, zones, and areas that are associated with them?
- Do you know which protocols are being routed and the correct, up-to-date configuration information for each protocol?
- Do you know which protocols are being bridged? Are there any filters configured in any of these bridges, and do you have a copy of these configurations? Is this applicable to Cisco CallManager?

- Do you know all the points of contact to external networks, including any connections to the Internet? For each external network connection, do you know what routing protocol is being used?
- Has your organization documented normal network behavior and performance, so you can compare current problems with a baseline?

If you can answer yes to these questions, faster recovery from a failure results.

IP Telephony Networks

Refer to the *Cisco Technical Solution Series: IP Telephony Solution Guide* for information on troubleshooting IP telephony networks.

Where to Find More Information

Additional Cisco Documentation

- *Cisco CallManager Administration Guide*
- *Cisco CallManager System Guide*
- *Cisco CallManager Features & Services Guide*
- *Cisco CallManager Serviceability Administration Guide*
- *Cisco CallManager Serviceability System Guide*
- *Cisco WebAttendant User Guide*
- *BAT Administration Tool User Guide*
- *Cisco CallManager Quick Start Guide*
- *Cisco CallManager Installation Instructions*
- *Cisco CallManager Backup and Restore Procedure*
- *Cisco CallManager Attendant Console User Guide*
- *Cisco IP Phone Administration Guide for Cisco CallManager*
- *Cisco VG248 Analog Phone Gateway Software Configuration Guide*
- *Cisco Conference Connection Administration Guide*
- *Cisco IP Conference Station 7935 Administration Guide*

- *Cisco Technical Solution Series: IP Telephony Solution Guide*
- *Guide to Cisco Systems VOIP Infrastructure Solution for SIP*
- CiscoWorks2000 user documentation at the following URL:

<http://www.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/index.htm>