Services

Cisco provides several Windows services that are installed during Cisco CallManager installation. You use Cisco CallManager Serviceability to activate and deactivate as well as start and stop the services. After you activate the services, you can configure them by modifying the service parameters. For more information on activating/deactivating and starting/stopping services, refer to the *Cisco CallManager Serviceability Administration Guide*. For more information about service parameters, refer to "Service Parameters Configuration" in the *Cisco CallManager Administration Guide*.

This section provides a description of the available services and information on working with these services:

Cisco CallManager

The Cisco CallManager service runs on the Cisco IP Telephony Applications Server to provide software-only call processing as well as signaling and call control functionality. After you install Cisco CallManager, you activate and start the Cisco CallManager service by using Cisco CallManager Serviceability.

You configure your Cisco CallManager by modifying the service parameters in the Service Parameters Configuration window of Cisco CallManager Administration. Cisco provides over 100 service parameters for the Cisco CallManager service. To view a list of parameters and their descriptions, click the “i” button in the upper, right corner of the Service Parameters Configuration window. To view the list with a particular parameter at the top, click that parameter in the window.

You must restart Cisco CallManager after making certain changes in the Cisco CallManager Administration. Table 11-1 lists the changes that require a restart.

Table 11-1 Restart Conditions

Field Description	Path to This Parameter in Cisco CallManager Administration
IP address of the Cisco CallManager server	System > Server
Partition for auto-registration	System > Cisco CallManager

Table 11-1 Restart Conditions (continued)

Field Description	Path to This Parameter in Cisco CallManager Administration
External phone number mask for auto-registration	System > Cisco CallManager
TCP port settings for the Cisco CallManager server	System > Cisco CallManager

Tips In general, make as many configuration changes as possible at one time and restart Cisco CallManager only once after completing the changes.

Requirements and Recommendations

- Cisco CallManager requires the Cisco Database Layer Monitor service.
- Cisco CallManager uses the Cisco RIS Data Collector service, but it is not required.
- Cisco CallManager does not require a dedicated TFTP server or publisher server.

Cisco CDR Insert

Cisco CDR Insert reads transferred files, places contents into the call detail record (CDR) database, and removes old files. When you enable CDR collection, Cisco CallManager writes CDRs to flat files on the subscriber hard drive as calls are made. The Cisco CDR Insert service periodically inserts the records from these files into the publisher centralized SQL database. The Cisco CDR Insert service does not insert a record if the CDRFormat enterprise parameter has a value of Flat. For more information on CDRs and related parameters, see the "Call Detail Records" section on page 43-4.

Requirements and Recommendations

- Cisco CDR Insert service requires the Cisco Database Layer Monitor service.
- Limit the number of nodes that are configured with Cisco CDR Insert service.
- Cisco CDR Insert must reside on the same server as the CDR database, which is the publisher server.

Cisco CTIManager

The Cisco CTIManager service contains the CTI components that interface with applications. With Cisco CTIManager, applications have access to resources and functionality of all Cisco CallManagers in the cluster and have improved failover capability. One or more Cisco CTIManagers can be active in a cluster, but only one Cisco CTIManager can exist on an individual server. An application (JTAPI/TAPI) can have simultaneous connections to multiple Cisco CTIManagers; however, an application can only use one connection at a time to open a device with media termination.

Requirements and Recommendations

- Cisco CTIManager service uses the Cisco RIS Data Collector service (not required).
- Cisco CTIManager service requires that the Cisco CallManager service reside on one of the servers in the Cisco CallManager cluster (minimum of one).
- Cisco CTIManager service requires the Cisco Database Layer Monitor service.
- Cisco CTIManager must run on any server that has CTI applications running on it.

Cisco CTL Provider

This Windows 2000 service, which runs with local system account privileges, works with the Cisco CTL Provider Utility, a plugin, to change the security mode for the cluster from non-secure to mixed mode. When you install the plugin, the Cisco CTL Provider service retrieves a list all Cisco CallManager and

Cisco TFTP servers in the cluster for the CTL file, which contains a list of security tokens, Cisco CallManager and TFTP servers, and CAPFs where signed certificates exist.

Requirements and Recommendations

- Activate this service on all servers in the cluster where the Cisco CallManager or Cisco TFTP services run.
- To create the CTL file, verify that all servers where the Cisco CTL Provider service runs are functional and running.

Cisco Database Layer Monitor

The Cisco Database Layer Monitor service monitors aspects of the database layer as well as call detail records (CDRs). The database layer comprises a set of dynamic link libraries (DLLs) that provide a common access point for applications that need to access the database to add, retrieve, and change data. The Cisco Database Layer Monitor service performs functions such as determining whether the primary server is available during failover, deleting the oldest CDRs when the limit that is defined in the Max CDR Records parameter is reached, logging out phones by using Cisco CallManager Extension Mobility, and moving CDRs from a subscriber to the primary database at a given interval, if needed.

Requirements and Recommendations

- You cannot deactivate Cisco Database Layer Monitor service by using Serviceability Service Activation.
- Cisco Database Layer Monitor service must reside on all servers in the Cisco CallManager cluster.

Cisco Extended Functions

The Cisco Extended Functions service supports the Cisco Call Back and Quality Report Tool (QRT) features. Cisco Call Back allows you to receive notification on your Cisco IP Phone when a called party line becomes available. QRT acts as a voice quality and general problem-reporting tool for Cisco IP Phones.

If you run multiple Cisco Extended Functions services within a Cisco CallManager cluster, the service uses an algorithm to determine which service should be active and to order the backup services. The Cisco Extended Functions service with the lowest IP address becomes active. The service with the next lowest IP address becomes the backup to the active service. Any remaining services act as backups to each other, beginning with the service with the next lowest IP address. If you add any new services to the cluster, Cisco Extended Functions restarts the algorithm to determine which service will be active.

Note When a Cisco Extended Functions service gets started in a cluster, the Cisco Extended Functions service with the lowest IP address becomes active. This process may cause service interruption for approximately 2 minutes.

To verify the status of the active Cisco Extended Functions service, use the Real-Time Monitoring Tool as described in the *Cisco CallManager Serviceability Administration Guide*.

For more information about the Call Back feature, refer to the *Cisco IP Phone Administration Guide for Cisco CallManager* and the *Cisco CallManager Features and Services Guide*.

For more information about the Quality Report Tool, refer to the *Cisco IP Phone Administration Guide for Cisco CallManager*, the *Cisco IP Phone 7960 and 7940 Series User Guide*, and the *Cisco CallManager Serviceability Administration Guide*.

Requirements and Recommendations

- Cisco Extended Functions service requires the Cisco Database Layer Monitor service.
- Cisco Extended Functions service requires the Cisco RIS Data Collector service.
- You can include more than one Cisco Extended Functions service in the Cisco CallManager cluster.

Cisco Extension Mobility

The Cisco Extension Mobility service allows you to define login settings such as duration limits on phone configuration for the Cisco CallManager Extension Mobility feature. The Cisco CallManager Extension Mobility feature allows users within a Cisco CallManager cluster to temporarily configure any Cisco IP Phone that supports Cisco CallManager Extension Mobility as their own by logging in to that phone. After a user logs in, the phone adopts the user's personal phone number(s), speed dials, services links, and other user-specific properties. After logout, the phone adopts the original user profile. For more information on the Cisco CallManager Extension Mobility feature, see the "Cisco CallManager Extension Mobility and Phone Login Features" section on page 32-1.

Requirements and Recommendations

- Cisco Extension Mobility service requires the Cisco CallManager service.
- Cisco Extension Mobility service requires the Cisco Database Layer Monitor service.
- Cisco Extension Mobility service requires the Cisco RIS Data Collector service.
- Cisco CallManager Extension Mobility feature requires the Cisco Extension Mobility service to be run on servers that have devices that are registered to the feature.
- Cisco Extension Mobility services does not require a dedicated TFTP server or publisher server.

Cisco IP Manager Assistant

Cisco Tomcat loads the Cisco IP Manager Service (IPMA), a servlet. Cisco Tomcat runs as an NT service that is installed and started at Cisco CallManager installation. For more information, see the "Cisco IPMA Service" section in the *Cisco CallManager Features and Services Guide*.

The administrator performs three steps to make Cisco IPMA available for system use:

1. Use Cisco CallManager Serviceability Service Activation, located under the Tools menu, to activate the Cisco IP Manager Assistant service. Refer to the *Cisco CallManager Serviceability Administration Guide*.
2. Configure the applicable service parameters for the Cisco IP Manager Assistant service. See the "Setting the Service Parameters for Cisco IPMA" section in the *Cisco CallManager Features and Services Guide*.
3. Use Cisco Tomcat Manager to restart the Cisco Tomcat Web Server.

Service parameters for the Cisco IPMA service comprise two categories: general and clusterwide. Specify clusterwide service parameters once for all Cisco IPMA services. Specify general service parameters for each Cisco IPMA service that is installed. For more information, see the "Setting the Service Parameters for Cisco IPMA" section in the *Cisco CallManager Features and Services Guide*.

Cisco IPMA supports two modes of operation: shared line mode and proxy line mode. Because Cisco IPMA service intercepts calls that are made to managers configured as proxy line mode managers, it requires configuration of partitions, calling search spaces, a route point, and translation patterns. For information on configuring the Cisco IP Manager Assistant feature, see the "Configuration Checklist for Cisco IPMA With Proxy Line Support" section in the *Cisco CallManager Features and Services Guide*.

Requirements and Recommendations

- You must properly configure service parameters for the Cisco IPMA service.

Cisco IP Voice Media Streaming Application

The Cisco IP Voice Media Streaming Application provides voice media streaming functionality for Cisco CallManager for use with MTP, conferencing, annunciator, and music on hold (MOH). The Cisco IP Voice Media Streaming Application relays messages from Cisco CallManager to the IP voice media streaming driver. The driver handles the RTP streaming.

When you activate the Cisco IP Voice Media Streaming Application, Cisco CallManager automatically adds the MTP, MOH, annunciator, and conference devices to the database.

For more information about MTP, MOH, and conference bridges, see the "Media Termination Points" section on page 23-1, the "Music On Hold" section in the *Cisco CallManager Features and Services Guide*, the "Conference Bridges" section on page 20-1, and the "Annunciator" section on page 19-1.

Requirements and Recommendations

- Cisco IP Voice Media Streaming Application service requires the Cisco Database Layer Monitor service.
- Cisco IP Voice Media Streaming Application service may reside on more than one server in a Cisco CallManager cluster. If you have more than one server, do not run the service on the publisher database server or the server where Cisco CallManager service runs.
- Cisco IP Voice Media Streaming Application service uses the Cisco TFTP server to retrieve MOH audio sources.
- Music On Hold, Media Termination Point, annunciator, and software conference bridges require the Cisco IP Voice Media Streaming Application service.

Cisco Messaging Interface

The Cisco Messaging Interface allows you to connect a simplified message desk interface (SMDI)-compliant external voice-messaging system with the Cisco CallManager. The CMI service provides the communication between a voice-messaging system and Cisco CallManager. The SMDI defines a way for a phone system to provide a voice-messaging system with the information that is needed to intelligently process incoming calls.

You configure the CMI service parameters to define the following aspects of the CMI service:

- The serial port connection that CMI uses to communicate with the voice-messaging system
- The voice-messaging directory number and partition as well as the extension and mailbox length on the voice-messaging system.
- The name of the primary and backup Cisco CallManager

Cisco Messaging Interface can take up to 5 minutes to detect and load new parameters. For an instant update, restart Cisco Messaging Interface service. For information on restarting services, see the *Cisco CallManager Serviceability Administration Guide*.

For a general description of how to integrate an SMDI-compliant voice-messaging system with Cisco CallManager, see the "SMDI Voice Mail Integration" section on page 26-1.

Requirements and Recommendations

- The Unity voice-messaging system does not require the Cisco Messaging Interface service.
- Cisco Messaging Interface service requires the Cisco Database Layer Monitor service.
- Cisco Messaging Interface service requires the Cisco RIS Data Collector service.
- Cisco Messaging Interface service must reside on the server that has the SMDI cable connected to it.

Cisco MOH Audio Translator

The Cisco MOH Audio Translator service converts audio source files into various codec files, so the MOH feature can use them.

The Cisco MOH Audio Translator service automatically translates audio files that you place in the input directory. During installation, the installation program creates this input directory in the following location: c:\Program Files\Cisco\DropMOHAudioSourceFilesHere. If you want to change the input directory, modify the MOHSourceDirectory service parameter.

After the Cisco MOH Audio Translator service translates the audio files, the Cisco MOH Audio Translator service places the source audio file and the translated file in the output directory on the default MOH TFTP server that was established during the Cisco MOH Audio Translator service installation. To change the output directory, modify the DefaultTFTPMOHFilePath parameter; however, make sure the path points to the default MOH TFTP server. The DefaultTFTPMOHFilePath parameter contains a universal naming convention (UNC) share name that displays in the format *computer name**directory name*.

Caution Cisco recommends that you run the Cisco MOH Audio Translator service on a different server than the one that is used for the Cisco CallManager server. The service can cause performance degradation and errors when audio files are translated if it runs on the Cisco CallManager server.

When the user assigns or maps the audio source file to an audio source number, the default MOH TFTP server copies the files into one directory and makes them available for the MOH servers. The MOH servers download the audio files in the C:\Program Files\Cisco\MOH directory. For more detailed information on how the MOH feature accesses the files after the Cisco MOH Audio Translator service places them in the output directory, see the "Music On Hold" section in the *Cisco CallManager Features and Services Guide*.

Requirements and Recommendations

- Music On Hold requires the Cisco MOH Audio Translator service.
- Each Cisco CallManager cluster requires only one Cisco MOH Audio Translator service.
- Cisco MOH Audio Translator service requires the Cisco Database Layer Monitor service.
- Cisco recommends that the Cisco MOH Audio Translator service does not get installed on the publisher server or the Cisco CallManager server.
- Cisco MOH Audio Translator service requires the Cisco TFTP service.
- Cisco recommends that you install the Cisco MOH Audio Translator service on the server where Cisco TFTP resides (this configuration avoids security issues).

Note If the Cisco MOH Audio Translator service is installed on any non-Cisco TFTP server, you must manually configure access rights.

Cisco RIS Data Collector

The Real-time Information Server (RIS) collects, distributes, and maintains real-time Cisco CallManager information and provides an interface through which the Cisco RIS Data Collector service and the SNMP Agent retrieve that information. One RIS exists on each node that contains the Cisco CallManager service. The Cisco RIS Data Collector service provides an interface for applications, such as Cisco CallManager Serviceability and the Cisco CallManager Administration, to retrieve information that is stored in all RIS nodes in the cluster.

Requirements and Recommendations

- Cisco recommends that the Cisco RIS Data Collector service reside on every server in the Cisco CallManager cluster.
- Cisco RIS Data Collector service requires the Cisco Database Layer Monitor service.

Cisco Serviceability Reporter

The Cisco Serviceability Reporter service generates the following daily reports:

- Device Statistics
- Server Statistics
- Service Statistics
- Call Activities
- Alert

This service gets installed on all the Cisco CallManager nodes in the cluster. Reporter generates reports once a day based on logged information. The reports generated by Reporter can be accessed in Cisco CallManager Serviceability from the Tools menu.

Each summary report comprises different charts that display the statistics for that particular report.

Cisco Serviceability Reporter comprises two service parameters:

- Report Generation Time—Number of minutes after midnight. Reports get generated at this time for the last day.
- Report Deletion Age—Number of days the report must be kept in the disk. The reports older than the age specified get deleted.

For information on service parameters, refer to the "Service Parameters Configuration" section in the *Cisco CallManager Administration Guide*.

Requirements and Recommendations

- The Cisco Serviceability Reporter service stays active only on the Cisco CallManager publisher, which means that at any time, the reports get generated only on the publisher.
- To view reports in the PDF format, you must install Acrobat ® Reader on your machine.
- The time shown in the reports match the time zone of the publisher, regardless of whether the publisher and subscriber are in different time zones.

Cisco Telephony Call Dispatcher

Telephony Call Dispatcher (TCD) service provides centralized services for attendant consoles and pilot points. For attendant consoles, TCD provides call control functionality, line state information for any accessible line within the Cisco CallManager domain, and caching of directory information. For pilot points, TCD provides automatic redirection to directory numbers that are listed in hunt groups and failover during a Cisco CallManager failure.

For more detailed information on how TCD works with attendant consoles, see the "Understanding the Cisco Telephony Call Dispatcher" section on page 33-16.

For more information on how TCD works with pilot points, see the "Understanding Pilot Points and Hunt Groups" section on page 33-3.

Requirements and Recommendations

- Consider the Telephony Call Dispatcher (TCD) service as optional except for the Cisco CallManager Attendant Console application and hunt group capability.
- If installed for Cisco CallManager Attendant Console and hunt group use, the Telephony Call Dispatcher (TCD) service must reside on all servers in the Cisco CallManager cluster that have the Cisco CallManager service.
- If installed for Cisco CallManager Attendant Console and hunt group use, the Telephony Call Dispatcher (TCD) service requires the Cisco CTIManager service (can reside on any server in the Cisco CallManager cluster).
- Cisco Telephony Call Dispatcher service requires the Cisco Database Layer Monitor service.
- Cisco Telephony Call Dispatcher service requires the Cisco RIS Data Collector service.

Cisco TFTP

Cisco Trivial File Transfer Protocol (TFTP) builds and serves files that are consistent with the trivial file transfer protocol, a simplified version of FTP. Cisco TFTP serves embedded component executable, ringer files, and device configuration files.

A configuration file includes a list of Cisco CallManagers to which devices (telephones and gateways) make connections. When a device boots, the component queries a Dynamic Host Configuration Protocol (DHCP) server for its network configuration information. The DHCP server responds with an IP address for the device, a subnet mask, a default gateway, a Domain Name System (DNS) server address, and a TFTP server name or address.

The device requests a configuration file from the TFTP server. The configuration file contains a list of Cisco CallManagers and the TCP port through which the device connects to those Cisco CallManagers as well as such items as phone button URL information and locale information.

If the device receives the Cisco CallManager name, the device resolves the name by using DNS, and a Cisco CallManager connection opens. If the device does not receive either an IP address or name, the device uses the default server name.

For more information about TFTP, see the “Cisco TFTP” section on page 9-1.

Requirements and Recommendations

- Cisco recommends that the Cisco TFTP service reside on only one server in a Cisco CallManager cluster.
- If the Cisco TFTP service resides on more than one server in the Cisco CallManager cluster, you must use DHCP configuration.
- Cisco TFTP service requires the Cisco Database Layer Monitor service.
- To avoid performance issues, Cisco recommends that you configure a dedicated TFTP server (separate from the Cisco CallManager server) if you have many phones and gateways in your network. Cisco CallManager and Cisco TFTP services can run on the same server in small configurations only (for example, in a network with fewer than 2500 phones).

Cisco WebDialer

Cisco WebDialer provides click-to-dial functionality. It allows users in a Cisco CallManager cluster to initiate a call to other users inside or outside the cluster by using a web page or a desktop application. Cisco WebDialer provides a webpage that enables users to call each other within a cluster. Cisco WebDialer comprises two components: WebDialer servlet and Redirector servlet.

The Redirector servlet provides the ability for third-party applications to use Cisco WebDialer. The Redirector servlet finds the appropriate Cisco CallManager cluster for the WebDialer user and redirects the request to the WebDialer in that cluster. The Redirector functionality is only available for HTTP/HTML-based WebDialer client applications and is not available for Simple Object Access Protocol (SOAP)-based WebDialer applications.

For more information about Cisco WebDialer, refer to the Cisco WebDialer section of the *Cisco CallManager Features and Services Guide*.

Requirements and Recommendations

- Cisco WebDialer requires the Cisco CTIManager service (the services does not have to be on the same node but must be within the same Cisco CallManager cluster).
- Cisco WebDialer requires the Cisco Database Layer Monitor service.
- Cisco WebDialer supports Microsoft Internet Explorer version 5.5 and above, Netscape Communicator version 4.7x and above, Open Source Mozilla 1.3 and above, and Opera Software ASA 7.0.

Service Installation and Configuration

You automatically install all services when you install Cisco CallManager. After installation, use Cisco CallManager Serviceability to activate and start the services that you want to use on your Cisco CallManager servers. After an upgrade, Cisco CallManager starts the services that were previously started on the server.

Note You must use the Serviceability Control Center tool to start and stop services. If you use the Windows Control Center, your services may not function properly. For information about starting and stopping services, refer to the *Cisco CallManager Serviceability Administration Guide*.

You can configure your services by setting the appropriate service parameters. If you deactivate a service, Cisco CallManager deletes any updated non-clusterwide parameter values. For information on service parameters, refer to the "Service Parameters Configuration" section in the *Cisco CallManager Administration Guide*.

Trace Settings

Cisco CallManager Serviceability provides a web-based trace tool to assist you and support personnel in troubleshooting Cisco CallManager problems. You configure trace parameters for Cisco CallManager services that are available on

any Cisco CallManager server in the cluster. For more information on configuring and using the trace tool, refer to the *Cisco CallManager Serviceability Administration Guide*.

Services Configuration Checklist

Table 11-2 lists the steps for installing and configuring services.

Table 11-2 Services Configuration Checklist

Configuration Steps		Procedures and Related Topics
Step 1	Activate and start the services that you want to run on your Cisco CallManager servers.	*Cisco CallManager Serviceability Administration Guide*
Step 2	Configure the appropriate service parameters.	Service Parameters Configuration, *Cisco CallManager Administration Guide*
Step 3	Troubleshoot problems by using the Cisco CallManager Serviceability trace tool, if needed.	*Cisco CallManager Serviceability Administration Guide*

Where to Find More Information

Related Topics

- Conference Bridges, page 20-1
- Music On Hold, *Cisco CallManager Features and Services Guide*
- Media Termination Points, page 23-1
- Cisco TFTP, page 9-1
- Cisco CallManager Attendant Console, page 33-1
- Service Parameters Configuration, *Cisco CallManager Administration Guide*

Additional Cisco Documentation

- *Installing Cisco CallManager 4.0*
- *Cisco CallManager Serviceability Administration Guide*
- *Cisco CallManager Serviceability System Guide*
- *Cisco CallManager Features and Services Guide*