CHAPTER 2

Service Management

Cisco Unified CallManager Serviceability service management includes working with feature and network services and servlets, which are associated with the Tomcat Java Webserver. Feature services allow you to use Cisco Unified CallManager-related features, while network services are required for your system to function.

If something is wrong with a service or servlet, an alarm gets written to an alarm monitor. After viewing the alarm information, you can run a trace on the service. Be aware that services and servlets display different trace levels in the Trace Configuration window.

This chapter, which provides a description of services/servlets, Service Activation, and Control Center, contains information on the following topics:

Feature Services

After a Cisco Unified CallManager installation, the system does not automatically activate feature services, which are Cisco Unified CallManager-related services that are required to use Cisco Unified CallManager features. In Cisco Unified CallManager Serviceability, you can activate, start, and stop feature services. After you activate feature services, you can modify associated service parameters in Cisco Unified CallManager Administration. If you are upgrading Cisco Unified CallManager, those services that you activated on the system prior to the upgrade automatically activate and start after the upgrade.

Activation turns on and starts the service. After you activate a service in the Service Activation window, you do not need to start it in the Control Center—Feature Services window. If the service does not start for any reason, you must start it in the Control Center—Features Services window.

In the Service Activation window, Cisco Unified CallManager Serviceability categorizes feature services into the following groups:

- CDR Services, page 2-4
- Database and Admin Services, page 2-5
- Performance and Monitoring Services, page 2-5
- Security Services, page 2-6
- Directory Services, page 2-6
- Backup and Restore Services, page 2-6

In the Control Center—Feature Services window, Cisco Unified CallManager Serviceability categorizes services into the same groups that display in the Service Activation window.

Tip For service activation recommendations, see the "Service Activation" section on page 2-11 and the "Activating and Deactivating Feature Services" in the *Cisco CallManager Serviceability Administration Guide*.

CM Services

Cisco CallManager

The Cisco CallManager service provides software-only call processing as well as signaling and call control functionality for Cisco Unfied CallManager.

Tip Before you activate this service, verify that the Cisco Unified CallManager displays in the Cisco Unified CallManager Find/List window in Cisco Unified CallManager Administration. If the server does not display, add the Cisco Unified CallManager before you activate this service. For information on how to add the Cisco Unified CallManager, refer to the *Cisco Unified CallManager Administration Guide*.

Tip If you deactivate the Cisco CallManager or CTIManager services in Service Activation, the Cisco CallManager where you deactivated the service no longer exists in the database. This means that you cannot choose the Cisco CallManager for configuration operations in Cisco Unified CallManager Administration because it will not display in the graphical user interface (GUI). If you then reactivate the services on the same Cisco CallManager, the database creates the Cisco CallManager again and adds a "CM_" prefix to the server name or IP address; for example, if you reactivate the Cisco CallManager or CTIManager service on a server with an IP address of 172.19.140.180, then CM_172.19.140.180 displays in Cisco Unified CallManager Administration. You can now choose the Cisco CallManager, with the new "CM_" prefix, in Cisco Unified CallManager Administration.

The following services rely on Cisco CallManager service activation:

- Cisco CTIManager, page 2-3
- CDR Services, page 2-4

Cisco TFTP

Cisco Trivial File Transfer Protocol (TFTP) builds and serves files 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 Unified 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 Unified CallManagers and the TCP port through which the device connects to those Cisco Unified CallManagers.

Cisco IP Voice Media Streaming App

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

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 Unified CallManager. The CMI service provides the communication between the voice-messaging system and Cisco Unified 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.

Cisco CTIManager

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

Cisco Unified CallManager Attendant Console Server

The Cisco CallManager Attendant Console Server service provides centralized services for Cisco Unified CallManager Attendant Console clients and pilot points. For Attendant Console clients, this service provides call-control functionality, line state information for any accessible line within the Cisco Unified CallManager domain, and caching of directory information. For pilot points, this service provides automatic redirection to directory numbers that are listed in hunt groups and failover during a Cisco Unified CallManager failure.

Cisco Extended Functions

The Cisco Extended Functions service provides support for some Cisco Unified CallManager features, including Quality Report Tool (QRT). For more information about individual features, refer to the *Cisco Unified CallManager System Guide* and the *Cisco Unified IP Phone Administration Guide for Cisco Unified CallManager.*

Cisco CallManager IP Phone Services

When activated, the Cisco CallManager IP Phone Service initializes the service URLs for the Cisco IP Phone services that you configured in Cisco Unified CallManager Administration.

Cisco Dialed Number Analyzer

The Cisco Dialed Number Analyzer service supports the Cisco Unified CallManager Dialed Number Analyzer application and can be activated/deactivated from the serviceability web pages.

When activated, this tool will consume a lot of resources. Cisco does not recommend activating the service on all the nodes in a cluster. Cisco recommends that you activate this service only during off-peak hours or only on one of the nodes of a cluster where call processing activity is the least.

Cisco DHCP Monitor Service

Cisco DHCP Monitor Service monitors IP address changes for IP Phones in the database tables. When a change is detected, it modifies the /etc./dhcpd.conf file and restarts the DHCPD daemon.

CTI Services

Cisco IP Manager Assistant

This service supports the Cisco Unified CallManager Assistant application. When activated, Cisco IP Manager Assistant enables managers and their assistants to work together more effectively. Cisco IP Manager Assistant supports two modes of operation: proxy line support and shared line support. The Cisco IP Manager Assistant service supports both proxy line and shared line support in a cluster. Refer to the *Cisco Unified CallManager Features and Services Guide*.

The feature comprises a call-routing service, enhancements to phone capabilities for the manager, and desktop interfaces that are primarily used by the assistant.

The service intercepts calls that are made to managers and routes them to selected assistants, to managers, or to other targets on the basis of preconfigured call filters. The manager can change the call routing dynamically; for example, by pressing a softkey on the phone, the manager can instruct the service to route all calls to the assistant and can receive status on these calls.

Cisco Unified CallManager users comprise managers and assistants. The routing service intercepts manager calls and routes them appropriately. An assistant user handles calls on behalf of a manager. Cisco IP Manager Assistant comprises features for managers and features for assistants.

Cisco WebDialer Web Service

Cisco WebDialer provides click-to-dial functionality. It allows users in a Cisco Unified 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 web page 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 Unified CallManager cluster for the WebDialer user and redirects the request to the WebDialer in that cluster. The Redirector functionality only applies for HTTP/HTML-based WebDialer client applications because it is not available for Simple Object Access Protocol (SOAP)-based WebDialer applications.

CDR Services

Cisco CAR Scheduler

The Cisco CAR Scheduler service allows you to schedule CAR-related tasks; for example, you can schedule report generation or CDR file loading into the CAR database.

For this service to work, activate the Cisco Unified CallManager service on the first node and ensure that it is running.

Cisco CAR Web Service

The Cisco CAR Web Service loads the user interface for CAR, a web-based reporting application that generates either csv or pdf reports by using CDR data.

For this service to work, activate the Cisco CallManager service on the first node and ensure that it is running.

Database and Admin Services

Cisco AXL Web Service

The Cisco AXL Web Service allows you to modify Cisco Unified CallManager database entries and execute stored procedures from client-based applications that use AXL.

Cisco Bulk Provisioning Service

Cisco Bulk Provisioning Service can only be activated on the first node. If you use the Cisco Unified Bulk Administration Tool (BAT) to administer phones and users, you must activate this service.

Performance and Monitoring Services

Cisco Serviceability Reporter

The Cisco Serviceability Reporter service generates the following daily reports:

- Device Statistics
- Server Statistics
- Service Statistics
- Call Activities
- Alert
- Performance Protection Report

This service gets installed on all the Cisco Unified CallManager nodes in the cluster. Reporter generates reports once a day based on logged information. You can access the reports that Reporter generates in Cisco Unified 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 generate at this time for the last day.
- Report Deletion Age—Number of days that the report must be kept in the disk. The system deletes the reports that are older than the specified age.

Cisco CCM SNMP Service

This service provides SNMP access to provisioning and statistics information that is available for Cisco Unified CallManager.

Security Services

Cisco CTL Provider

The Cisco CTL Provider service, which runs with local system account privileges, works with the Cisco CTL Provider Utility, a client-side plug-in, to change the security mode for the cluster from nonsecure to mixed mode. When you install the plug-in, the Cisco CTL Provider service retrieves a list of all Cisco Unified CallManager and Cisco TFTP servers in the cluster for the CTL file, which contains a list of security tokens and servers in the cluster.

After you activate the service, the Cisco CTL Provider service reverts to the default CTL port, which is 2444. If you want to change the port, refer to the Cisco Unified CallManager security documentation for more information. You must install and configure the Cisco CTL Client and activate this service for the clusterwide security mode to change from nonsecure to secure.

Cisco Certificate Authority Proxy Function (CAPF)

Working in conjunction with the CAPF application, the Cisco Certificate Authority Proxy Function (CAPF) service can perform the following tasks, depending on your configuration:

- Issue locally significant certificates to supported Cisco Unified IP Phone models.
- Using SCEP, request certificates from third-party certificate authorities on behalf of supported Cisco Unified IP Phone models.
- Upgrade existing certificates on the phones.
- Retrieve phone certificates for troubleshooting.
- Delete locally significant certificates on the phone.

Note When you view real-time information in RTMT, the Cisco Certificate Authority Proxy Function (CAPF) service displays only for the first node.

Directory Services

Cisco DirSync

Unlike Windows versions of Cisco Unified CallManager, Cisco Unified CallManager 5.0 does not contain an embedded directory. Because of this change, the Cisco Unified CallManager database stores all user information. If you use an integrated corporate directory, for example, Microsoft Active Directory or Netscape/iPlanet Directory, with Cisco Unified CallManager, the Cisco DirSync service migrates the user data to the Cisco Unified CallManager database. The Cisco DirSync service does not synchronize the passwords from the corporate directory.

Backup and Restore Services

Cisco DRF Master

The Cisco DRF Master Agent service supports the DRF Master Agent, which works with the graphical user interface (GUI) or command line interface (CLI) to schedule backups, perform restores, view dependencies, check status of jobs, and cancel jobs, if necessary. The Cisco DRF Master Agent also provides the storage medium for the backup and restoration process (tape drive in Cisco Unified CallManager 5.0).

Network Services

Installed automatically with Cisco Unified CallManager, network services include services that the Cisco Unified CallManager system requires for the cluster to function; for example, database and platform services. Because these services are required for basic Cisco Unified CallManager functionality, you cannot activate them in the Service Activation window. If necessary, for example, for troubleshooting purposes, you may need to stop and start (or restart) a network service in the Call Control—Network Services window.

After the Cisco Unified CallManager installation, network services start automatically, as noted in the Call Control—Network Services window.

In the Control Center—Network Services window, Cisco Unified CallManager Serviceability categorizes services into the following groups:

- Platform Services, page 2-7
- DB Services, page 2-8
- CCM Services, page 2-8
- Performance and Monitoring Services, page 2-10
- Service Activation, page 2-11
- SOAP Services, page 2-10
- Backup and Restore Services, page 2-11
- CDR Services, page 2-11

Platform Services

A Cisco DB

A Cisco DB is the Progres database engine.

Cisco Tomcat

The Cisco Tomcat service supports the web server in Cisco Unified CallManager 5.0.

SNMP Master Agent

This service, which acts as the agent protocol engine, provides authentication, authorization, access control, and privacy functions that relate to SNMP requests.

MIB2 Agent

This service provides SNMP access to variables that are defined in RFC 1213, which read and write variables; for example, system, interfaces, IP, and so on.

Host Resources Agent

This service provides SNMP access to host information, such as storage resources, process tables, device information, and installed software base.

Native Agent Adaptor

This service allows you to forward SNMP requests to another SNMP agent that runs on the system.

System Application Agent

This service provides SNMP access to the applications that are installed and executing on the system. This implements the SYSAPPL-MIB.

Cisco CDP Agent

This service uses the Cisco Discovery Protocol to provide SNMP access to network connectivity information on the Cisco Unified CallManager node.

Cisco Syslog Agent

This service supports gathering of syslog messages that various Cisco Unified CallManager components generate.

Cisco Electronic Notification

This service works with the Cisco Unified Communications Platform Administration, so you can send e-mails about software updates.

Cisco License Manager

Cisco License Manager keeps track of the licenses that are purchased and used by the customer. It controls licenses checkins and checkouts and it is responsible for issuing and reclaiming licenses. Cisco License Manager manages the Cisco Unified CallManager application and the number of IP Phone unit licenses. When the number of phones exceeds the number of licenses, it issues alarms to notify the administrator. This service runs on all the nodes, but the service on the first node is responsible for issuing and reclaiming licenses.

Cisco Certificate Expiry Monitor

This service periodically checks the expiration status of certificates that are generated by Cisco Unified CallManager and sends notification when a certificate is close to its expiration date.

DB Services

Cisco Database Layer Monitor

The Cisco Database Layer Monitor service monitors aspects of the database layer. This server is responsible for change notification and monitoring.

CCM Services

Cisco CallManager Admin

The Cisco CallManager Admin service supports Cisco Unified CallManager Administration, the web application/interface that you use to configure Cisco Unified CallManager settings. After the Cisco Unified CallManager installation, this service starts automatically and allows you access to the web pages. If you stop this service on a server, you cannot access the Cisco Unified CallManager Administration graphical user interface when you browse into that server.

Cisco CallManager Serviceability

The Cisco CallManager Serviceability service supports Cisco Unified CallManager Serviceability, the web application/interface that you use to troubleshoot Cisco Unified CallManager issues. After the Cisco Unified CallManager installation, this service starts automatically and allows you access to the web pages. If you stop this service on a server, you cannot access the Cisco Unified CallManager Serviceability GUI when you browse into that server.

Cisco CallManager Personal Directory

The Cisco CallManager Personal Directory service supports Cisco Personal Directory.

Cisco Log Partition Monitoring Tool

The Cisco Log Partition Monitoring Tool service supports the Log Partition Monitoring feature, which monitors the disk usage of the log partition on a server (or all servers in the cluster) by using configured thresholds and a polling interval.

Cisco CDP

Cisco CDP advertises Cisco Unified CallManager to other applications, so the application, for example, SNMP or CiscoWorks2000, can perform network management tasks for Cisco Unified CallManager.

Cisco Trace Collection Servlet

The Cisco Trace Collection Servlet, along with the Cisco Trace Collection Service, supports trace collection and allows users to view traces by using the RTMT client. After Cisco Unified CallManager installation, this service starts automatically. If you stop this service on a server, you cannot collect or view traces on that server.

Cisco Trace Collection Service

The Cisco Trace Collection Service, along with the Cisco Trace Collection Servlet, supports trace collection and allows users to view traces by using the RTMT client. After Cisco Unified CallManager installation, this service starts automatically. If you stop this service on a server, you cannot collect or view traces on that server.

Tip If necessary, Cisco recommends that you restart the Cisco Trace Collection Service before restarting Cisco Trace Collection Servlet to reduce the initialization time.

Cisco RIS Data Collector

The Real-time Information Server (RIS) maintains real-time Cisco Unified CallManager information such as device registration status, performance counter statistics, critical alarms generated, and so on. The Cisco RIS Data Collector service provides an interface for applications, such as Real-Time Monitoring Tool (RTMT), SOAP applications, Cisco Unified CallManager Administration and AlertMgrCollector (AMC) to retrieve the information that is stored in all RIS nodes in the cluster.

Cisco AMC Service

Used for the real-time monitoring tool (RTMT), this service, Alert Manager and Collector service, existed as a component of the Cisco RIS Data Collector service in previous Windows releases of Cisco Unified CallManager. This service allows RTMT to retrieve real-time information that exists on nodes in the cluster.

Cisco Extension Mobility Application

The Cisco Extension Mobility service allows you to define login settings such as duration limits on phone configuration for the Cisco Extension Mobility feature. The Cisco Extension Mobility feature allows users within a Cisco Unified CallManager cluster to temporarily configure any Cisco Unified IP Phone 7960/7940 in the cluster as their own phone 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.

Performance and Monitoring Services

Cisco CallManager Serviceability RTMT

The Cisco CallManager Serviceability RTMT service supports the Cisco Unified CallManager Real-Time Monitoring Tool (RTMT), which allows you to collect and view traces, view performance monitoring objects, work with alerts, and monitor devices, system performance, CTI applications, and so on.

Cisco RTMT Reporter Servlet

The Cisco RTMT Reporter servlet allows you to publish reports for RTMT.

Cisco Tomcat Stats Servlet.

The Cisco Tomcat Stats Servlet allows you to monitor the Tomcat perfmon counters by using RTMT or the Command Line Interface. Do not stop this service unless you suspect that this service is using too many resources, such as CPU time.

SOAP Services

Cisco SOAP-Real-Time Service APIs

The Cisco SOAP-Real-Time Service APIs allows you to collect real-time information for devices and CTI applications. This service also provides APIs for activating, starting, and stopping services.

Cisco SOAP Performance Monitoring APIs

The Cisco SOAP Performance Monitoring APIs service allows you to use performance monitoring counters for various applications through SOAP APIs; for example, you can monitor memory information per service, CPU usage, Cisco Callmanager counters, and so on.

Cisco SOAP-Log Collection APIs

The Cisco SOAP-Log Collection APIs service allows you to collect log files and to schedule collection of log files on a remote SFTP server. Examples of log files that you can collect include syslog, core dump files, Cisco application trace files, and so on.

Backup and Restore Services

Cisco DRF Local

The Cisco DRF Local service supports the Cisco DRF Local Agent, which acts as the workhorse for the DRF Master Agent. Components on a node register with the Cisco DRF Local Agent to use the disaster recovery framework. The Cisco DRF Local Agent executes commands that it receives from the Cisco DRF Master Agent. Cisco DRF Local Agent sends the status, logs, and command results to the Cisco DRF Master Agent.

CDR Services

Cisco CDR Repository Manager

You can activate the Cisco CDR Repository Manager service only on the first node, which contains the Cisco Unified CallManager database. This service starts automatically.

Cisco CDR Agent

The Cisco CDR Agent service transfers CDR and CMR files that are generated by Cisco Unified CallManager from the local host to the CDR repository node, where the CDR Repository Manager service runs over a SFTP connection.

For this service to work, activate the Cisco CallManager service on the first node and ensure that it is running.

Service Activation

You can activate or deactivate multiple feature services or choose default services to activate from the Service Activation window in Cisco Unified CallManager Serviceability. Cisco Unified CallManager Serviceability activates feature services in automatic mode and checks for service dependencies based on a single-server configuration. When you choose to activate a feature service, Cisco Unified CallManager Serviceability prompts you to select all the other services, if any, that depend on that service to run based on a single-server configuration. When you click the Set Default button, the Cisco Unified CallManager Serviceability chooses those services that are required to run Cisco Unified CallManager based on a single-server configuration. Activating a service automatically starts the service. You start/stop services from Control Center.

Control Center

From Control Center in Cisco Unified CallManager Serviceability, you can view status and start and stop one service at a time for a particular server in the cluster. To perform these tasks, Cisco Unified CallManager Serviceability provides two Control Center windows. To start, stop, and restart network services, access the Control Center—Network Services window. To start, stop, and restart feature services, access the Control Center—Feature Services window.

Tip Use the Related Links drop-down list box and the Go button to navigate to Control Center and Service Activation windows.

Starting and stopping a Cisco CallManager (feature) service causes all Cisco Unified IP Phones and gateways that are currently registered to that Cisco CallManager service to fail over to their secondary Cisco CallManager service. Devices and phones need to restart only if they cannot register with another Cisco CallManager service. Starting and stopping a Cisco CallManager service causes other installed applications (such as Conference Bridge or Cisco Messaging Interface) that are homed to that Cisco CallManager to start and stop as well.

Caution Stopping a Cisco CallManager service also stops call processing for all devices that the service controls. When a Cisco CallManager service is stopped, calls from an IP phone to another IP phone will stay up; calls in progress from an IP phone to a Media Gateway Control Protocol (MGCP) gateway also stay up, but other types of calls drop.

Services Configuration Checklist

Table 2-1 lists the steps for installing and configuring services.

Table 2-1 Services Configuration Checklist

Configuration Steps		Procedures and Related Topics
Step 1	Activate the feature services that you want to run on your Cisco Unified CallManager servers. **Note** If you are upgrading from a previous version of Cisco Unified CallManager, Cisco Unified CallManager Serviceability automatically activates and starts the services that were started before you began the upgrade.	• Feature Services, page 2-1 • Activating and Deactivating Feature Services, *Cisco Unified CallManager Serviceability Administration Guide*
Step 2	Configure the appropriate service parameters.	• *Cisco Unified CallManager Administration Guide* • i-button help in Service Parameter window in Cisco Unified CallManager Administration
Step 3	Troubleshoot problems by using the Cisco Unified CallManager Serviceability trace tools, if needed.	• Trace Configuration, *Cisco Unified CallManager Serviceability Administration Guide* • Trace Collection and Log Central in RTMT, *Cisco Unified CallManager Serviceability Administration Guide*

Where to Find More Information

Related Topics

- Control Center, page 2-11
- Feature Services, page 2-1
- Network Services, page 2-7

Additional Cisco Documentation

- *Cisco Unified CallManager System Guide*
- *Cisco Unified CallManager Administration Guide*
- *Cisco Unified CallManager Features and Services Guide*
- *Cisco Unified CallManager Security Guide*
- *Troubleshooting Guide for Cisco Unified CallManager*