CHAPTER 5

Trace Configuration

The Trace Configuration window allows you to specify the parameters that you want to trace for troubleshooting Cisco Unified CallManager problems. You can configure the level of information that you want traced (debug level), what information you want to trace (trace fields), and information about the trace files (such as number of files per service, and size of file). You can configure trace for a single service or apply the trace settings for that service to all servers in the cluster. If the service is a call-processing application such as Cisco CallManager or Cisco CTIManager, you can configure a trace on devices such as phones and gateways, or you can narrow the trace to enabled phones with a directory number beginning with 555.

After you have configured which information you want to include in the trace files for the various services, you can collect trace files by using the trace and log central option in the Real-Time Monitoring Tool (RTMT). For more information on collecting traces, see the "Trace Collection and Log Central in RTMT" section on page 10-1.

Note Enabling Trace decreases system performance; therefore, enable Trace only for troubleshooting purposes. For assistance in using Trace, contact Cisco TAC.

This chapter contains the following topics:

Configuring Trace Parameters

This section describes how to configure trace parameters for Cisco CallManager services.

Procedure

Step 1 Choose **Trace > Configuration**.

The Trace Configuration window displays.

Step 2 From the Server drop-down list box, choose the server that is running the service for which you want to configure trace.

Step 3 From the Service drop-down list box, choose the service for which you want to configure trace.

Note The drop-down list box displays all services (active and inactive).

The trace parameters display for the service that you chose.

Note If you configured Troubleshooting Trace for this service, a message displays at the top of the window that indicates that Troubleshooting Traces have been set. The system disables all fields on the window except the Output Settings. To configure the Output Settings, go to Step 19. To reset Troubleshooting trace, see the "Troubleshooting Trace Setting Configuration" section on page 6-1.

Step 4 If you want to configure SDL trace parameters for the Cisco CallManager or CTIManager service, click the **Go** button that is next to the Related Links drop-down list box.

Step 5 Check the Trace On check box.

Step 6 If you want trace to apply to all Cisco Unified CallManager servers in the cluster, check the Apply to All Nodes check box.

Step 7 If you are configuring SDL trace parameters, go to Step 10; otherwise, continue with Step 8.

Step 8 From the Debug Trace Level drop-down list box, choose the level of information that you want traced as described in "Debug Trace Level Settings" section on page 5-4.

Step 9 Check the Trace Fields check box for the service that you chose; for example, Cisco Unified CallManager Trace Fields.

Note If you are configuring trace for the Cisco CallManager service or the Cisco CTIManager service and you only want trace information for specific Cisco Unified CallManager devices, go to Step 11.

Step 10 If the service that you chose has multiple trace fields, check the check boxes next the trace fields that you want to enable; otherwise, check the **Enable All Trace** check box. For descriptions of the trace fields, see the appropriate section:

- Cisco CallManager SDI Trace Fields, page 5-5
- Cisco CallManager SDL Trace Fields, page 5-8
- Cisco CallManager Attendant Console Server Trace Fields, page 5-9
- Cisco CTIManager SDL Trace Fields, page 5-9
- Cisco Database Layer Monitor Trace Fields, page 5-10
- Cisco Extended Functions Trace Fields, page 5-11
- Cisco Extension Mobility Trace Fields, page 5-11
- Cisco IP Manager Assistant Trace Fields, page 5-12
- Cisco IP Voice Media Streaming Application Trace Fields, page 5-12
- Cisco RIS Data Collector Trace Fields, page 5-13
- Cisco TFTP Trace Fields, page 5-14
- Cisco WebDialer Web Service Trace Fields, page 5-14

Step 11 Perform one of the following steps:

- If you are configuring trace for the Cisco CallManager service or the Cisco CTIManager service and you want trace information for specific Cisco Unified CallManager devices, check the **Device Name Based Trace Monitoring** check box and continue with Step 12. The Device Name Based Trace Monitoring option traces only the selected devices, thus narrowing the number of trace logs that are generated and reducing the impact on call processing.
- If you are configuring a service other than Cisco CallManager service or the Cisco CTIManager service or you do not want to trace information for specific devices, continue with Step 19.

Step 12 Click the **Select Devices** button.

The Device Selection for Tracing window displays.

Tip Using Cisco Unified CallManager Administration **System > Enterprise Parameters**, configure the maximum number of devices that are available for tracing. Enter a value in the Max Number of Device Level Trace field. The default specifies 12. Refer to the *Cisco Unified CallManager Administration Guide* for details.

Step 13 From the **Find** drop-down list box, choose the device for which you want a trace.

Step 14 Enter the appropriate search criteria for the device for which you want a trace and click the **Find** button.

The window with the search results displays.

If more pages of search results to view exist, click the **First**, **Previous**, **Next**, or **Last** button.

Step 15 Click the Trace check box for the device or devices for which you want device-name-based trace monitoring.

Step 16 Click the **Save** button.

Step 17 When the update finishes, click the browser close button to close the Device Selection for Tracing window and return to the Trace Configuration window.

Step 18 If you want trace to apply to non-devices in addition to devices, check the Include Non-device Traces check box. If check box is checked, set the appropriate debug trace level as described in "Debug Trace Level Settings" section on page 5-4.

Step 19 To limit the number and size of the trace files, specify the trace output setting. See Table 5-17 for descriptions and default values.

Step 20 To save your trace parameters configuration, click the **Update** button.

The changes to trace configuration take effect immediately for all services except Cisco Messaging Interface. The trace configuration changes for Cisco Messaging Interface take effect in 3 to 5 minutes.

Note To set the default, click the **Set Default** button.

Additional Information

See the Related Topics, page 5-15.

Debug Trace Level Settings

Table 5-1 describes the debug trace level settings for services.

Table 5-1 Debug Trace Levels for Services

Level	Description
Error	Traces alarm conditions and events. Used for all traces that are generated in abnormal path. Uses minimum number of CPU cycles.
Special	Traces all Error conditions plus process and device initialization messages.
State Transition	Traces all Special conditions plus subsystem state transitions that occur during normal operation. Traces call-processing events.
Significant	Traces all State Transition conditions plus media layer events that occur during normal operation.
Entry/Exit	Traces all Significant conditions plus entry and exit points of routines. Not all services use this trace level (for example, Cisco CallManager does not).
Arbitrary	Traces all Entry/Exit conditions plus low-level debugging information. **Note** Do not use this trace level with the Cisco CallManager service or the Cisco IP Voice Media Streaming Application service during normal operation.
Detailed	Traces all Arbitrary conditions plus detailed debugging information. **Note** Do not use this trace level with the Cisco CallManager service or the Cisco IP Voice Media Streaming Application service during normal operation.

Table 5-2 describes the debug trace level settings for servlets.

Table 5-2 Debug Trace Levels for Servlets

Level	Description
Fatal	Traces very severe error events that may cause the application to abort.
Error	Traces alarm conditions and events. Used for all traces that are generated in abnormal path.
Warn	Traces potentially harmful situations.
Info	Traces the majority of servlet problems and has a minimal effect on system performance.
Debug	Traces all State Transition conditions plus media layer events that occur during normal operation. Trace level that turns on all logging

Additional Information

See the Related Topics, page 5-15.

Trace Field Descriptions

The following sections describe the trace fields for the specified service:

Cisco CallManager SDI Trace Fields

Table 5-3 describes the Cisco CallManager SDI trace fields.

Table 5-3 Cisco CallManager SDI Trace Fields

Field Name	Description
Enable H245 Message Trace	Activates trace of H245 messages.
Enable DT-24+/DE-30+ Trace	Activates the logging of ISDN type of DT-24+/DE-30+ device traces.
Enable PRI Trace	Activates trace of primary rate interface (PRI) devices.
Enable ISDN Translation Trace	Activates ISDN message traces. Used for normal debugging.
Enable H225 & Gatekeeper Trace	Activates trace of H.225 devices. Used for normal debugging.
Enable Miscellaneous Trace	Activates trace of miscellaneous devices. **Note** Do not check this check box during normal system operation.
Enable Conference Bridge Trace	Activates trace of conference bridges. Used for normal debugging.

Table 5-3 Cisco CallManager SDI Trace Fields (continued)

Field Name	Description
Enable Music on Hold Trace	Activates trace of music on hold (MOH) devices. Used to trace MOH device status such as registered with Cisco Unified CallManager, unregistered with Cisco Unified CallManager, and resource allocation processed successfully or failed.
Enable Unified CMReal-Time Information Server Trace	Activates Cisco Unified CallManager real-time information traces that the real-time information server uses.
Enable SIP Stack Trace	Activates trace of SIP stack.
Enable Annunciator Trace	Activates trace for the annunciator, a SCCP device that uses the Cisco IP Voice Media Streaming Application service to enable Cisco Unified CallManager to play prerecorded announcements (.wav files) and tones to Cisco Unified IP Phones, gateways, and other configurable devices.
Enable CDR Trace	Activates traces for CDR.
Enable Analog Trunk Trace	Activates trace of all analog trunk (AT) gateways.
Enable All Phone Device Trace	Activates trace of phone devices. Trace information includes SoftPhone devices. Used for normal debugging.
Enable MTP Trace	Activates trace of media termination point (MTP) devices. Used for normal debugging.
Enable All Gateway Trace	Activates trace of all analog and digital gateways.
Enable Forward and Miscellaneous Trace	Activates trace for call forwarding and all subsystems that are not covered by another check box. Used for normal debugging.
Enable MGCP Trace	Activates trace for media gateway control protocol (MGCP) devices. Used for normal debugging.
Enable Media Resource Manager Trace	Activates trace for media resource manager (MRM) activities.
Enable SIP Call Processing Trace	Activates trace for SIP call processing.
Enable Keep Alive Trace	Activates trace for keepalive trace information in the Cisco CallManager traces. Because each SCCP device reports keepalive messages every 30 seconds, and each keepalive message creates 3 lines of trace data, the system generates a large amount of trace data when this check box is checked.

Additional Information

See the Related Topics, page 5-15.

Cisco CallManager SDL Trace Fields

Table 5-4 describes the Cisco CallManager SDL trace filter settings. Table 5-5 describes the Cisco CallManager SDL configuration characteristics.

Note Cisco recommends that you use the defaults unless a Cisco engineer instructs you to do otherwise.

Table 5-4 Cisco CallManager SDL Configuration Trace Filter Settings

Setting Name	Description
Enable all Layer 1 traces.	Activates traces for Layer 1.
Enable detailed Layer 1 traces.	Activates detailed Layer 1 traces.
Enable all Layer 2 traces.	Activates traces for Layer 2.
Enable Layer 2 interface trace.	Activates Layer 2 interface traces.
Enable Layer 2 TCP trace.	Activates Layer 2 Transmission Control Program (TCP) traces.
Enable detailed dump Layer 2 trace.	Activates detailed traces for dump Layer 2.
Enable all Layer 3 traces.	Activates traces for Layer 3.
Enable all call control traces.	Activates traces for call control.
Enable miscellaneous polls trace.	Activates traces for miscellaneous polls.
Enable miscellaneous trace (database signals).	Activates miscellaneous traces such as database signals.
Enable message translation signals trace.	Activates traces for message translation signals.
Enable UUIE output trace.	Activates traces for user-to-user informational element (UUIE) output.
Enable gateway signals trace.	Activates traces for gateway signals.
Enable CTI trace.	Activates CTI trace.
Enable network service data trace	Activates network service data trace.
Enable network service event trace	Activates network service event trace.
Enable ICCP admin trace	Activates ICCP administration trace.
Enable default trace	Activates default trace.

Table 5-5 Cisco CallManager SDL Configuration Trace Characteristics

Characteristics	Description
Enable SDL link states trace.	Activates trace for intracluster communication protocol (ICCP) link state.
Enable low-level SDL trace.	Activates trace for low-level SDL.
Enable SDL link poll trace.	Activates trace for ICCP link poll.
Enable SDL link messages trace.	Activates trace for ICCP raw messages.

Table 5-5 Cisco CallManager SDL Configuration Trace Characteristics (continued)

Characteristics	Description
Enable signal data dump trace.	Activates traces for signal data dump.
Enable correlation tag mapping trace.	Activates traces for correlation tag mapping.
Enable SDL process states trace.	Activates traces for SDL process states.
Disable pretty print of SDL trace.	Disables trace for pretty print of SDL. Pretty print adds tabs and spaces in a trace file without performing post processing.
Enable SDL TCP event trace.	Activates SDL TCP event trace.

Additional Information

See the Related Topics, page 5-15.

Cisco CallManager Attendant Console Server Trace Fields

Table 5-6 describes the Cisco CallManager Attendant Console Server trace fields.

Table 5-6 Cisco CallManager Attendant Console Server Trace Fields

Field Name	Description
Enable low level trace	Activates low-level trace.
Enable high level trace	Activates high-level trace.

Additional Information

See the Related Topics, page 5-15.

Cisco CTIManager SDL Trace Fields

Table 5-7 describes the Cisco CTIManager SDL configuration trace filter settings. Table 5-8 describes the Cisco CTIManager SDL configuration trace characteristics.

Note Cisco recommends that you use the defaults unless a Cisco engineer instructs you to do otherwise.

Table 5-7 Cisco CTIManager SDL Configuration Trace Filter Settings

Setting Name	Description
Enable miscellaneous polls trace.	Activates traces for miscellaneous polls.
Enable miscellaneous trace (database signals).	Activates miscellaneous traces such as database signals.
Enable CTI trace.	Activates CTI trace.
Enable Network Service Data Trace	Activates network service data trace.

Table 5-7 Cisco CTIManager SDL Configuration Trace Filter Settings (continued)

Setting Name	Description
Enable Network Service Event Trace	Activates network service event trace.
Enable ICCP Admin Trace	Activates ICCP administration trace.
Enable Default Trace	Activates default trace.

Table 5-8 Cisco CTIManager SDL Configuration Trace Characteristics

Characteristics	Description
Enable SDL link states trace.	Activates trace for ICCP link state.
Enable low-level SDL trace.	Activates trace for low-level SDL.
Enable SDL link poll trace.	Activates trace for ICCP link poll.
Enable SDL link messages trace.	Activates trace for ICCP raw messages.
Enable signal data dump trace.	Activates traces for signal data dump.
Enable correlation tag mapping trace.	Activates traces for correlation tag mapping.
Enable SDL process states trace.	Activates traces for SDL process states.
Disable pretty print of SDL trace.	Disables trace for pretty print of SDL. Pretty print adds tabs and spaces in a trace file without performing post processing.
Enable SDL TCP Event trace	Activates SDL TCP event trace.

Additional Information

See the Related Topics, page 5-15.

Cisco Database Layer Monitor Trace Fields

Table 5-9 describes the Cisco Database Layer Monitor trace fields.

Table 5-9 Cisco Database Layer Monitor Trace Fields

Field Name	Description
Enable DB Library Trace	Activates database library trace.
Enable Service Trace	Activates service trace.
Enable DB Change Notification Trace	Activates the database change notification traces.
Enable Unit Test Trace	Do not check this check box. Cisco engineering uses it for debugging purposes.

Additional Information

See the Related Topics, page 5-15.

Cisco Extended Functions Trace Fields

Table 5-10 describes the Cisco Extended Functions trace fields.

Table 5-10 Cisco Extended Functions Trace Fields

Field Name	Description
Enable QBE Helper TSP Trace	Activates telephony service provider trace.
Enable QBE Helper TSPI Trace	Activates QBE helper TSP interface trace.
Enable QRT Dictionary Trace	Activates quality report tool service dictionary trace.
Enable DOM Helper Traces	Activates DOM helper trace.
Enable Redundancy and Change Notification Trace	Activates database change notification trace.
Enable QRT Report Handler Trace	Activates quality report tool report handler trace.
Enable QBE Helper CTI Trace	Activates QBE helper CTI trace.
Enable QRT Service Trace	Activates quality report tool service related trace.
Enable QRT DB Traces	Activates QRT DB access trace.
Enable Template Map Traces	Activates standard template map and multimap trace.
Enable QRT Event Handler Trace	Activates quality report tool event handler trace.
Enable QRT Real-Time Information Server Trace	Activates quality report tool real-time information server trace.

Additional Information

See the Related Topics, page 5-15.

Cisco Extension Mobility Trace Fields

Table 5-11 describes the Cisco Extension Mobility trace fields.

Table 5-11 Cisco Extension Mobility Trace Fields

Field Name	Description
Enable EM Service Trace	Activates trace for the extension mobility service.
Enable EM Application Trace	Activates application trace for the extension mobility service.

Additional Information

See the Related Topics, page 5-15.

Cisco IP Manager Assistant Trace Fields

Table 5-13 describes the Cisco IP Manager Assistant trace fields.

Table 5-12 Cisco IP Manager Assistant Trace Fields

Field Name	Description
Enable IPMA Service Trace	Activates trace for the Cisco IP Manager Assistant service.
Enable IPMA Manager Configuration Change Log	Activates trace for the changes that you make to the manager and assistant configurations.
Enable IPMA CTI Trace	Activates trace for the CTI Manager connection.
Enable IPMA CTI Security Trace	Activates trace for the secure connection to CTIManager.

Additional Information

See the Related Topics, page 5-15.

Cisco IP Voice Media Streaming Application Trace Fields

Table 5-13 describes the Cisco IP Voice Media Streaming Application trace fields.

Table 5-13 Cisco IP Voice Media Streaming Application Trace Fields

Field Name	Description
Enable Service Initialization Trace	Activates trace for initialization information.
Enable MTP Device Trace	Activates traces to monitor the processed messages for media termination point (MTP).
Enable Device Recovery Trace	Activates traces for device-recovery-related information for MTP, conference bridge, and MOH.
Enable Skinny Station Messages Trace	Activates traces for skinny station protocol.
Enable WinSock Level 2 Trace	Activates trace for high-level, detailed WinSock-related information.
Enable Music On Hold Manager Trace	Activates trace to monitor MOH audio source manager.
Enable Annunciator Trace	Activates trace to monitor annunciator.
Enable DB Setup Manager Trace	Activates trace to monitor database setup and changes for MTP, conference bridge, and MOH.
Enable Conference Bridge Device Trace	Activates traces to monitor the processed messages for conference bridge.
Enable Device Driver Trace	Activates device driver traces.
Enable WinSock Level 1 Trace	Activates trace for low-level, general, WinSock-related information.

Table 5-13 Cisco IP Voice Media Streaming Application Trace Fields (continued)

Field Name	Description
Enable Music on Hold Device Trace	Activates traces to monitor the processed messages for MOH.
Enable TFTP Downloads Trace	Activates trace to monitor the download of MOH audio source files.

Additional Information

See the Related Topics, page 5-15.

Cisco RIS Data Collector Trace Fields

Table 5-14 describes the Cisco RIS Data Collector trace fields.

Table 5-14 Cisco RIS Data Collector Trace Fields

Field Name	Description
Enable RISDC Trace	Activates trace for the RISDC thread of the RIS data collector service (RIS).
Enable System Access Trace	Activates trace for the system access library in the RIS data collector.
Enable Link Services Trace	Activates trace for the link services library in the RIS data collector.
Enable RISDC Access Trace	Activates trace for the RISDC access library in the RIS data collector.
Enable RISDB Trace	Activates trace for the RISDB library in the RIS data collector.
Enable PI Trace	Activates trace for the PI library in the RIS data collector.
Enable XML Trace	Activates trace for the input/output XML messages of the RIS data collector service.
Enable Perfmon Logger Trace	Activates trace for the troubleshooting perfmon data logging in the RIS data collector. Used to trace the name of the log file, the total number of counters that are logged, the names of the Cisco Unified CallManager and system counters and instances, calculation of process and thread CPU percentage, and occurrences of log file rollover and deletion.

Additional Information

See the Related Topics, page 5-15.

Cisco TFTP Trace Fields

Table 5-15 describes the Cisco TFTP trace fields.

Table 5-15 Cisco TFTP Trace Fields

Field Name	Description
Enable Service System Trace	Activates trace for service system.
Enable Build File Trace	Activates trace for build files.
Enable Serve File Trace	Activates trace for serve files.

Additional Information

See the Related Topics, page 5-15.

Cisco WebDialer Web Service Trace Fields

Table 5-16 describes the Cisco WebDialer trace fields.

Table 5-16 Cisco WebDialer Web Service Trace Fields

Field Name	Description
Enable WebDialer Servlet Trace	Activates trace for Cisco WebDialer servlet.
Enable Redirector Servlet Trace	Activates trace for the Redirector servlet.

Additional Information

See the Related Topics, page 5-15.

Trace Output Settings Descriptions and Defaults

Table 5-17 contains the trace log file descriptions and defaults.

Caution When you change either the Maximum No. of Files or Maximum File Size parameter, the system deletes all the service log files except the current file if the service is running, or, if the service has not been activated, the system will delete the files when the service is initially activated. If you want to keep a record of the log files, make sure that you download and save the service log files to another server before changing the Maximum No. of Files parameter or the Maximum File Size parameter.

Table 5-17 Trace Output Settings

Field	Description
Maximum number of files	This field specifies the total number of trace files for a given service. Cisco Unified CallManager automatically appends a sequence number to the file name to indicate which file it is; for example, ccm299.txt. When the last file in the sequence is full, the trace data begins writing over the first file. The default varies by service.
Maximum file size (MB)	This field specifies the maximum size of the trace file in megabytes. The default varies by service.

Additional Information

See the Related Topics, page 5-15.

Related Topics

- Configuring Trace Parameters, page 5-1
- Trace Field Descriptions, page 5-5
- Trace Output Settings Descriptions and Defaults, page 5-14
- Debug Trace Level Settings, page 5-4