Trace

- Trace, on page 1
- Configure Trace, on page 4

Trace

Cisco Unified Serviceability provides trace tools to assist you in troubleshooting issues with your voice application. Cisco Unified Serviceability supports SDI (System Diagnostic Interface) trace, SDL (Signaling Distribution Layer) trace (for Cisco CallManager and Cisco CTIManager services, applicable to Unified Communications Manager only), and Log4J trace (for Java applications).

You use the Trace Configuration window to specify the level of information that you want traced as well the type of information that you want to be included in each trace file.

Unified Communications Manager only: 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 gateway.

Unified Communications Manager only: In the Alarm Configuration window, you can direct alarms to various locations, including SDL trace log files. If you want to do so, you can configure trace for alerts in the Cisco Unified Real-Time Monitoring Tool (Unified RTMT).

After you have configured information that you want to include in the trace files for the various services, you can collect and view trace files by using the Trace and Log Central option in the Cisco Unified Real-Time Monitoring Tool.

Cisco Unified IM and Presence Serviceability provides trace tools to assist you in troubleshooting issues with your instant messaging and presence application. Cisco Unified IM and Presence Serviceability supports:

- SDI trace
- Log4J trace (for Java applications)

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, size of file, and time that the data is stored in the trace files). You can configure trace for a single service or apply the trace settings for that service to all servers in the cluster.

In the **Alarm Configuration** window, you can direct alarms to various locations. If you want to do so, you can configure trace for alerts in the IM and Presence Unified RTMT.

After you have configured information that you want to include in the trace files for the various services, you can collect and view trace files by using the Trace and Log Central option in the Unified RTMT. You can configure trace parameters for any feature or network service that is available on any IM and Presence node in the cluster. Use the **Trace Configuration** window to specify the parameters that you want to trace for troubleshooting problems. If you want to use predetermined troubleshooting trace settings rather than choosing your own trace fields, you can use the **Troubleshooting Trace Setting** window.

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

Trace Configuration

You can configure trace parameters for any feature or network service that displays in the Serviceability interface. If you have clusters, you can configure trace parameters for any feature or network service that is available on any server in the cluster. Use the Trace Configuration window to specify the parameters that you want to trace for troubleshooting 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, size of file, and time that the data is stored in the trace files). If you have clusters, you can configure trace for a single service or apply the trace settings for that service to all servers in the cluster.

If you want to use predetermined troubleshooting trace settings rather than choosing your own trace fields, you can use the Troubleshooting Trace window. For more information on troubleshooting trace, see Trace settings.

After you have configured information that 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 Unified RTMT. For more information regarding trace collection, see Trace collection.

Trace Settings

The Troubleshooting Trace Settings window allows you to choose the services for which you want to set predetermined troubleshooting trace settings. In this window, you can choose a single service or multiple services and change the trace settings for those services to the predetermined trace settings. If you have clusters, you can choose the services on different servers in the cluster, so the trace settings of the chosen services get changed to the predetermined trace settings. You can choose specific activated services for a single server, all activated services for the server, specific activated services for all servers in the cluster, or all activated services for all servers in the cluster. In the window, N/A displays next to inactive services.

Note The predetermined troubleshooting trace settings for a feature or network service include SDL, SDI, and Log4j trace settings. Before the troubleshooting trace settings are applied, the system backs up the original trace settings. When you reset the troubleshooting trace settings, the original trace settings are restored.

When you open the Troubleshooting Trace Settings window after you apply troubleshooting trace settings to a service, the service that you set for troubleshooting displays as checked. In the Troubleshooting Trace Settings window, you can reset the trace settings to the original settings.

After you apply Troubleshooting Trace Setting to a service, the Trace Configuration window displays a message that troubleshooting trace is set for that service. From the Related Links drop-down list box, you can choose the Troubleshooting Trace Settings option if you want to reset the settings for the service. For the given service, the Trace Configuration window displays all the settings as read-only, except for some parameters of trace output settings, for example, Maximum No. of Files. You can modify these parameters even after you apply troubleshooting trace settings.

Trace Collection

Use Trace and Log Central, an option in the Cisco Unified Real-Time Monitoring Tool, to collect, view, and zip various service traces or other log files. With the Trace and Log Central option, you can collect SDL/SDI traces, Application Logs, System Logs (such as Event View Application, Security, and System logs), and crash dump files.

Tip Do not use Windows NotePad to view collected trace files to view collected trace files, because Windows NotePad does not properly display line breaks.

Note Unified Communications Manager only: For devices that support encryption, the Secure Real-time Transport Protocol (SRTP) keying material does not display in the trace file.

For more information about trace collection, see *Cisco Unified Real-Time Monitoring Tool Administration Guide*.

Called Party Tracing

Called Party Tracing allows you to configure a directory number or list of directory numbers that you want to trace. You can request on-demand tracing of calls using the Session Trace Tool.

For more information, see the *Cisco Unified Real-Time Monitoring Tool Administration Guide*.

Set Up Trace Configuration

The following procedure provides an overview of the steps to configure and collect trace for feature and network services in the Serviceability interface.

Procedure

Step 1 Configure the values of the TLC Throttling CPU Goal and TLC Throttling IOWait Goal service parameters (Cisco RIS Data Collector service) by performing one of these steps:

- Cisco Unified Communications Manager Administration and Cisco Unified IM and Presence: Select **System** > **ServiceParameters** and configure the values of the TLC Throttling CPU Goal and TLC Throttling IOWait Goal service parameters (Cisco RIS Data Collector service).

- Cisco Unity Connection only: Select **System Settings** > **Service Parameters**in Cisco Unity Connection Administration and configure the values of the TLC Throttling CPU Goal and TLC Throttling IOWait Goal service parameters (Cisco RIS Data Collector service).

Step 2 Configure the trace setting for the service for which you want to collect traces. If you have clusters, you can configure trace for the service on one server or on all servers in the cluster.

To configure trace settings, choose what information you want to include in the trace log by choosing the debug level and trace fields.

If you want to run predetermined traces on services, set troubleshooting trace for those services.

Step 3 Install the Cisco Unified Real-Time Monitoring Tool on a local PC.

Step 4 If you want to generate an alarm when the specified search string exists in a monitored trace file, enable the LogFileSearchStringFound alert in Unified RTMT.

You can find the LogFileSearchStringFound alarm in the LpmTctCatalog. (Select**Alarms** > **Definitions**. In the Find alarms where drop-down list box, choose the **System Alarm Catalog**; in the Equals drop-down list box, choose **LpmTctCatalog**).

Step 5 If you want to automatically capture traces for alerts such as CriticalServiceDownand CodeYellow, check the **Enable Trace Download** check box in the Set Alert/Properties dialog box for the specific alert in Unified RTMT; configure how often that you want the download to occur.

Step 6 Collect the traces.

Step 7 View the log file in the appropriate viewer.

Step 8 If you enabled troubleshooting trace, reset the trace settings services, so the original settings are restored.

Note
Leaving troubleshooting trace enabled for a long time increases the size of the trace files and may affect the performance of the services.

Configure Trace

This section provides information for configuring trace settings.

Note Enabling trace decreases system performance; therefore, enable trace only for troubleshooting purposes. For assistance in using trace, contact your technical support team.

Set Up Trace Parameters

This section describes how to configure trace parameters for feature and network services that you manage through the Serviceability GUI.

Tip For Cisco Unity Connection, you may need to run trace in Cisco Unified Serviceability and Cisco Unity Connection Serviceability to troubleshoot Cisco Unity Connection issues. For information on how to run trace in Cisco Unity Connection Serviceability, refer to the *Cisco Unity Connection Serviceability Administration Guide* .

Procedure

Step 1 Select **Trace** > **Configuration**.

The Trace Configuration window displays.

Step 2 From the Server drop-down list box, select the server that is running the service for which you want to configure trace; then, click **Go**.

Step 3 From the Service Group drop-down list box, select the service group for the service that you want to configure trace; then, click **Go**.

Tip
The Service Groups in Trace Configuration table lists the services and trace libraries that correspond to the options that display in the Service Group drop-down list box.

Step 4 From the Service drop-down list box, select the service for which you want to configure trace and, click **Go**.

The drop-down list box displays active and inactive services.

Tip
Cisco Unity Connection only: For the Cisco CallManager and CTIManager services, you can configure SDL trace parameters. To do so, open the Trace Configuration window for one of those services, and click the **Go** button that is next to the Related Links drop-down list box.

If you configured Troubleshooting Trace for the service, a message displays at the top of the window that indicates that the Troubleshooting Traces feature is set, which means that the system disables all fields in the Trace Configuration window except for Trace Output Settings. To configure the Trace Output Settings, go to Step 11. To reset Troubleshooting Trace, see the Set up troubleshooting trace settings.

The trace parameters display for the service that you chose. In addition, the Apply to All Nodes check box displays (Unified Communications Manager only).

Step 5 Unified Communications Manager and IM and Presence only: If you want to do so, you can apply the trace settings for the service or trace library to all servers in the cluster by checking the **Apply to All Nodes** check box; that is, if your configuration supports clusters.

Step 6 Check the **Trace On** check box.

Step 7 Cisco Unity Connection only: If you are configuring SDL trace parameters, go to Step 10.

Step 8 Select the level of information that you want traced from the **Debug Trace Level** list box, as described in Debug trace level settings.

Step 9 Check the **Trace Fields** check box for the service that you chose, for example, Cisco Log Partition Monitoring Tool Trace Fields.

Step 10 If the service does not have multiple trace settings where you can specify the traces that you want to activate, check the **Enable All Trace** check box. If the service that you chose has multiple trace settings, check the check boxes next to the trace check boxes that you want to enable, as described in Trace field descriptions.

Step 11 To limit the number and size of the trace files, specify the trace output setting. See Trace Ouput Settings for descriptions.

Step 12 To save your trace parameters configuration, click the **Save** button.

The changes to trace configuration take effect immediately for all services except Cisco Messaging Interface (Unified Communications Manager only). 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.

Service Groups in Trace Configuration

The following table lists the services and trace libraries that correspond to the options in the Service Group drop-down list box in the Trace Configuration window.

Table 1: Service Groups in Trace Configuration

Service Group	Services and Trace Libraries	Notes
Unified Communications Manager CM Services	• Cisco CTIManager • Cisco CallManager • Cisco CallManager Cisco IP Phone Service • Cisco DHCP Monitor Service • Cisco Dialed Number Analyzer • Cisco Dialed Number Analyzer Server • Cisco Extended Functions, Cisco Extension Mobility • Cisco Extension Mobility Application • Cisco IP Voice Media Streaming App • Cisco Messaging Interface • Cisco TFTP • Cisco Unified Mobile Voice Access Service	For most services in the CM Services group, you run trace for specific components, instead of enabling all trace for the service. The Trace field descriptions lists the services for which you can run trace for specific components.
Unified Communications Manager CTI Services	• Cisco IP Manager Assistant • Cisco Web Dialer Web Service	For these services, you can run trace for specific components, instead of enabling all trace for the service; see the Trace field descriptions.

Service Group	Services and Trace Libraries	Notes
Unified Communications Manager CDR Services	• Cisco Unified Communications Manager CDR Analysis and Reporting Scheduler • Cisco Unified Communications Manager CDR Analysis and Reporting Web Service • Cisco CDR Agent • Cisco CDR Repository Manager	You enable all trace for each service, instead of running trace for specific components. In Cisco Unified Communications Manager CDR Analysis and Reporting, when reports are run that call stored procedures, Cisco Unified Communications Manager CDR Analysis and Reporting checks the configured debug trace level for the Cisco Unified Communications Manager CDR Analysis and Reporting Scheduler service and the Cisco Unified Communications Manager CDR Analysis and Reporting Web Service in the Trace Configuration window before stored procedure logging begins. For pregenerated reports, Cisco Unified Communications Manager CDR Analysis and Reporting checks the level for the Cisco Unified Communications Manager CDR Analysis and Reporting Scheduler service; for on-demand reports, Cisco Unified Communications Manager CDR Analysis and Reporting checks the level for the Cisco Unified Communications Manager CDR Analysis and Reporting Web Service. If you choose Debug from the Debug Trace Level drop-down list box, stored procedure logging gets enabled and continues until you choose another option from the drop-down list box. The following Cisco Unified Communications Manager CDR Analysis and Reporting reports use stored procedure logging: Gateway Utilization report, Route and Line Group Utilization report, Route/Hunt List Utilization report, Route Pattern/Hunt Pilot Utilization report, Conference Call Details report, Conference Call Summary report, Conference Bridge Utilization report, Voice Messaging Utilization report, and the CDR Search report.

Service Group	Services and Trace Libraries	Notes
IM and Presence Services	• Cisco Client Profile Agent • Cisco Config Agent • Cisco Intercluster Sync Agent • Cisco Login Datastore • Cisco OAM Agent • Cisco Presence Datastore • Cisco Presence Engine • Cisco IM and Presence Data Monitor • Cisco Route Datastore • Cisco SIP Proxy • Cisco SIP Registration Datastore • Cisco Server Recovery Manager • Cisco Sync Agent • Cisco XCP Authentication Service • Cisco XCP Config Manager • Cisco XCP Connection Manager • Cisco XCP Directory Service • Cisco XCP Message Archiver • Cisco XCP Router • Cisco XCP SIP Federation Connection Manager • Cisco XCP Text Conference Manager • Cisco XCP Web Connection Manager • Cisco XCP XMPP Federation Connection Manager	See topics related to feature and network services in Cisco Unified IM and Presence Serviceability for a description of these services. • For these services, you should enable all trace for the service, instead of running trace for specific components.

Service Group	Services and Trace Libraries	Notes
Database and Admin Services	Unified Communications Manager and Cisco Unity Connection: • Cisco AXL Web Service • Cisco CCM DBL Web Library • Cisco CCMAdmin Web Service • Cisco CCMUser Web Service • Cisco Database Layer Monitor • Cisco UXL Web Service Unified Communications Manager • Cisco Bulk Provisioning Service • Cisco GRT Communications Web Service • Cisco Role-based Security • Cisco TAPS Service • Cisco Unified Reporting Web Service IM and Presence Services: • Cisco AXL Web Service • Cisco Bulk Provisioning Service • Cisco CCMUser Web Service • Cisco Database Layer Monitor • Cisco GRT Communications Web Service • Cisco IM and Presence Admin • Cisco Unified Reporting Web Service • Platform Administrative Web Service	Choosing the Cisco CCM DBL Web Library option activates the trace for database access for Java applications. For database access for C++ applications, activate trace for Cisco Database Layer Monitor, as described in the Cisco Extended Functions trace fields. Choosing the Cisco Role-based Security option, which supports Unified Communications Manager, activates trace for user-role authorization. For most services in the Database and Admin Services group, you enable all trace for the service/library, instead of enabling trace for specific components. For Cisco Database Layer Monitor, you can run trace for specific components. **Note** You can control logging for services in the Cisco Unified IM and Presence Serviceability UI. To change the log level, select the System Services group and Cisco CCMService Web Service.

Service Group	Services and Trace Libraries	Notes
Performance and Monitoring Services	Unified Communications Manager and Cisco Unity Connection: • Cisco AMC Service • Cisco CCM NCS Web Library • CCM PD Web Service • Cisco CallManager SNMP Service • Cisco Log Partition Monitoring Tool • Cisco RIS Data Collector • Cisco RTMT Web Service • Cisco Audit Event Service • Cisco RisBean Library Unified Communications Manager: • Cisco CCM PD Web Service IM and Presence Services: • Cisco AMC Service • Cisco Audit Event Service • Cisco Log Partition Monitoring Tool • Cisco RIS Data Collector • Cisco RTMT Web Service • Cisco RisBean Library	Choosing the Cisco CCM NCS Web Library option activates trace for database change notification for the Java client. Choosing the Cisco Unity RTMT Web Service option activates trace for the Unity RTMT servlets; running this trace creates the server-side log for Unity RTMT client queries.
Unified Communications Manager Security Services	• Cisco CTL Provider • Cisco Certificate Authority Proxy Function • Cisco Trust Verification Service	You enable all trace for each service, instead of running trace for specific components.
Unified Communications Manager Directory Services	Cisco DirSync	You enable all trace for this service, instead of running trace for specific components.
Backup and Restore Services	• Cisco DRF Local • Unified Communications Manager and Cisco Unity Connection only: Cisco DRF Master	You enable all trace for each service, instead of running trace for specific components.

Service Group	Services and Trace Libraries	Notes
System Services	Unified Communications Manager: • Cisco CCMRealm Web Service • Cisco CCMService Web Service • Cisco Common User Interface • Cisco Trace Collection Service IM and Presence Services: • Cisco CCMService Web Service • Cisco Trace Collection Service	Choosing the Cisco CCMRealm Web Service option activates trace for login authentication. Choosing the Cisco Common User Interface option activates trace for the common code that multiple applications use; for example, Cisco Unified Operating System Administration and Cisco Unified Serviceability. Choosing the Cisco CCMService Web Service option activates trace for the Cisco Unified Serviceability web application (GUI). You enable all trace for each option/service, instead of running trace for specific components.
SOAP Services	• CiscoSOAP Web Service • CiscoSOAPMessage Service	Choosing the Cisco SOAP Web Service option activates the trace for the AXL Serviceability API. You enable all trace for this service, instead of running trace for specific components.
Platform Services	Cisco Unified OS Admin Web Service	The Cisco Unified OS Admin Web Service supports Cisco Unified Operating System Administration, which is the web application that provides management of platform-related functionality such as certificate management, version settings, and installations and upgrades. You enable all trace for this service, instead of running trace for specific components.

Debug Trace Level Settings

The following table describes the debug trace level settings for services.

Table 2: 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.

Level	Description
Entry/Exit	**Note** Not all services use this trace level. Traces all Significant conditions plus entry and exit points of routines.
Arbitrary	Traces all Entry/Exit conditions plus low-level debugging information.
Detailed	Traces all Arbitrary conditions plus detailed debugging information.

The following table describes the debug trace level settings for servlets.

Table 3: 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. **Note** To avoid memory issues, we recommend you NOT to enable Debug Logging for the Cisco XCP Router service. If the load of the system allows then in some cases you can turn it ON for very short period of time based on the memory capacity.

Trace Field Descriptions

For some services, you can activate trace for specific components, instead of enabling all trace for the service. The following list includes the services for which you can activate trace for specific components. Clicking one of the cross-references takes you to the applicable section where a description displays for each trace field for the service. If a service does not exist in the following list, the Enable All Trace check box displays for the service in the Trace Configuration window.

The following services are applicable to Unified Communications Manager and Cisco Unity Connection:

- Database layer monitor trace fields

- Cisco RIS data collector trace fields

The following services are applicable to Unified Communications Manager:

- Cisco CallManager SDI trace fields
- Cisco CallManager SDL trace fields
- Cisco CTIManager SDL trace fields
- Cisco Extended Functions trace fields
- Cisco Extension Mobility trace fields
- Cisco IP manager assistant trace fields
- Cisco IP voice media streaming app trace fields
- Cisco TFTP trace fields
- Cisco Web Dialer web service trace fields

Database Layer Monitor Trace Fields

The following table describes the Cisco Database Layer Monitor trace fields. The Cisco Database Layer Monitor service supports Unified Communications Manager and Cisco Unity Connection.

Table 4: Cisco Database Layer Monitor Trace Fields

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

Cisco RIS Data Collector Trace Fields

The following table describes the Cisco RIS Data Collector trace fields. The Cisco RIS Data Collector service supports Unified Communications Manager and Cisco Unity Connection.

Table 5: 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.

Field Name	Description
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 application and system counters and instances, calculation of process and thread CPU percentage, and occurrences of log file rollover and deletion.

Cisco CallManager SDI Trace Fields

The following table describes the Cisco CallManager SDI trace fields. The Cisco CallManager service supports Unified Communications Manager.

Table 6: 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.

Field Name	Description
Enable Conference Bridge Trace	Activates trace of conference bridges. Used for normal debugging.
Enable Music on Hold Trace	Activates trace of music on hold (MOH) devices. Used to trace MOH device status such as registered with Unified Communications Manager, unregistered with Unified Communications Manager, and resource allocation processed successfully or failed.
Enable Unified CM Real-Time Information Server Trace	Activates Unified Communications Manager real-time information traces that the real-time information server uses.
Enable SIP Stack Trace	Activates trace of SIP stack. The default is enabled.
Enable Annunciator Trace	Activates trace for the annunciator, a SCCP device that uses the Cisco IP Voice Media Streaming Application service to enable Unified Communications Manager 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.

Field Name	Description
Enable SCCP Keep Alive Trace	Activates trace for SCCP 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.
Enable SIP Keep Alive (REGISTER Refresh) Trace	Activates trace for SIP keepalive (REGISTER refresh) trace information in the Cisco CallManager traces. Because each SIP device reports keepalive messages every 2 minutes, and each keepalive message can create multiple lines of trace data, the system generates a large amount of trace data when this check box is checked.

Cisco CallManager SDL Trace Fields

The following table describes the Cisco CallManager SDL trace filter settings. The Cisco CallManager service supports Unified Communications Manager.

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

Table 7: 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.

Setting Name	Description
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.

The following table describes the Cisco CallManager SDL configuration characteristics.

Table 8: 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.
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.

Cisco CTIManager SDL Trace Fields

The following table describes the Cisco CTIManager SDL configuration trace filter settings. The Cisco CTIManager service supports Unified Communications Manager.

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

Tip When you choose the CTIManager service from the Service Groups drop-down list box, the Trace Configuration window displays for SDI traces for this service. To activate SDI trace for the Cisco CTI Manager service, check the **Enable All Trace** check box in the Trace Configuration window for the Cisco CTIManager service. To access the SDL Configuration window, choose **SDL Configuration** from the Related Links drop-down list box; the settings that are described in Cisco CTIManager SDL Configuration Trace Filter Settings table and Cisco CTIManager SDL Configuration Trace Characteristics table display.

Table 9: 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.
Enable Network Service Event Trace	Activates network service event trace.
Enable ICCP Admin Trace	Activates ICCP administration trace.
Enable Default Trace	Activates default trace.

The following table describes the Cisco CTIManager SDL configuration trace characteristics.

Table 10: 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.

Cisco Extended Functions Trace Fields

The following table describes the Cisco Extended Functions trace fields. The Cisco Extended Functions service supports Unified Communications Manager.

Table 11: 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.

Cisco Extension Mobility Trace Fields

The following table describes the Cisco Extension Mobility trace fields. The Cisco Extension Mobility service supports Unified Communications Manager.

Table 12: Cisco Extension Mobility Trace Fields

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

Tip When you activate trace for the Cisco Extension Mobility Application service, you check the Enable All Trace check box in the Trace Configuration window for the Cisco Extension Mobility Application service.

Cisco IP Manager Assistant Trace Fields

The following table describes the Cisco IP Manager Assistant trace fields. The Cisco IP Manager Assistant service supports Cisco Unified Communications Manager Assistant.

Table 13: 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.

Cisco IP Voice Media Streaming App Trace Fields

The information in this section does not apply to Cisco Unity Connection.

The following table describes the Cisco IP Voice Media Streaming App trace fields. The Cisco IP Voice Media Streaming App service supports Unified Communications Manager.

Table 14: 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.

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.

Cisco TFTP Trace Fields

The following table describes the Cisco TFTP trace fields. The Cisco TFTP service supports Unified Communications Manager.

Table 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.

Cisco Web Dialer Web Service Trace Fields

The following table describes the Cisco Web Dialer Web Service trace fields. The Cisco Web Dialer Web Service supports Unified Communications Manager.

Table 16: Cisco Web Dialer Web Service Trace Fields

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

IM and Presence SIP Proxy Service Trace Filter Settings

The following table below describes the service trace filter settings for the IM and Presence SIP Proxy.

Table 17: IM and Presence SIP Proxy Service Trace Filter Settings

Parameter	Description
Enable Access Log Trace	This parameter enables the proxy access log trace; the first line of each SIP message received by the proxy is logged.
Enable Authentication Trace	This parameter enables tracing for the Authentication module.
Enable CALENDAR Trace	This parameter enables tracing for the Calendar module.

Parameter	Description
Enable CTI Gateway Trace	This parameter enables tracing for the CTI Gateway.
Enable Enum Trace	This parameter enables tracing for the Enum module.
Enable Method/Event Routing Trace	This parameter enables tracing for the Method/Event routing module.
Enable Number Expansion Trace	This parameter enables tracing for the Number Expansion module.
Enable Parser Trace	This parameter enables tracing of parser information related to the operation of the per-sipd child SIP parser.
Enable Privacy Trace	This parameter enables tracing for information about processing of PAI, RPID, and Diversion headers in relation to privacy requests.
Enable Registry Trace	This parameter enables tracing for the Registry module.
Enable Routing Trace	This parameter enables tracing for the Routing module.
Enable SIPUA Trace	This parameter enables tracing for the SIP UA application module.
Enable Server Trace	This parameter enables tracing for the Server.
Enable SIP Message and State Machine Trace	This parameter enables tracing for information related to the operation of the per-sipd SIP state machine.
Enable SIP TCP Trace	This parameter enables tracing for information related to the TCP transport of SIP messages by TCP services.
Enable SIP TLS Trace	This parameter enables tracing for information related to the TLS transport of SIP messages by TCP services.
Enable SIP XMPP IM Gateway Trace	This parameter enables trace for the SIP XMPP IM Gateway.
Enable Presence Web Service Trace	This parameter enables tracing for the Presence Web Service.

IM and Presence Trace Field Descriptions

The following tables provide field descriptions for the services that support trace activation of specific components. For some services, you can activate trace for specific component instead of enabling all trace for the service. If a service is not included in this chapter, Enable All Trace displays for the service in the Trace Configuration window.

Cisco Access Log Trace Fields

The following table describes the Cisco Access Log trace fields.

Table 18: Access Log Trace Fields

Field Name	Description
Enable Access Log Trace	Turns on Access Log trace.

Cisco Authentication Trace Fields

The following table describes the Cisco Authentication trace fields.

Table 19: Authentication Trace Fields

Field Name	Description
Enable Authentication Trace	Turns on authentication trace.

Cisco Calendar Trace Fields

The following table describes the Cisco Calendar trace fields.

Table 20: Calendar Trace Fields

Field Name	Description
Enable Calendar Trace	Turns on Calendar trace.

Cisco CTI Gateway Trace Fields

The following table describes the Cisco CTI Gateway trace fields.

Table 21: CTI Gateway Trace Fields

Field Name	Description
Enable CTI Gateway Trace	Turns on CTI Gateway trace.

Cisco Database Layer Monitor Trace Fields

The following table describes the Cisco Database Layer Monitor trace fields.

Table 22: Cisco Database Layer Monitor Trace Fields

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

Cisco Enum Trace Fields

The following table describes the Cisco Enum trace fields.

Table 23: Enum Trace Fields

Field Name	Description
Enable Enum Trace	Turns on Enum trace.

Cisco Method/Event Trace Fields

The following table describes the Cisco Method/Event trace fields.

Table 24: Method/Event Trace Fields

Field Name	Description
Enable Method/Event Trace	Turns on Method/Event trace.

Cisco Number Expansion Trace Fields

The following table describes the Cisco Number Expansion trace fields.

Table 25: Number Expansion Trace Fields

Field Name	Description
Enable Number Expansion Trace	Activates number expansion trace.

Cisco Parser Trace Fields

The following table describes the Cisco Parser trace fields.

Table 26: Parser Trace Fields

Field Name	Description
Enable Parser Trace	Activates parser trace.

Cisco Privacy Trace Fields

The following table describes the Cisco Privacy trace fields.

Table 27: PrivacyTrace Fields

Field Name	Description
Enable Privacy Trace	Activates Privacy trace.

Cisco Proxy Trace Fields

The following table describes the Cisco proxy trace fields.

Table 28: Proxy Trace Fields

Field Name	Description
Add Proxy	Turns on Proxy trace.

Cisco RIS Data Collector Trace Fields

The following table describes the Cisco RIS Data Collector trace fields.

Table 29: 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 application and system counters and instances, calculation of process and thread CPU percentage, and occurrences of log file rollover and deletion.

Cisco Registry Trace Fields

The following table describes the Cisco Registry trace fields.

Table 30: Registry Trace Fields

Field Name	Description
Enable Registry Trace	Activates Registry trace.

Cisco Routing Trace Fields

The following table describes the Cisco Routing trace fields.

Table 31: Routing Trace Fields

Field Name	Description
Enable Routing Trace	Activates Routing trace.

Cisco Server Trace Fields

The following table describes the Cisco Server trace fields.

Table 32: Server Trace Fields

Field Name	Description
Enable Server Trace	Activates Server trace.

Cisco SIP Message and State Machine Trace Fields

The following table describes the Cisco SIP Message and State Machine trace fields.

Table 33: SIP Message and State Machine Trace Fields

Field Name	Description
Enable SIP Message and State Machine Trace	Activates SIP Message and State Machine trace.

Cisco SIP TCP Trace Fields

The following table describes the Cisco SIP TCP trace fields.

Table 34: SIP TCP Trace Fields

Field Name	Description
Enable SIP TCP Trace	Activates SIP TCP trace.

Cisco SIP TLS Trace Fields

The following table describes the Cisco SIP TLS trace fields.

Table 35: SIP TLS Trace Fields

Field Name	Description
Enable SIP TLS Trace	Activates SIP TLS trace.

Cisco Web Service Trace Fields

The following table describes the Cisco Web Service trace fields.

Table 36: Web Service Trace Fields

Field Name	Description
Enable Presence Web Service Trace	Activates Presence Web Service trace.

Trace Output Settings

The following table contains the trace log file descriptions.

Caution When you change either the Maximum No. of Files or the Maximum File Size settings in the Trace Configuration window, the system deletes all service log files except for the current file, that is, if the service is running; if the service has not been activated, the system deletes the files immediately after you activate the service. Before you change the Maximum No. of Files setting or the Maximum File Size setting, download and save the service log files to another server if you want to keep a record of the log files; to perform this task, use Trace and Log Central in Unity RTMT.

Table 37: Trace Output Settings

Field	Description
Maximum number of files	This field specifies the total number of trace files for a given service. Cisco Unified Serviceability automatically appends a sequence number to the filename to indicate which file it is, for example, cus299.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.

Trace Setting Troubleshooting

Troubleshoot Trace Settings Window

The **Troubleshooting Trace Settings** window allows you to select the services in the Serviceability GUI for which you want to set predetermined troubleshooting trace settings. In this window, you can select the services on different nodes in the cluster. This populates the trace settings changes for all the services you choose. You can select specific active services for a single node, all active services for the node, specific active services for all nodes in the cluster, or all active services for all nodes in the cluster. In the window, N/A displays next to inactive services.

Note For IM and Presence the predetermined troubleshooting trace settings for an IM and Presence feature or network service include SDI and Log4j trace settings. Before the troubleshooting trace settings are applied, the system backs up the original trace settings. When you reset the troubleshooting trace settings, the original trace settings are restored.

When you open the **Troubleshooting Trace Settings** window after you apply troubleshooting trace settings to a service, the service that you set for troubleshooting displays as checked. In the **Troubleshooting Trace Settings** window, you can reset the trace settings to the original settings.

After you apply Troubleshooting Trace Setting to a service, the **Trace Configuration** window displays a message that troubleshooting trace is set for that service. From the **Related Links** list box, you can select the Troubleshooting Trace Settings option if you want to reset the settings for the service. For the given service, the **Trace Configuration** window displays all the settings as read-only, except for some parameters of trace output settings, for example, Maximum No. of Files.

Troubleshoot Trace Settings

Before you begin

Review the tasks Set up trace configuration and Set up trace parameters.

Procedure

Step 1 Select **Trace** > **Troubleshooting Trace Settings**.

Step 2 Select the server where you want to troubleshoot trace settings from the **Server** list box.

Step 3 Select **Go**.

A list of services display. The services that are not active display as N/A.

Step 4 Perform one of the following actions:

a) To monitor specific services on the node that you selected from the **Server** list box, check the service in the **Services** pane.

For example, the Database and Admin Services, Performance and Monitoring Services, or the Backup and Restore Services pane (and so on).

This task affects only the node that you selected from the **Server** list box.

b) To monitor all services on the node that you selected from the **Server** list box, check **Check All Services**.
c) Cisco Unified Communications Manager and IM and Presence clusters only: To monitor specific services on all nodes in a cluster, check **Check Selected Services on All Nodes**.

   This setting applies for all nodes in the cluster where the service is active.

d) Unified Communications Manager and IM and Presence clusters only: To monitor all services for all nodes in the cluster, check **Check All Services on All Nodes**.

Step 5 Select **Save**.

Step 6 Select one of the following buttons to restore the original trace settings:

a) **Reset Troubleshooting Traces**—Restores the original trace settings for the services on the node that you chose in the Server list box; also displays as an icon that you can select.
b) Unified Communications Manager and IM and Presence clusters only: **Reset Troubleshooting Traces On All Nodes**—Restores the original trace settings for the services on all nodes in the cluster.

   The Reset Troubleshooting Traces button displays only if you have set troubleshooting trace for one or more services.

   Note
   Leaving troubleshooting trace enabled for a long time increases the size of the trace files and may affect the performance of the services.

   After you select the **Reset** button, the window refreshes and the service check boxes display as unchecked.