



## CHAPTER 6

# Understanding Trace

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This chapter, which provides information on Cisco Unified Serviceability trace, contains the following topics:

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## Understanding 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 Cisco Unified Communications Manager and Cisco Unified Communications Manager Business Edition 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 CM and Unified CM BE 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 CM and Unified CM BE only:* In the Alarm Configuration window, you can direct alarms to various locations, including SDI trace log files, or SDL trace log files. If you want to do so, you can configure trace for alerts in the Cisco Unified Real-Time Monitoring Tool (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.

# Trace Configuration

You can configure trace parameters for any feature or network service that displays in Cisco Unified Serviceability. If you have clusters (Cisco Unified Communications Manager only), you can configure trace parameters for any feature or network service that is available on any Cisco Unified Communications Manager 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 (Cisco Unified Communications Manager only), you can configure trace for a single service or apply the trace settings for that service to all servers in the cluster.

*Unified CM and Unified CM BE 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 gateways; for example, you can narrow the trace to all enabled phones with a directory number beginning with 555.

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 the [“Troubleshooting Trace Settings” section on page 6-2](#).

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 RTMT. For more information regarding trace collection, see the [“Trace Collection” section on page 6-3](#).

## Troubleshooting Trace Settings

The Troubleshooting Trace Settings window allows you to choose the services in Cisco Unified Serviceability 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 (Cisco Unified Communications Manager only), you can choose the services on different Cisco Unified Communications Manager 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 Cisco Unified Communications Manager feature or network service include SDL (Cisco Unified Communications Manager and Cisco Unified Communications Manager Business Edition only), SDI, and Log4j trace settings. Before the troubleshooting trace settings get applied, the system backs up the original trace settings. When you reset the troubleshooting trace settings, the original trace settings get 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 the given service(s). 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 and/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**

To collect CSA logs, check the Cisco Security Agent check box in the Select System Logs tab in RTMT. To access user logs that provide information about users that are logging in and out, check the Security Logs check box in the Select System Logs tab.

**Tip**

Do not use NotePad to view collected trace files.

**Note**

*Unified CM and Unified CM BE only:* For devices that support encryption, the SRTP keying material does not display in the trace file.

For more information on trace collection, refer to the *Cisco Unified Real-Time Monitoring Tool Administration Guide*.

## Trace Configuration and Collection Checklist

Table 6-1 provides an overview of the steps for configuring and collecting trace for feature and network services in Cisco Unified Serviceability.

Table 6-1 Trace Configuration and Collection Checklist

| Configuration Steps |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Related Procedures and Topics                                                                                                                                                                                                                                                                                                                                                       |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b>       | <p>Do the applicable step:</p> <ul style="list-style-type: none"> <li><i>Unified CM and Unified CM BE only:</i> Choose <b>System &gt; Enterprise Parameters</b> in Cisco Unified Communications Manager Administration and 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.</li> <li><i>Connection only:</i> Choose <b>System Settings &gt; Enterprise Parameters</b> in Cisco Unity Connection Administration and 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.</li> </ul>                                                                                                | <ul style="list-style-type: none"> <li><i>Unified CM and Unified CM BE only:</i> <i>Cisco Unified Communications Manager Administration Guide</i></li> <li><i>Connection only:</i> <i>System Administration Guide for Cisco Unity Connection</i></li> </ul>                                                                                                                         |
| <b>Step 2</b>       | <p>If you want to enable trace compression, do the applicable step:</p> <ul style="list-style-type: none"> <li><i>Unified CM and Unified CM BE only:</i> Choose <b>System &gt; Enterprise Parameters</b> in Cisco Unified Communications Manager Administration and set the value of the Trace Compression parameter to Enabled.</li> <li><i>Connection only:</i> Choose <b>System Settings &gt; Enterprise Parameters</b> in Cisco Unity Connection Administration and set the value of the Trace Compression parameter to Enabled.</li> </ul>                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"> <li>Configuring Trace and Log Central in RTMT, <i>Cisco Unified Real-Time Monitoring Tool Administration Guide</i></li> <li><i>Unified CM and Unified CM BE only:</i> <i>Cisco Unified Communications Manager Administration Guide</i></li> <li><i>Connection only:</i> <i>System Administration Guide for Cisco Unity Connection</i></li> </ul> |
| <b>Step 3</b>       | <p>Configure the values of the TLC Throttling CPU Goal and TLC Throttling IOWait Goal service parameters (Cisco RIS Data Collector service) by doing the applicable step:</p> <ul style="list-style-type: none"> <li><i>Unified CM and Unified CM BE only:</i> Choose <b>System &gt; Service Parameters</b> in Cisco Unified Communications Manager Administration and configure the values of the TLC Throttling CPU Goal and TLC Throttling IOWait Goal service parameters (Cisco RIS Data Collector service).</li> <li><i>Connection only:</i> Choose <b>System Settings &gt; Service Parameters</b> 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).</li> </ul> | <ul style="list-style-type: none"> <li>Configuring Trace and Log Central in RTMT, <i>Cisco Unified Real-Time Monitoring Tool Administration Guide</i></li> <li><i>Unified CM and Unified CM BE only:</i> <i>Cisco Unified Communications Manager Administration Guide</i></li> <li><i>Connection only:</i> <i>System Administration Guide for Cisco Unity Connection</i></li> </ul> |

Table 6-1 Trace Configuration and Collection Checklist (continued)

| Configuration Steps                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Related Procedures and Topics                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Step 4</b> Configure the trace setting for the service for which you want to collect traces. If you have clusters (Cisco Unified Communications Manager only), you can configure trace for the service on one server or on all servers in the cluster.</p> <p>To configure trace settings, choose what information you want to include in the trace log by choosing the debug level and trace fields.</p> <p><i>Unified CM and Unified CM BE only:</i> You can also configure trace for specific devices if you are configuring trace for the Cisco CallManager service or the Cisco CTIManager service.</p> <p>If you want to run predetermined traces on services, set troubleshooting trace for those services.</p> | <ul style="list-style-type: none"> <li>• <a href="#">Understanding Trace, page 6-1</a></li> <li>• <a href="#">Configuring Trace, page 7-1</a></li> <li>• <a href="#">Configuring Troubleshooting Trace Settings, page 8-1</a></li> </ul> |
| <p><b>Step 5</b> Install the Cisco Unified Real-Time Monitoring Tool on a local PC.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <p><i>Cisco Unified Real-Time Monitoring Tool Administration Guide</i></p>                                                                                                                                                               |
| <p><b>Step 6</b> If you want to generate an alarm when the specified search string exists in a monitored trace file, enable the LogFileSearchStringFound alert in RTMT.</p> <p>You can find the LogFileSearchStringFound alarm in the LpmTctCatalog. (In Cisco Unified Serviceability, choose <b>Alarms &gt; Definitions</b>. In the Find alarms where drop-down list box, choose the <b>System Alarm Catalog</b>; in the Equals drop-down list box, choose <b>LpmTctCatalog</b>.)</p>                                                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>• <i>Cisco Unified Real-Time Monitoring Tool Administration Guide</i></li> <li>• <a href="#">Viewing Alarm Definitions and Adding User-Defined Descriptions, page 5-1</a></li> </ul>              |
| <p><b>Step 7</b> If you want to automatically capture traces for alerts such as CriticalServiceDownand CodeYellow, check the <b>Enable Trace Download</b> check box in the Set Alert/Properties dialog box for the specific alert in RTMT; configure how often that you want the download to occur.</p>                                                                                                                                                                                                                                                                                                                                                                                                                      | <p><i>Cisco Unified Real-Time Monitoring Tool Administration Guide</i></p>                                                                                                                                                               |
| <p><b>Step 8</b> Collect the traces.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p><i>Cisco Unified Real-Time Monitoring Tool Administration Guide</i></p>                                                                                                                                                               |
| <p><b>Step 9</b> View the log file in the appropriate viewer.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p><i>Cisco Unified Real-Time Monitoring Tool Administration Guide</i></p>                                                                                                                                                               |
| <p><b>Step 10</b> If you enabled troubleshooting trace, reset the trace settings services, so the original settings get restored.</p> <p><b>Note</b> Leaving Troubleshooting trace enabled for a long time increases the size of the trace files and may impact the performance of the services.</p>                                                                                                                                                                                                                                                                                                                                                                                                                         | <p><a href="#">Configuring Troubleshooting Trace Settings, page 8-1</a></p>                                                                                                                                                              |

# Where to Find More Information

## Related Topics

- [Understanding Alarms, page 3-1](#)
- [Alarm Configuration Checklist, page 3-4](#)
- [Understanding Trace, page 6-1](#)
- [Configuring Troubleshooting Trace Settings, page 8-1](#)

## Additional Cisco Documentation

- *Cisco Unified Real-Time Monitoring Tool Administration Guide*
- *Unified CM BE and Connection only: Cisco Unity Connection Serviceability Administration Guide*
- *Connection only: System Administration Guide for Cisco Unity Connection*