



## Real-Time Monitoring

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The Cisco Unified Real-Time Monitoring Tool (RTMT), which runs as a client-side application, uses HTTPS and TCP to monitor system performance. Unified RTMT can connect directly to devices through HTTPS to troubleshoot system problems.

Unified RTMT allows you to perform the following tasks:

- Monitor a set of predefined management objects that monitor the health of the system.
- Generate alerts in the form of email messages, for objects when values go above or below user-configured thresholds.
- Collect and view traces in default viewers that exist in RTMT.
- View syslog messages in SysLog Viewer.
- Work with performance-monitoring counters.



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**Note** Even when Unified RTMT is not running as an application on your desktop, tasks such as alarm and performance monitoring updates continue to take place on the server in the background.

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## Installation and Configuration

The Unified RTMT installer can be downloaded using **Tools > Plug-ins** menu on the **Cisco Unified Contact Center Express Administration** web interface. See “Cisco Unified Real-Time Monitoring Tool” section in *Cisco Unified Real-Time Monitoring Tool Administration Guide for Cisco Unified Contact Center Express and Cisco Unified IP IVR* for installation and configuration procedures, available here:

[https://www.cisco.com/en/US/partner/products/sw/voicesw/ps556/prod\\_maintenance\\_guides\\_list.html](https://www.cisco.com/en/US/partner/products/sw/voicesw/ps556/prod_maintenance_guides_list.html)

# Performance Monitoring

Unified CCX provides performance counters (called perfmon counters) for application performance monitoring. The perfmon counters help expose various performance values and enables to track application performance in real time.

The perfmon counters contain counter-based information, such as the name and index of the counter, the scale, the type, subcounters to set when setting a counter, the current values, and a map containing counter instance data. Each performance counter instance object contains instance-based data, like the instance ID and current values.

You can log perfmon counters locally on the computer and use the performance log viewer in Unified RTMT to display the perfmon CSV log files that you collected or the Real-time Information Server Data Collection (RISDC) perfmon logs. Choose **System > Performance** on the Unified RTMT tool to view perfmon counters.

## Performance Objects

Unified RTMT provides a set of default monitoring objects that assist you in monitoring the health of the system. Default objects include performance counters or critical event status for the system and other supported services.

The system logs information every 10 seconds for predefined system counters.

## Performance Counters

To troubleshoot system performance problems, you add a counter (query) that is associated with the perfmon object to the performance monitor, which displays a chart for the counter. Choose **System > Performance > Open Performance Monitoring** to add a new counter.

For more information about monitoring objects and counters, see “Performance Monitoring” section in the *Cisco Unified Real-Time Monitoring Tool Administration Guide for Cisco Unified Contact Center Express and Cisco Unified IP IVR*, available here:

[https://www.cisco.com/en/US/products/sw/voicesw/ps556/prod\\_maintenance\\_guides\\_list.html](https://www.cisco.com/en/US/products/sw/voicesw/ps556/prod_maintenance_guides_list.html)

## Performance Objects and Counters for Unified CCX

Following are the Unified CCX application specific objects:

- Unified CCX database monitors
- Unified CCX engine JVM heap
- Intelligence center database performance Info
- Intelligence center JVM statistics
- Intelligence center system condition table
- Intelligence center thread pool section
- Intelligence center tomcat connector

- Reporting engine info
- Ramfs
- SchedulerInfo




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**Note** Expand the objects in RTMT to display the counters. Right click on each counter and select **Counter Description** for the description.

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## Critical Services

The Critical Services monitoring function provides the name of the critical service, the status (whether the service is up, down, activated, stopped by the administrator, starting, stopping, or in an unknown state), and the elapsed time during which the services are functional on the system.




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**Note** Unified RTMT does not display a partial running status of a service in Unified CCX. For example, it does not display a service as “running” under "Critical Services" if some of its subsystems are down. The partial status of the Unified CCX services will only be viewable from the **Unified CCX Serviceability Administration** web interface.

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## Tools

Unified RTMT provides various tools to monitor and troubleshoot system issues. The following section briefly describes these tools.

## Alerts

Unified CCX generates alert messages to notify the administrator when a predefined condition is met, such as when an activated service fails to start. The system sends alerts as email or displays alerts as a popup message on RTMT.

RTMT contains preconfigured and user-defined alerts that support alert modifications. Although you can perform configuration tasks for both types, you cannot delete preconfigured alerts (whereas you can add and delete user-defined alerts). Predefined alerts are configured for perfmon counter value thresholds as well as event (alarms) notifications.

### Unified CCX Alerts

The following list contains preconfigured Unified CCX alerts:

*Table 1:*

Alert Name	Description
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DB CRA % Space Used	The percentage of used space in the Unified CCX database, db_cra. The database, db_cra, contains the Unified CCX historical and configuration data.
DBReplicationStopped	Unified CCX Database Replication has been removed. This typically happens when the replication queues become full due to the inability to contact the other node.
HistoricalDataWrittenToFiles	Historical data is not written to the Unified CCX database and has been written to the file system. Please verify the state of the Unified CCX database.
Intelligence Center CUIC_DATABASE_UNAVAILABLE	This alert occurs when the Intelligence Center CUIC_DATABASE_UNAVAILABLE event gets generated. This indicates the system detected critical error with database.
Intelligence Center CUIC_DB_REPLICATION_FAILED	This alert occurs when the Intelligence Center CUIC_DB_REPLICATION_FAILED event gets generated. This indicates the Database replication failed.
Intelligence Center CUIC_REPORT_EXECUTION_FAILED	This alert occurs when the Intelligence Center CUIC_DB_REPLICATION_FAILED event gets generated. This indicates that the reporting server could not run a report. This could be because the associated datasource is offline.
Intelligence Center CUIC_UNRECOVERABLE_ERROR	This alert occurs when the Intelligence Center CUIC_UNRECOVERABLE_ERROR event gets generated. This indicates that the system has detected an internal error within Reporting Server which may prevent it from functioning correctly. Restart may be required.
CCXToCUICAdminSyncFailed	This alert occurs when the Unified CCX has failed to notify CUIC on any resource change.
CCXToCUICCVDSyncFailed	This alert occurs when the Unified CCX has failed to notify CUIC on any resource change.
CCXToCUICEngineSyncFailed	This alert occurs when the Unified CCX has failed to notify CUIC on any resource change.
MediasenseStatusDown	One or more Mediasense nodes configured with this CCX are down or unreachable. This will impact CUCM-based call recording and CCX subscriptions to Mediasense for recording events.
PurgeInvoked	This alert occurs when the Unified CCX Auto Purging has completed.
UnifiedCCXEngineMemoryUsageHigh	This alert occurs when the percentage of JVM heap memory used by Cisco Unified CCX Engine process is greater than the configured threshold value.
EMAIL_SERVER_DOWN	This alert occurs when the email server is not reachable.

SocialMinerTomcatServiceDown	This alert occurs when Social Miner Tomcat is not reachable.
SocialMinerXMPPServiceDown	This alert occurs when the Unified CCX has failed to contact Social Miner runtime server (XMPP).



**Note** To view or edit values for any alert, right click on the alert and select **Set Alert/Properties...**

## Traces and Logs

The trace and log central feature in RTMT allows you to configure on-demand trace collection for a specific date range or an absolute time. You can collect trace files that contain search criteria that you specify and save the trace collection criteria for later use, schedule one recurring trace collection and download the trace files to a SFTP or FTP server on your network, or collect a crash dump file.

After you collect the files, you can view them in the appropriate viewer within the RTMT. You can also view traces on the server without downloading the trace files by using the remote browse feature. You can open the trace files by either selecting the internal viewer that is provided with RTMT or choosing an appropriate program as an external viewer.

For more information about traces and logs, see “Tools for traces, logs, and plug-ins” in *Cisco Unified Real-Time Monitoring Tool Administration Guide for Cisco Unified Contact Center Express and Cisco Unified IP IVR*, available here:

[https://www.cisco.com/en/US/partner/products/sw/voicesw/ps556/prod\\_maintenance\\_guides\\_list.html](https://www.cisco.com/en/US/partner/products/sw/voicesw/ps556/prod_maintenance_guides_list.html)

## CUCM Telephony Data Monitoring

Following entities can be monitored using **CUCM Telephony Data** RTMT:

- Triggers
- Call Control Groups
- CTI ports

To access **CUCM Telephony Data**, click **Cisco Unified CCX** tab in RTMT.

### Triggers Page

The Triggers page displays the following information for the triggers that are configured for Unified CCX:

**Table 2: Triggers Page Options**

Counters	Description
TriggerDN	This field displays the directory number that is associated with the trigger.
Trigger State	This field displays the state of the trigger, which can be In Service, Out of Service, or Unknown.

Counters	Description
Application Name	This field displays the name of Unified CCX application that is associated with the trigger.
Ready for Call	This field indicates whether the trigger is ready to accept the call.
CallControlGroup ID	This field displays the ID of the call control group that is associated with the trigger.
Media Group ID	This field displays the ID of the media group that is associated with the trigger.
Last State Change Time	This field displays the time of last state change for the trigger.
Recommended Action	This field provides the reason the trigger state is Out of Service or Unknown and provides the recommended action to return the trigger state to In Service.  <b>Note</b> This field is populated only if the trigger is in Out of Service state or Unknown state.

## Call Control Groups page

The Call Control Groups page provides the following information about the current Call Control Group that is configured for Unified CCX:

**Table 3: Call Control Groups Page Options**

Counters	Description
CallControlGroup ID	This field displays the ID that is associated with the call control group.
Group State	This field displays the state of the call control group, which can be In Service, Partial Service, or Out of Service.
Total Ports	This field displays the total number of CTI ports that are configured for the call control group.
InService Ports	This field displays the number of in-service CTI ports.
OOS Ports	This field displays the number of out-of-service CTI ports.

## CTI Ports Page

The CTI Ports page provides the following information about the current CTI ports that are configured for Unified CCX:

Table 4: CTI Ports Page Options

Counters	Description
CTI Port DN	This field displays the directory number of the CTI port.
CallControlGroup ID	This field displays the ID of call control group to which the CTI port belongs.
Port State	This field displays the state of CTI port, which can be In Service or Out of Service.
CallID	This field displays the call ID of the last call that is available on the CTI port before the port state changed to Out of Service.  <b>Note</b> This field is populated only if the port state is Out of Service.
Last State Change Time	This field displays the last time when the CTI port state changed.

## Summary Page

The Summary page provides the following information:

Table 5: Summary Page Options

Counters	Description
Overall Telephony Subsystem State	This field displays the state of the Unified CCX telephony subsystem, which can be In Service, Partial Service, or Out of Service.
Call Control Groups In Service	This field displays the number of call control groups that are in service.
Call Control Groups Out Of Service	This field displays the number of call control groups that are out of service.
Call Control Groups In Partial Service	This field displays the number of call control groups that are in partial service.
Enabled Triggers	This field displays the number of triggers that are associated with valid call control group IDs.
Disabled Triggers	This field displays the number of triggers that are associated with invalid call control group IDs.
Triggers With Config Errors	This field displays the number of triggers with configuration errors.



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**Note** In UCCX system, if we do not configure any Trigger and CTI Ports then CM Telephony displays Out of Service status. Similarly in IPIVR, if we do not configure ICM Subsystem then ICM Subsystem displays Out of Service status.

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## Cisco Unified Analysis Manager

Use Cisco Unified Analysis Manager, a tool included with the Unified RTMT to perform troubleshooting operations. Unified Analysis Manager also allows you to monitor various aspects of the devices added to the tool. Unified Analysis Manager is used to collect troubleshooting information from your system and analyze the information. It can identify the supported Unified Communications (UC) products and applications that you have in your system and troubleshoot call failures across these UC applications, collecting trace and log files and other platform and configuration information. You can use this information to troubleshoot on your own or send the information to Cisco Technical Assistance for analysis.

### Unified Analysis Manager for Unified CCX

To monitor and troubleshoot a Unified CCX-based solution with the help of Unified Analysis Manager, you must connect to a Unified Communications Manager server and then add the Unified CCX nodes accordingly. You can add following nodes/servers for monitoring:

- Unified CCX node
- Call record server

Consider the following points while adding nodes/servers for monitoring:

- To add nodes/servers, ensure that you select **Node Type** as **Unified CCX**.
- To add a call record server, enter **uccxsct** in the **JDBC User Name** field.

For detailed procedures to perform these actions, see “Cisco Unified Analysis Manager preferences” section in the *Cisco Unified Real-Time Monitoring Tool Administration Guide for Cisco Unified Contact Center Express and Cisco Unified IP IVR*, available here:

[https://www.cisco.com/en/US/products/sw/voicesw/ps556/prod\\_maintenance\\_guides\\_list.html](https://www.cisco.com/en/US/products/sw/voicesw/ps556/prod_maintenance_guides_list.html)