Performance Counters

- Counters, on page 1
- Local Perfmon Counter Data Logging, on page 4
- Log files on Perfmon Log Viewer and Microsoft Performance Tool, on page 7
- Troubleshooting, on page 10

Counters

Add Counter Using Performance Queries

You can use queries to select and display perfmon counters. You can organize the perfmon counters to display a set of feature-based counters and save it in a category. After you save your Unified RTMT profile, you can quickly access the counters in which you are interested.

Unified RTMT displays perfmon counters in chart or table format. The chart format displays the perfmon counter information by using line charts. For each category tab that you create, you can display up to six charts in the Perfmon Monitoring pane with up to three counters in one chart. After you create a category, you cannot change the display from a chart format to a table format, or vice-versa.

Tip You can display up to three counters in one chart in the Perfmon Monitoring pane. To add another counter in a chart, click the counter and drag it to the Perfmon Monitoring pane. Repeat, to add up to three counters.

By default, Unified RTMT displays perfmon counters in a chart format. You can also choose to display the perfmon counters in a table format. To display the perfmon counters in a table format, check the **Present Data in Table View** check-box when you create a new category.

Procedure

Step 1 Choose **System** > **Performance** > **Open Performance Monitoring**.

Step 2 Click the name of the server where you want to add a counter to monitor.

The tree hierarchy expands and displays all the perfmon objects.

Step 3 To monitor a counter in a table format, continue to step 4. To monitor a counter in a chart format, skip to step 9.

Step 4 Choose **Edit** > **New Category**.

Step 5 In the Enter Name field, enter a name for the tab.

Step 6 To display the perfmon counters in table format, check the **Present Data in Table View** check-box.

Step 7 Click **OK**.

A new tab with the name that you entered appears at the bottom of the pane.

Step 8 Perform one of the following actions to select one or more counters with one or more instances for monitoring in table format (skip the remaining step in this procedure):

- Double-click a single counter and select a single instance from the dialog box, and then click **Add**.
- Double-click a single counter and select multiple instances from the dialog box, and then, click **Add**.

Tip
To display the counter in a chart format after you display it in a table format, right-click the category tab and choose **Remove Category**. The counter displays in a chart format.

Step 9 To monitor a counter in a chart format, perform the following tasks:

a) Click the file icon next to the object name that lists the counters that you want to monitor.

A list of counters appears.

b) To display the counter information, either right-click the counter and click **Counter Monitoring**, double-click the counter, or drag and drop the counter into the Perfmon Monitoring pane.

The counter chart appears in the Perfmon Monitoring pane.

Remove Counter From Performance Monitoring Pane

You can remove a counter chart (table entry) with the Remove the Chart or Table Entry menu item in the Perfmon menu in the menu bar.

You can remove counters from the RTMT Perfmon Monitoring pane when you no longer need them. Follow this procedure to remove a counter from the pane.

Procedure

Perform one of the following tasks:

- Right-click the counter that you want to remove and choose **Remove**.
- Click the counter that you want to remove and choose **Perfmon** > **Remove Chart/Table Entry**.

Add Counter Instance

Follow this procedure to add a counter instance.

Procedure

Step 1 Find and display the performance monitoring counter.

Step 2 Click the performance monitoring counter in the performance monitoring tree hierarchy and choose **System** > **Performance** > **Counter Instances**.

Step 3 In the **Select Instance** window, click the instance, and then click **Add**.

The counter appears.

Set Up Counter Alert Notification

Follow this procedure to configure alert notification for a counter.

Tip To remove the alert for the counter, right-click the counter and choose Remove Alert. The option appears gray after you remove the alert.

Procedure

Step 1 Find and display the performance counter.

Step 2 From the counter chart or table, right-click the counter for which you want to configure the alert notification, and choose **Set Alert/Properties**.

Step 3 Check the **Enable Alert** check box.

Step 4 In the **Severity** drop-down list box, choose the severity level at which you want to be notified.

Step 5 In the Description pane, enter a description of the alert and click **Next**.

Step 6 Configure the settings in the Threshold, Value Calculated As, Duration, Frequency, and Schedule panes. After you enter the settings in the window, click **Next** to proceed to the next panes.

Step 7 To configure the system to send an e-mail message for the alert, check the **Enable Email** check box.

Step 8 To trigger an alert action that is already configured, choose the alert action that you want from the **Trigger Alert Action** drop-down list box.

Step 9 To configure a new alert action for the alert, click **Configure**.

Note
Whenever the specified alert is triggered, the system sends the alert action.

The **Alert Action** dialog box appears.

Step 10 To add a new alert action, click **Add**.

The Action Configuration dialog box appears.

Step 11 In the Name field, enter a name for the alert action.

Step 12 In the Description field, enter a description for the alert action.

Step 13 Click **Add** to add a new e-mail recipient for the alert action.

The Input dialog box appears.

Step 14 Enter either the e-mail or e-page address of the recipient that you want to receive the alert action notification and click **OK**

Step 15 In the User-defined email text box, enter the text that you want to display in the e-mail message and click **Activate**.

Display Counter Description

The following shows how to obtain a description of the counter:

Procedure

Step 1 Perform one of the following tasks:

a) In the Perfmon tree hierarchy, right-click the counter for which you want property information and choose **Counter Description**.

b) In the RTMT Performance Monitoring pane, click the counter and choose **System** > **Performance** > **Counter Description** from the menu bar.

Tip
You can display the counter description and configure data-sampling parameters.

The **Counter Property** window displays the description of the counter. The description includes the host address, the object to which the counter belongs, the counter name, and a brief overview of what the counter does.

Step 2 To close the **Counter Property** window, click **OK**.

Local Perfmon Counter Data Logging

RTMT allows you to choose different perfmon counters to log locally. You can then view the data from the perfmon CSV log by using the performance log viewer.

Start Perfmon Counter Logging

To start logging perfmon counter data into a CSV log file, perform the following procedure:

Procedure

Step 1 Find and display the performance monitoring counters.

Step 2 If you are displaying perfmon counters in the chart format, right-click the graph for which you want data sample information and choose **Start Counter(s) Logging**.

The **Counter Logging Configuration** dialog box appears.

Step 3 If you want to log all counters in a screen (both chart and table view format), you can right-click the category name tab at the bottom of the window and choose **Start Counter(s) Logging**.

The **Counter Logging Configuration** dialog box appears.

Step 4 Configure the maximum file size and maximum number of files parameter.

Step 5 In the **Logger File Name** field, enter a filename and click **OK**.

RTMT saves the CSV log files in the log folder in the .jrtmt directory under the user home directory. For example, in Windows, the path specifies `D:\Documents and Settings\userA\.jrtmt\log`, or in Linux, the path specifies `/users/home/.jrtmt/log`.

To limit the number and size of the files, configure the maximum file size and maximum number of files parameter in the trace output setting for the specific service in the **Trace Configuration** window of Cisco Unified Serviceability. See *Cisco Unified Serviceability Administration Guide*.

Note
If you have already started logging perfmon counters and you want to change the maximum file size and maximum number of files, you must first stop the counters before you reconfigure the maximum file size and number of files parameters. After resetting the parameters, you can then restart logging perfmon counters.

Stop Perfmon Counter Logging

To stop logging perfmon counter data, perform the following procedure:

Procedure

Step 1 Find and display the performance monitoring counters.

Step 2 If you are displaying perfmon counters in the chart format, right-click the graph for which counter logging is started and choose **Stop Counter(s) Logging**. If you want to stop logging of all counters in a screen (both chart and table view format), you can right-click the category name tab at the bottom of the window and choose **Stop Counter(s) Logging**.

Configure Data Sample

The **Counter Property** window contains the option to configure data samples for a counter. The perfmon counters that display in the RTMT Perfmon Monitoring pane contain green dots that represent samples of

data over time. You can configure the number of data samples to collect and the number of data points to show in the chart. After the data sample is configured, view the information by using the View All Data/View Current Data menu option.

Follow this procedure to configure the number of data samples to collect for a counter.

Procedure

Step 1 Find and display the counter.

Step 2 Click the counter for which you want data sample information and choose **System** > **Performance** > **Monitoring Properties**.

The **Counter Property** window displays the description of the counter, as well as the tab for configuring data samples. The description includes the host address, the object to which the counter belongs, the counter name, and a brief overview of what the counter does.

Step 3 To configure the number of data samples for the counter, click the **Data Sample** tab.

Step 4 From the **No. of data samples** drop-down list box, choose the number of samples (between 100 and 1000).

The default specifies 100.

Step 5 From the **No. of data points shown on chart** drop-down list box, choose the number of data points to display on the chart (between 10 and 50).

The default specifies 20.

Step 6 Click one of the following parameters:

- Absolute: Because some counter values are accumulative, choose Absolute to display the data at its current status.
- Delta: Choose Delta to display the difference between the current counter value and the previous counter value.
- Delta Percentage: Choose Delta Percentage to display the counter performance changes in percentage.

Step 7 To close the **Counter Property** window and return to the RTMT Perfmon Monitoring pane, click **OK**.

View Counter Data

Follow this procedure to view the data that is collected for a performance counter.

Procedure

Step 1 In the RTMT Perfmon Monitoring pane, right-click the counter chart for the counter for which you want to view data samples.

Step 2 Choose **View All Data**.

The counter chart displays all data that has been sampled. The green dots display close together.

Step 3 Right-click the counter that currently appears.

Step 4 Choose **View Current**.

The counter chart displays the last configured data samples that were collected.

Log files on Perfmon Log Viewer and Microsoft Performance Tool

The performance log viewer displays a chart with the data from the selected counters. The bottom pane displays the selected counters, a color legend for those counters, display option, mean value, minimum value, and the maximum value.

The following table describes the functions of different buttons that are available on the Performance Log Viewer.

Table 1: Performance Log Viewer

Button	Function
Select Counters	Allows you to add counters that you want to display in the p counter, uncheck the Display column next to the counter.
Reset View	Resets the performance log viewer to the initial default view
Save Downloaded File	Allows you to save the log file to your local computer.

View Log Files on Perfmon Log Viewer

The Performance Log Viewer displays data for counters from perfmon CSV log files in a graphical format. You can use the performance log viewer to display data from the local perfmon logs that you collected, or you can display the data from the Real-time Information Server Data Collection (RISDC) perfmon logs.

Before you begin

The local perfmon logs consist of data from counters that you select and store locally on your computer.

Procedure

Step 1 Select **System** > **Performance** > **Open Performance Log Viewer**.

Step 2 Select the type of perfmon logs that you want to view:

- For RisDC Perfmon Logs, perform the following steps:
  a. Select RisDC Perfmon Logs in the Select Perfmon Log Location section.
  b. Select a node from the list box.

c. Select **Open**.

d. Select the file and select **Open File**.

e. Check the counters that you want to display.

f. Select **OK**.

- For locally stored data, perform the following actions:

a. Select **Local Perfmon Logs**.

b. Select **Open**.

c. Browse to the file directory.

d. Select the file that you are interested in viewing or enter the filename in the filename field.

e. Select **Open**.

f. Check the counters that you want to display.

g. Select **OK**.

Step 3 Select the counters that you want to display.

Step 4 Select **OK**.

Troubleshooting Tips

- The Real-Time Monitoring Tool saves the perfmon CSV log files in the log folder in the.jrtmt directory under the user home directory. In Windows, the path specifies D:\Documents and Settings\userA\.jrtmt\log, or in Linux, the path specifies /users/home/.jrtmt/log
- The RISDC perfmon logging is also known as Troubleshooting Perfmon Data logging. When you enable RISDC perfmon logging, the server collects data that are used to troubleshoot problems. Because the IM and Presence service collects a large amount of data in a short period of time, you should limit the time that RISDC perfmon data logging (troubleshooting perfmon data logging) is enabled.
- You can order each column by selecting on a column heading. The first time that you select on a column heading, the records display in ascending order. A small triangle pointing up indicates ascending order. If you select the column heading again, the records display in descending order. A small triangle pointing down indicates descending order. If you select the column heading one more time, the records displays in the unsorted state.

Zoom In and Out in Performance Log Viewer

The Performance Log viewer includes a zoom feature that allows you to zoom in on and out on an area in the chart.

Procedure

Step 1 Perform one of the following actions:

a) On the Quick Launch Channel:

- Select **System**.
- In the tree hierarchy, double-select **Performance to display the performance icons**.
- Select the **Performance** icon.

b) Select **System** > **Performance** > **Open Performance Monitoring**.

Step 2 Select the name of the server where the counter is located.

The tree hierarchy expands and displays all the perfmon objects for the node.

Step 3 Double-select the performance counter you want to monitor.

Step 4 Perform one of the following actions:

If you want to:	Action
Zoom in on an area in the chart	• Select and drag the left mouse button over the area of • Release the left mouse button when you have the sele
Reset the chart to the initial default view	Perform one of the following actions: • Select **Reset View**. • Right-mouse select the chart and select **Reset**.

View Perfmon Log Files with Microsoft Performance Tool

Note The method for accessing **Performance** may vary depending on the version of windows you install on your computer.

Procedure

Step 1 Select **Start** > **Settings** > **Control Panel** > **Administrative Tools** > **Performance**.

Step 2 Perform the following actions in the application window:

a) Select the right mouse button.

b) Select **Properties**.

Step 3 Select the Source tab in the System Monitor Properties dialog box.

Step 4 Browse to the directory where you downloaded the perfmon log file and select the perfmon csv file. The log file includes the following naming convention:

PerfMon_<node>_<month>_<day>_<year>_<hour>_<minute>.csv; for example, PerfMon_172.19.240.80_06_15_2005_11_25.csv.

Step 5 Select **Apply**.

Step 6 Select **Time Range**. To specify the time range in the perfmon log file that you want to view, drag the bar to the appropriate starting and ending times.

Step 7 To open the Add Counters dialog box, select the Data tab and select **Add**.

Step 8 Select the perfmon object from the Performance Object drop-down list box. If an object has multiple instances, you may select **All instances** or select only the instances that you are interested in viewing.

Step 9 You can select **All Counters** or select only the counters that you are interested in viewing.

Step 10 Select **Add** to add the selected counters.

Step 11 Select **Close when you finish selecting counters**.

Troubleshooting

Perfmon Data Log Troubleshooting

The troubleshooting perfmon data logging feature assists Cisco TAC in identifying system problems. When you enable troubleshooting perfmon data logging, you initiate the collection of a set of system and operating system performance statistics on the selected node. The statistics that are collected include comprehensive information that you can use for system diagnosis.

The system automatically enables troubleshooting perfmon data logging to collect statistics from a set of perfmon counters that provides comprehensive information about the system state. When you enable Troubleshooting Perfmon Data Logging, Cisco estimates that the system experiences a less than five percent increase in CPU utilization and an insignificant increase in the amount of memory that is being used, and it writes approximately 50 MB of information to the log files daily.

You can perform the following administrative tasks with the troubleshooting perfmon data logging feature:

- Enable and disable the trace filter for Troubleshooting perfmon data logging.
- Monitor a set of predefined System and performance objects and counters on each server.
- Log the monitored performance data in CSV file format on the server in the active log partition in the var/log/active/cm/log/ris/csv directory. The log file uses the following naming convention: PerfMon_<node>_<month>_<day>_<year>_<hour>_<minute>.csv; for example, PerfMon_172.19.240.80_06_15_2005_11_25.csv. Specify the polling rate. This rate specifies the rate at which performance data is gathered and logged. You can configure the polling rate down to 5 seconds. Default polling rate equals 15 seconds.
- View the log file in graphical format by using the Microsoft Windows performance tool or by using the Performance Log viewer in the Real-Time Monitoring Tool.
- Specify the maximum number of log files that will be stored on disk. Log files exceeding this limit are purged automatically by removal of the oldest log file. The default specifies 50 files.
- Specify the rollover criteria of the log file based on the maximum size of the file in megabytes. The default value specifies 2 MB.

- Collect the Cisco RIS Data Collector PerfMonLog log file by using the Trace & Log Central feature of the Real-Time Monitoring Tool or Command Line Interface.

The troubleshooting perfmon data-logging feature collects information from the following counters within the following perfmon objects.

Note Cisco Unity Connection counters are not logged to the troubleshooting perfmon data log.

- Database Change Notification Server Object:
  - Clients
  - CNProcessed
  - QueueDelay
  - QueuedRequestsInDB
  - QueuedRequestsInMemory
- Database Local DSN Object:
  - CcmDbSpace_Used
  - CcmtempDbSpace_Used
  - CNDbSpace_Used
  - LocalDSN
  - RootDbSpace_Used
  - SharedMemory_Free
  - SharedMemory_Used
- Enterprise Replication DBSpace Monitors Object:
  - ERDbSpace_Used
  - ERSBDbSpace_Used
- IP Object:
  - In Receives
  - In HdrErrors
  - In UnknownProtos
  - In Discards
  - In Delivers
  - Out Requests
  - Out Discards

- Reasm Reqds
- Reasm Oks
- Reasm Fails
- Frag OKs
- Frag Fails
- Frag Creates
- InOut Requests

- Memory Object:
  - % Page Usage
  - % VM Used
  - % Mem Used
  - Buffers Kbytes
  - Cached Kbytes
  - Free Kbytes
  - Free Swap Kbytes
  - HighFree
  - HighTotal
  - Low Total
  - Low Free
  - Page Faults Per Sec
  - Page Major Faults Per Sec
  - Pages
  - Pages Input
  - Pages Input Per Sec
  - Pages Output
  - Pages Output Per Sec
  - SlabCache
  - SwapCached
  - Shared Kbytes
  - Total Kbytes
  - Total Swap Kbytes
  - Total VM Kbytes

  - Used Kbytes
  - Used Swap Kbytes
  - Used VM Kbytes
- Network Interface Object:
  - Rx Bytes
  - Rx Packets
  - Rx Errors
  - Rx Dropped
  - Rx Multicast
  - Tx Bytes
  - Tx Packets
  - Tx Errors
  - Tx Dropped
  - Total Bytes
  - Total Packets
  - Tx QueueLen
- Number of Replicates Created and State of Replication Object:
  - Replicate_State
- Partition Object:
  - % CPU Time
  - %Used
  - Await Read Time
  - Await Time
  - Await Write Time
  - Queue Length
  - Read Bytes Per Sec
  - Total Mbytes
  - Used Mbytes
  - Write Bytes Per Sec
- Process Object:
  - % Memory Usage

    - Data Stack Size
    - Nice
    - PID
    - STime
    - % CPU Time
    - Page Fault Count
    - Process Status
    - Shared Memory Size
    - VmData
    - VmRSS
    - VmSize
    - Thread Count
    - Total CPU Time Used
- Processor Object:
    - Irq Percentage
    - Softirq Percentage
    - IOwait Percentage
    - User Percentage
    - Nice Percentage
    - System Percentage
    - Idle Percentage
    - %CPU Time
- System Object:
    - Allocated FDs
    - Freed FDs
    - Being Used FDs
    - Max FDs
    - Total Processes
    - Total Threads
    - Total CPU Time
- TCP Object:

- Active Opens
- Passive Opens
- Attempt Fails
- Estab Resets
- Curr Estab
- In Segs
- Out Segs
- Retrans Segs
- InOut Segs

- Thread Object (Troubleshooting Perfmon Data Logger only logs Unified Communications Manager threads):
  - %CPU Time

- Cisco CallManager Object:
  - CallManagerHeartBeat
  - CallsActive
  - CallsAttempted
  - CallsCompleted
  - InitializationState
  - RegisteredHardwarePhones
  - RegisteredMGCPGateway
  - RegisteredOtherStationDevices
  - RegisteredTCTJabberNonMRA
  - RegisteredTCTJabberMRA
  - RegisteredBOTJabberNonMRA
  - RegisteredBOTJabberMRA
  - RegisteredTABJabberNonMRA
  - RegisteredTABJabberMRA
  - RegisteredCSFJabberNonMRA
  - RegisteredCSFJabberMRA
  - RegisteredTCTWebexNonMRA
  - RegisteredTCTWebexMRA
  - RegisteredBOTWebexNonMRA

- RegisteredBOTWebexMRA
- RegisteredTABWebexNonMRA
- RegisteredTABWebexMRA
- RegisteredCSFWebexNonMRA
- RegisteredCSFWebexMRA
- RegisteredHardwarePhonesMRA
- RegisteredDualModeDevices
- RegisteredDevicesMRA

- Cisco SIP Stack Object:
  - CCBsAllocated
  - SCBsAllocated
  - SIPHandlerSDLQueueSignalsPresent

- Cisco CallManager System Performance Object:
  - AverageExpectedDelay
  - CallsRejectedDueToThrottling
  - CodeRedEntryExit
  - CodeYellowEntryExit
  - QueueSignalsPresent 1-High
  - QueueSignalsPresent 2-Normal
  - QueueSignalsPresent 3-Low
  - QueueSignalsPresent 4-Lowest
  - QueueSignalsProcessed 1-High
  - QueueSignalsProcessed 2-Normal
  - QueueSignalsProcessed 3-Low
  - QueueSignalsProcessed 4-Lowest
  - QueueSignalsProcessed Total
  - SkinnyDevicesThrottled
  - ThrottlingSampleActivity
  - TotalCodeYellowEntry

- Cisco TFTP Server Object:
  - BuildAbortCount

- BuildCount
- BuildDeviceCount
- BuildDialruleCount
- BuildDuration
- BuildSignCount
- BuildSoftkeyCount
- BuildUnitCount
- ChangeNotifications
- DeviceChangeNotifications
- DialruleChangeNotifications
- EncryptCount
- GKFoundCount
- GKNotFoundCount
- HeartBeat
- HttpConnectRequests
- HttpRequests
- HttpRequestsAborted
- HttpRequestsNotFound
- HttpRequestsOverflow
- HttpRequestsProcessed
- HttpServedFromDisk
- LDFoundCount
- LDNotFoundCount
- MaxServingCount
- Requests
- RequestsAborted
- RequestsInProgress
- RequestsNotFound
- RequestsOverflow
- RequestsProcessed
- SegmentsAcknowledged
- SegmentsFromDisk

- SegmentsSent
- SEPFoundCount
- SEPNotFoundCount
- SIPFoundCount
- SIPNotFoundCount
- SoftkeyChangeNotifications
- UnitChangeNotifications

Troubleshoot Perfmon Data Logging

Follow this procedure to collect information from counters within the perfmon objects with the perfmon data-logging feature.

Before you begin

- Be aware that RISDC perfmon logging is also known as Troubleshooting Perfmon Data logging. When you enable RISDC perfmon logging, the server collects performance data that are used to troubleshoot problems.
- When you enable RIS Data Collector (RISDC) perfmon logs, Unified Communications Manager and the IM and Presence Service collect information for the system in logs that are written on the server.
- You can enable or disable RISDC perfmon logs in the administrative interface by selecting **System** > **Service Parameter** and selecting the Cisco RIS Data Collector Service from the Service list box. By default, RISDC perfmon logging is enabled.

Procedure

Step 1 Select **System** > **Service Parameters** the administration interface.

Step 2 Select the server from the Server list box.

Step 3 Select the Cisco RIS Data Collector from the Service drop-down list box.

Step 4 Enter the appropriate settings as described in the following table.

Table 2: Troubleshooting Perfmon Data-Logging Parameters

Field	Description
Enable Logging	From the drop-down list box, select **True** to enable or **False** to The default value specifies False.
Polling Rate	Enter the polling rate interval (in seconds). You can enter a val default value specifies 15.

Field	Description
Maximum No. of Files	Enter the maximum number of Troubleshooting Perfmon D You can enter a value from 1 (minimum) up to 100 (maxim Consider your storage capacity in configuring the Maximun We recommend that you do not exceed a value of 100 MB v value by the Maximum File Size value. When the number of files exceeds the maximum number of deletes log files with the oldest time stamp. **Caution** If you do not save the log files on another computer before y files.
Maximum File Size (MB)	Enter the maximum file size (in megabytes) that you want t started. You can enter a value from 1 (minimum) to 500 (m Consider your storage capacity in configuring the Maximun We recommend that you do not exceed a value of 100 MB v value by the Maximum File Size value.

Step 5 Select **Save**.

Note
You can collect the log files for Cisco RIS Data Collector service on the server by using RTMT to download the log files. If you want to download the log files by using the CLI, refer to *Administration Guide for Cisco Unified Communications Manager* . After you collect the log files, you can view the log file by using the Performance Log Viewer in RTMT or by using the Microsoft Windows performance tool.