CHAPTER 13

Managing Reports

At scheduled intervals, you can configure the Cisco Mobile Wireless Transport Manager (MWTM) to gather critical information from network objects that it detects. The MWTM uses that information to calculate statistics (accounting statistics, performance statistics, and so on) and generates reports based on those statistics.

You can view reports in several ways:

- From the MWTM web navigation tree, in **Reports** or **File Archive**, click the type of report you want to view in the web navigation tree; for example, if you want to view current link reports, select **Reports > ITP Statistics > Link**. All link reports appear. See Displaying Status and Summary Reports, page 11-12 for more information about accessing reports from the web interface.
- For a single object of a specified type do one of the following. From the MWTM:
  - Web navigation tree, in **DEFAULT View**, click a node select an object in a node. In the content area in the right pane, click the **Reports** tab. Reports appear for the active object only.
  - Client, right-click an object and click **Latest Reports**. The Reports tab in the MWTM web interface opens for the active object only.

This chapter contains:

Using the Reports Page

To access the main Reports page:

Step 1 Do one of the following:

- In a web browser, launch the MWTM web interface (see Accessing the MWTM Web Interface, page 11-2). In the navigation tree, click **Reports**.

- From the MWTM client, in the MWTM main window, choose **View** > **MWTM Web Links** > **Reports**.

The Reports page in the content area shows the Report Type and the status (enabled or disabled). If you have generated a report, a green status ball and the word "Enabled" appear in the Status column. If you have not generated a report, a red status ball and the word "Disabled" appears.

Note Clicking a Report Type takes you directly to the report data page.

The Status column indicates whether you have enabled or disabled data gathering for the specified report type.

Step 2 To enable a report in the MWTM Web interface, click "Disabled" in the Status column. The Status changes "Enabled" and a green status ball appears.

Enabling Automatic Reports Using the CLI

Using CLI commands, there are two types of reports that you can generate:

- Continuous reports that run at specified intervals. You enable automatic generation of these reports with the **mwtm statreps** commands (see Generating Custom ITP Statistics Reports Using the CLI, page 13-181). After you enable generation of a continuous report, it will run at the specified intervals until you disable it with the appropriate CLI command.
- Custom ITP reports that you create one-time on demand. You generate these reports with the **mwtm *abc*stats** commands where *abc* is the type of command (see Generating Custom ITP Statistics Reports Using the CLI, page 13-181). They run at custom intervals or on demand at the specified times. Custom reports are *custom* because you can specify that they run at custom time intervals. The content of custom ITP reports is the same as the regularly scheduled reports. This option is only available for ITP reports listed in Table 13-1.

Enabling continuos reports using the CLI is the same as enabling and disabling reports from the Reports page.

To enable continuous reports using the CLI:

Step 1 Log in as the root user, as described in Starting the MWTM Client, page 4-cxi, or as a superuser, as described in Specifying a Super User (Server Only), page 2-18.

Step 2 Enter:

cd /opt/CSCOsgm/bin

Step 3 Enter the following CLI command to enable all report types:

./mwtm statreps all

You can enable and disable specific reports using specific CLI commands. For example, to generate continuous GTT statistics, enter:

./mwtm statreps gtt

To see a list of all report-related CLI commands, enter the following command:

./mwtm rephelp

To determine which CLI command generates which report, see Generating Custom ITP Statistics Reports Using the CLI, page 13-181.

Step 4 (Optional) View the generated report in the MWTM web interface by clicking **Reports** in the navigation pane as described in Viewing Reports, page 13-3.

Note After you issue the CLI to generate a continuous report, the report is not immediately available for viewing. It takes approximately two times the report interval before the report is available.

Viewing Reports

After you generate reports, you can view them using the MWTM web interface. You can view historical reports for all objects of a specific type (for example, all link reports for all links) or, you can view reports for a specific object (for example, all link reports for a specific link).

Note For the reports having output type as Graph, the Graph Series Editor window is displayed when you click the Custom series icon. See Viewing Graph Series Editor Details, page 13-178.

Note For the reports having output type as Graph, the Sort Parameter option is available to select the criteria for including a top set of series and for ordering of the corresponding graphs displayed.

You can access reports in the MWTM web interface through these categories:

Category	Report Type	Related Content
Reports > Common Statistics	AAA	AAA Reports, page 13-6
	CPU	CPU Reports, page 13-8
	Interface	Interface Reports, page 13-13
	Memory	Memory Reports, page 13-19
Reports > ITP Statistics	AS	AS Reports, page 13-25
	ASP	ASP Reports, page 13-31
	GTT Rates	GTT Rates Reports, page 13-42
	Link	Link Reports, page 13-45
	Link Multi-Day	Link Multi-Day Report, page 13-54
	Linkset	Linkset Reports, page 13-55
	MLR	MLR Reports, page 13-60
	MSU Rates	MSU Rates Reports, page 13-65
	SCTP	SCTP Reports, page 13-67

Category	Report Type	Related Content
Reports > Mobile Statistics	APN	Access Point Name Reports, page 13-71
	CSG	CSG Reports, page 13-84
	GTP	GTP Reports, page 13-93
	PDSN	PDSN Reports, page 13-98
Reports > RAN Statistics	PWE3	PWE3 Reports, page 13-114
	QOS	QOS Reports, page 13-119
	RAN-Optimized	RAN-Optimized Reports, page 13-125
Reports > ITP Accounting	AS	AS Accounting Reports, page 13-134
	GTT	GTT Accounting Reports, page 13-135
	MTP3	MTP3 Accounting Reports, page 13-136
Reports > Mobile Subscribers	BWG	BWG Subscribers Reports, page 13-138
	CSG2	CSG2 Subscribers Reports, page 13-139
	GGSN	GGSN Subscribers Reports, page 13-140
	HA	HA Subscribers Reports, page 13-141
File Archive > Events	Events	You can find information on archived event reports in the "Managing Events" chapter (see Viewing Archived Event Files on the Web, page 9-22).
File Archive > Common Statistics	AAA	AAA Archived Reports, page 13-143
	Chassis Inventory	Chassis Inventory Archived Reports, page 13-145
	CPU	CPU Archived Reports, page 13-145
	Interface	Interface Archived Reports, page 13-146
	Memory	Memory Archived Reports, page 13-147
File Archive > ITP Statistics	Custom	Custom Archived Reports, page 13-148
	Rolling	Rolling Archived Reports, page 13-152
	AS	Application Server Archived Reports, page 13-153
	ASP	Application Server Process Archived Reports, page 13-154
	GTT Rates	GTT Rates Archived Reports, page 13-155
	Link	Link Archived Reports, page 13-155
	Linkset	Linkset Archived Reports, page 13-156
	MLR	MLR Archived Reports, page 13-157
	MSU	MSU Archived Reports, page 13-158
	MTP3/AS Events	MTP3/AS Events Archived Reports, page 13-158
	Point Code	Point Code Archived Reports, page 13-160
	Q752	Q752 Archived Reports, page 13-160
	SCTP	SCTP Archived Reports, page 13-161

Category	Report Type	Related Content
File Archive > Mobile Statistics	APN	Access Point Name Archived Reports, page 13-162
	CSG	CSG Archived Reports, page 13-164
	GTP	GTP Archived Reports, page 13-165
	HA	HA Archived Reports, page 13-166
	IP Local Pool	IP Local Pool Archived Reports, page 13-167
	PDSN	PDSN Archived Reports, page 13-168
	SLB	SLB Archived Reports, page 13-169
File Archive > RAN Statistics	Ethernet	Ethernet Archived Reports, page 13-171
	PWE3	PWE3 Archived Reports, page 13-171
	QOS	QOS Archived Reports, page 13-172
	RAN-Optimized	RAN-Optimized Archived Reports, page 13-173
File Archive > ITP Accounting	GTT Accounting	GTT Accounting Archived Reports, page 13-174
	MTP3/AS Acct	MTP3/AS Accounting Archived Reports, page 13-175

To view a Web report:

Step 1 For all objects of a specified type:

- From the MWTM web navigation tree, in **Reports** or **File Archive**, click the type of report you want to view in the web navigation tree; for example, if you want to view current link reports, select **Reports > ITP Statistics > Link**. All link reports appear.

For a single object of a specified type do one of the following. From the MWTM:

- Web navigation tree, in **DEFAULT View**, click a node to select an object in a node. In the content area in the right pane, click the **Reports** tab. Reports appear for the active object only.
- Client, right-click an object and click **Latest Reports**. The Reports tab in the MWTM web interface opens for the active object only.

Step 2 Choose the **Type** and **Duration** from the drop-down lists; for example, if you wanted to view hourly link reports for the last 12 hours, choose **Link Hourly** from the Type list and **Last 12 Hours** from the Duration list.

Step 3 (Optional) For most Statistics and Accounting reports, to customize the date or time range (or both) click the Customize icon. 

Step 4 Click the green arrow to run the report. If you change the Type or Duration, an information message appears:

```
Click the green arrow to show the selected report.
```

Step 5 To disable this error message, click **Hide Message**. To display the message again, click the **Information** icon. 

Step 6 (Optional) For Statistics and Accounting reports, to export the report as a *.csv* file, click the **Export** icon. 

Note For information about all File Archive export reports in *csv.zip* format, refer to the MWTM readme file by clicking **Administrative** on the navigation pane, then under System Information, click **Export Reports README**. The readme contains documentation on every field in each export report, description of the report fields, and in most cases, the SNMP MIB variables used to generate the field values.

Note To navigate to the Details tab for an object, click the underlined object in the report; for example, to go to the Details tab for a node, click the underlined node in the reports table.

Tip For details on web toolbars and icons, see Using the Toolbar, page 11-5.

Viewing Common Statistics Reports

Common Statistics Reports are located within **Reports> Common Statistics** in the MWTM web interface. You can also find archived reports in the */opt/CSCOsgm/reports* directory on the MWTM client. All archived reports are saved as export files in .csv format.

You can view any of the following Common statistics reports:

- AAA Reports, page 13-6
- CPU Reports, page 13-8
- Interface Reports, page 13-13
- Memory Reports, page 13-19

AAA Reports

The MWTM web interface provides node-level and network wide AAA reports for monitoring communications and status of AAA Server operation. To generate a network wide AAA reports:

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Common Statistics > AAA**.

Step 2 In the tool bar of the right pane, choose a report type from the Type drop-down menu for a list of report types and their contents.

Step 3 Choose a time range from the Duration drop-down menu or customize your own time range by clicking the Customize icon.

Step 4 Choose an output format (Table or CSV) from the Output drop-down menu for contents of each output type.

Step 5 To generate the report, click the Run icon (green arrow).

Step 6 In the tool bar of the right pane, choose a report type from the Type drop-down menu:

- AAA Accounting Statistics Daily Report, page 13-7

- AAA Authentication Statistics Daily Report, page 13-7

AAA Accounting Statistics Daily Report

MWTM displays the AAA accounting statistics daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Common Statistics > AAA**.

Note The 15-minute and hourly AAA accounting statistics reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the AAA reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose AAA Accounting Statistics Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node for the object
Server Name	Name of the Server.
Timestamp (*timezone*)	Timestamp of the report.
Requests	The number of accounting requests sent to the server during the system reinitialization.
Request Timeouts	The number of accounting requests timed out during the system reinitialization.
Transaction Completed	• Count—Total number of accounting transactions with the server which seceded during the system reinitialization. • Rate—Rate at which the accounting transactions succeeded during the system reinitialization.
Transaction Failures	The number of accounting transactions with this server which failed during the system reinitialization.
Error Responses	The number of server ERROR accounting responses received from the server during the system reinitialization.
Incorrect Responses	The number of accounting responses which could not be processed during the system reinitialization.

AAA Authentication Statistics Daily Report

MWTM displays the AAA authentication statistics daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Common Statistics > AAA**.

Note The 15-minute and hourly AAA authentication statistics reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the AAA reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose AAA Authentication Statistics Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node for the object
Server Name	Name of the Server.
Timestamp (*timezone*)	Timestamp of the report.
Requests	The number of authentication requests sent to the server during the system reinitialization.
Request Timeouts	The number of authentication requests which have timed out since the server is in active state.
Transaction Completed	• Count—Total number of authentication transactions with the server which succeeded during the system reinitialization. • Rate—Rate at which the authentication transactions succeeded during the system reinitialization.
Transaction Failures	The number of authentication transactions occurred when the server which failed since the server is in active state.
Error Responses	The number of server ERROR authentication responses received from the server since the server is in active state.
Incorrect Responses	The number of authentication responses which could not be processed since the server is in active state.

CPU Reports

The MWTM web interface provides node-level CPU reports. The information is available in graphical, tabular, and CSV formats. There are two types of utilization reports:

- Peak utilization—Displays the maximum (or peak) values obtained during the specified period (for example, 15 minutes, hourly, daily).
- Average utilization—Displays the average values obtained during the specified period (for example, 15 minutes, hourly, daily).

Note The 15-minute and hourly CPU reports are available from the node level only; they are not available from the top level or the network level.

In addition to generating network-wide CPU reports as explained in the following steps, you can also generate node-level CPU reports as explained in Generating Node-Level CPU/Memory Reports, page 13-134.

To generate a network-wide CPU reports:

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Common Statistics > CPU**.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node for the object.
Slot/CPU	Slot number (if known) and CPU number.
CPU Description	Type of CPU.
Average Utilization	Average utilization across the chosen time range.
Maximum Utilization	Maximum utilization during the specified time range.
Maximum Timestamp (*timezone*)	Timestamp when the maximum utilization occurred.
Warning Threshold	Threshold setting beyond which a warning is issued.
Overload Threshold	Threshold setting beyond which is considered overloaded.

Step 2 In the tool bar of the right pane, choose a report type from the Type drop-down menu:

- CPU Peak Utilization Daily Reports, page 13-9
- CPU Average Utilization Daily Reports, page 13-12

CPU Peak Utilization Daily Reports

The CPU Peak Utilization Daily reports display the CPUs with the highest maximum CPU utilization over the specified time period.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Common Statistics > CPU**. You can access node-level CPU/Memory reports by clicking on a node name, then clicking the **Performance** tab.

Step 2 From the Type menu, select one of the following CPU utilization reports:

- CPU Peak Utilization Daily
- CPU Average Utilization Daily

Note The 15-minute and hourly CPU reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the CPU reports to navigate to a specific node to view hourly and 15 minute reports for that node.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Slot/CPU	Slot number (if known) and CPU number.
CPU Description	Type of CPU.
Average Utilization	Average utilization across the chosen time range.
Maximum Utilization	Maximum utilization during the specified time range.
Maximum Timestamp (*timezone*)	Timestamp when the maximum utilization occurred.
Warning Threshold	Threshold setting beyond which a warning is issued.
Overload Threshold	Threshold setting beyond which is considered overloaded.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

GUI Element	Description
Graph	If you select **Graph** from the Output menu, the graph displays the 12 CPUs with the highest maximum CPU utilization over the specified time period.
Table or CSV	If you select **Table** from the Output menu, the table contains all CPUs monitored by MWTM. By default, the CPUs are sorted by maximum CPU utilization. The table includes: • Node—Name of the node. • Slot/CPU—Slot number (if known) and CPU number. • CPU Description—Type of CPU. • Timestamp (*timezone*)—Timestamp at which the maximum utilization rate occurred. • Average Utilization—Average of the data across the chosen time range. • Maximum Utilization—Maximum utilization during the specified time range. • Minimum Utilization—Minimum utilization during the specified time range. • Warning Threshold—Threshold setting beyond which a warning is issued. • Overload Threshold—Threshold setting beyond which is considered overloaded. **Note** If you select **CSV** from the Output menu, the same data is presented in the excel format.
Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing.
Percentage Utilization	If Output Type is Graph, the Y-axis label shows percentage of CPU utilization over time.
Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
Legend	If Output Type is Graph, a color-coded legend shows labels for utilization.

CPU Average Utilization Daily Reports

The CPU Average Utilization Daily reports display the average CPU values gathered during the specified period.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Common Statistics > CPU**. You can access node-level CPU/Memory reports by clicking on a node name, then clicking the **Performance** tab.

Step 2 In the tool bar of the right pane, from the Type menu, select **CPU Average Utilization Daily**.

A summary table displays the following information:

Field	Description
Node	Name of the node.
Slot/CPU	Name of the CPU.
CPU Description	Description of the CPU.
Average Utilization	Average utilization across the chosen time range.
Maximum Utilization	Highest utilization of the average values during the specified time range.
Maximum Timestamp (*timezone*)	Timestamp for when the maximum utilization value occurred.
Warning Threshold	Threshold setting beyond which a warning is issued.
Overload Threshold	Threshold setting beyond which is considered overloaded.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

GUI Element	Description
Graph	If you select **Graph** from the Output menu, the graph displays the average daily CPU utilization over the specified time period.
Table or CSV	If you select **Table** from the Output menu, the table contains all CPUs monitored by MWTM. By default, the CPUs are sorted by maximum CPU utilization. The table includes: • Node—Name of the node. • Slot/CPU—Slot number (if known) and CPU number. • CPU Description—Type of CPU. • Timestamp (*timezone*)—Timestamp at which the maximum utilization rate occurred. • Average Utilization—Average of the data across the chosen time range. • Maximum Utilization—Maximum utilization during the specified time range. • Minimum Utilization—Minimum utilization during the specified time range. • Warning Threshold—Threshold setting beyond which a warning is issued. • Overload Threshold—Threshold setting beyond which is considered overloaded. **Note** If you select **CSV** from the Output menu, the same data is presented in the excel format.
Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing.
Percentage Utilization	If Output Type is Graph, the Y-axis label shows percentage of CPU utilization over time.
Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
Legend	If Output Type is Graph, a color-coded legend shows labels for utilization.

Interface Reports

The MWTM web interface provides node-level and network wide interface reports. To generate a network wide interface reports:

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Common Statistics > Interface**.

Step 2 In the tool bar of the right pane, choose a report type from the Type drop-down menu for a list of report types and their contents.

Step 3 Choose a time range from the Duration drop-down menu or customize your own time range by clicking the Customize icon.

Step 4 Choose an output format (Graph, Table, or CSV) from the Output drop-down menu for contents of each output type.

Step 5 To generate the report, click the Run icon (green arrow).

Step 6 In the tool bar of the right pane, choose a report type from the Type drop-down menu:

- Interface Utilization Daily Reports, page 13-14
- Interface Total Packets Daily Reports, page 13-15
- Interface Errors/Discards Daily Report, page 13-18

Note If MWTM detects an utilization percentage that it considers to be impossible, the GUI displays 'Out of Range' in the corresponding table cells.

Interface Utilization Daily Reports

MWTM displays the Interface Utilization Daily report during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Common Statistics > Interface**.

Note The 15-minute and hourly Interface Utilization reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the Interface Utilization reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose Interface Utilization Daily from Type drop-down menu.

The Send Utilization and Receive Utilization tables contain summary information as described below:

Field	Description
Node	Name of the node.
Interface	Name of the interface.
Average	Average Send or Receive for the interface for the specified time.
Minimum	Minimum Send or Receive for the interface for the specified time.
Minimum Timestamp (*timezone*)	Timestamp that shows time when the minimum value occurred.

Field	Description
Maximum	Maximum Send or Receive for the interface for the specified time.
Maximum Timestamp (*timezone*)	Timestamp that shows time when the maximum value occurred.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

Report Type	Output	Field	Description
Interface Utilization Daily	Table, CSV	Node	Name of the node for the link.
		Interface	Name of the interface.
		Time stamp (*timezone*)	Timestamp that shows time bits-per second value occurred.
		Average Utilization %	Send—Average of the data sent across the chosen time range. Receive—Average of the data received across the chosen time range.
	Graph	Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing.
		Utilization	If Output Type is Graph, the Y-axis label shows Utilization in percentage.
		Time	Name of the node for the link.
		Legend	Device allows the user to interact with the operating system.

Interface Total Packets Daily Reports

MWTM displays the Interface Total Packets Daily report during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Common Statistics > Interface**.

Note The 15-minute and hourly Interface Total Packets reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the Interface Total Packets reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose Interface Total Packets Daily from Type drop-down menu.

The Send Packets and Receive Packets tables contain summary information as described below:

Field	Description
Node	Name of the node.
Interface	Name of the interface.
Average	Average Send or Receive for the interface for the specified time.
Minimum	Minimum Send or Receive for the interface for the specified time.
Minimum Timestamp (*timezone*)	Timestamp that shows time when the minimum value occurred.
Maximum	Maximum Send or Receive for the interface for the specified time.
Maximum Timestamp (*timezone*)	Timestamp that shows time when the maximum value occurred.
Node	Name of the node.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

Report Type	Output	GUI Element	Field	Description
Interface Total Packets Daily	Table, CSV		Node	Name of the node for the link.
			Interface	Device allows the user to interact with the operating system.
			Time stamp (*timezone*)	Timestamp of the report.
		Send	Total Packets	The total number of packets sent by the Interface.
			Unicast Packets %	The number packets sent from a single source to a specified destination by the interface.
			Multicast Packets %	The number of packets sent from the single source to multiple destinations by the interface.
			Broadcast Packets %	The number of packets sent from multiple source to multiple destinations.
		Receive	Total Packets	The total number of packets received by the Interface.
			Unicast Packets %	The number packets received by the interface.
			Multicast Packets %	The number of packets received by the interface.
			Broadcast Packets %	The number of packets received by the interface.
	Graph		Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing.
			Packets	If Output Type is Graph, the Y-axis label shows Utilization in percentage.
			Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
			Legend	If Output Type is Graph, a color-coded legend shows labels for utilization.

Interface Errors/Discards Daily Report

MWTM displays the Interface failed during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Common Statistics > Interface**.

Note The 15-minute and hourly Interface Errors/Discards reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the Interface Errors/Discards reports to navigate to a specific node to view hourly and 15 minute reports for that node

Step 2 Choose Interface Errors/Discards from Type drop-down menu.

The Send Errors/Discards and Receive Errors/Discards tables contain summary information as described below:

Field	Description
Node	Name of the node.
Interface	Name of the interface.
Average	Average Send or Receive for the interface for the specified time.
Minimum	Minimum Send or Receive for the interface for the specified time.
Minimum Timestamp (*timezone*)	Timestamp that shows time when the minimum value occurred.
Maximum	Maximum Send or Receive for the interface for the specified time.
Maximum Timestamp (*timezone*)	Timestamp that shows time when the maximum value occurred.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

Report Type	Output	GUI Element	Field	Description
Interface Errors/ Discards Daily	Table, CSV		Node	Name of the node for the link.
			Interface	Device allows the user to interact with the operating system.
			Time stamp (*timezone*)	Timestamp of the report.
		Send	Error %	Number of outbound packets that contained errors.
			Discard %	Number of outbound packets that were discarded.
		Receive	Error %	Number of inbound packets that contained errors.
			Discard %	Number of inbound packets that were discarded.
	Graph		Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing.
			Errors/ Discards	If Output Type is Graph, the Y-axis label shows Utilization in percentage.
			Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
			Legend	If Output Type is Graph, a color-coded legend shows labels for utilization.

Memory Reports

The MWTM web interface provides node-level Memory reports. The information is available in graphical, tabular, and CSV formats. There are two types of utilization reports:

- Peak utilization—Displays the maximum (or peak) values obtained during the specified period (for example, 15 minutes, hourly, daily).
- Average utilization—Displays the average values obtained during the specified period (for example, 15 minutes, hourly, daily).

Note The 15-minute and hourly Memory reports are available from the node level only; they are not available from the top level or the network level.

In addition to generating network-wide Memory reports as explained in the following steps, you can also generate node-level CPU reports as explained in Generating Node-Level CPU/Memory Reports, page 13-134.

To generate a network-wide Memory reports:

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Common Statistics > Memory**.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node for the object.
Slot/CPU	Slot number (if known) and CPU number.
CPU Description	Type of CPU.
Average Utilization	Average utilization across the chosen time range.
Maximum Utilization	Maximum utilization during the specified time range.
Maximum Timestamp (*timezone*)	Timestamp when the maximum utilization occurred.
Warning Threshold	Threshold setting beyond which a warning is issued.
Overload Threshold	Threshold setting beyond which is considered overloaded.

Step 2 In the tool bar of the right pane, choose a report type from the Type drop-down menu:

- Memory Peak Utilization Daily Reports, page 13-20
- Memory Average Utilization Daily Reports, page 13-23

Memory Peak Utilization Daily Reports

The Memory Peak Utilization Daily reports display the CPUs with the highest memory utilization over the specified time period.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Common Statistics > Memory**. You can access node-level CPU/Memory reports by clicking on a node name, then clicking the **Performance** tab.

Step 2 From the Type menu, select one of the following Memory utilization reports:

- Memory Peak Utilization 15 minutes
- Memory Peak Utilization Hourly
- Memory Peak Utilization Daily

Note The 15-minute and hourly Memory reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the Memory reports to navigate to a specific node to view hourly and 15 minute reports for that node.

A summary table displays the following information:

Field	Description
Node	Name of the node.
Slot/CPU	Name of the CPU.
CPU Description	Description of the CPU.
Memory Description	Type of memory.
Average Utilization	Average memory utilization during the specified time range.
Maximum Utilization	Maximum memory utilization during the specified time range
Maximum Timestamp (*timezone*)	Timestamp for when the maximum utilization value occurred.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

GUI Element	Description
Graph	If you select **Graph** from the Output menu, the graph displays the CPUs with the highest memory utilization over the specified time period.
Table or CSV	If you select **Table** from the Output menu, the table contains all CPUs monitored by MWTM. By default, the CPUs are sorted by maximum CPU utilization. The table includes: • Node—Name of the node. • Slot/CPU—Slot number (if known) and CPU number. • CPU Description—Type of CPU. • Timestamp (*timezone*)—Timestamp at which the maximum utilization rate occurred. • Memory Type—Type of memory, which can be processor, I/O, Fast, etc. • Average Utilization—Average of the data across the chosen time range. • Maximum Utilization—Maximum utilization during the specified time range. • Minimum Utilization—Minimum utilization during the specified time range. • Total—Average Used plus Average Free memory during the specified time frame. • Average Used—Average memory used during the specified time range. • Average Free—Average memory available during the specified time range. **Note** If you select **CSV** from the Output menu, the same data is presented in the excel format.
Percentage Utilization	If Output Type is Graph, the Y-axis label shows percentage of memory utilization over time.
Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing.
Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
Legend	If Output Type is Graph, a color-coded legend shows labels for utilization.

Memory Average Utilization Daily Reports

The Memory Average Utilization Daily reports display the average memory values gathered during the specified period.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Common Statistics > Memory**. You can access node-level CPU/Memory reports by clicking on a node name, then clicking the **Performance** tab.

Step 2 From the Type menu, select one of the following Memory utilization reports:

- Memory Average Utilization 15 minutes
- Memory Average Utilization Hourly
- Memory Average Utilization Daily

Note The 15-minute and hourly Memory reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the Memory reports to navigate to a specific node to view hourly and 15 minute reports for that node.

A summary table displays the following information:

Field	Description
Node	Name of the node.
Slot/CPU	Name of the CPU.
CPU Description	Description of the CPU.
Memory Description	Type of memory.
Average Utilization	Average memory utilization during the specified time range.
Maximum Utilization	Highest memory utilization of the average values during the specified time range.
Maximum Timestamp (*timezone*)	Timestamp for when the maximum utilization value occurred.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

GUI Element	Description
Graph	If you select **Graph** from the Output menu, the graph displays the average memory utilization over the specified time period.
Table or CSV	If you select **Table** from the Output menu, the table contains all CPUs monitored by MWTM. By default, the CPUs are sorted by maximum CPU utilization. The table includes: • Node—Name of the node. • Slot/CPU—Slot number (if known) and CPU number. • CPU Description—Type of CPU. • Timestamp (*timezone*)—Timestamp at which the maximum utilization rate occurred. • Memory Type—Type of memory, which can be processor, I/O, Fast, etc. • Average Utilization—Average of the data across the chosen time range. • Maximum Utilization—Maximum utilization during the specified time range. • Minimum Utilization—Minimum utilization during the specified time range. • Total—Average Used plus Average Free memory during the specified time frame. • Average Used—Average memory used during the specified time range. • Average Free—Average memory available during the specified time range. **Note** If you select **CSV** from the Output menu, the same data is presented in the excel format.
Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing.
Percentage Utilization	If Output Type is Graph, the Y-axis label shows percentage of memory utilization over time.
Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
Legend	If Output Type is Graph, a color-coded legend shows labels for utilization.

Viewing ITP Statistics Reports

ITP Statistics Reports are located within **Reports > ITP Statistics** in the MWTM web interface. You can also find ITP statistics reports in the */opt/CSCOsgm/reports* directory on the MWTM server. All reports are saved as export files in .csv format.

You can view any of the following ITP statistics reports:

- AS Reports, page 13-25
- ASP Reports, page 13-31
- GTT Rates Reports, page 13-42
- Link Reports, page 13-45
- Link Multi-Day Report, page 13-54
- Linkset Reports, page 13-55
- MLR Reports, page 13-60
- MSU Rates Reports, page 13-65
- SCTP Reports, page 13-67

AS Reports

The MWTM web interface provides node-level Application Server (AS) reports. The information is available in graphical, tabular, and CSV formats. To generate a network-wide AS report:

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > ITP Statistics > AS**.

Step 2 In the tool bar of the right pane, choose a report type from the Type drop-down menu for a list of report types and their contents.

Step 3 Choose a time range from the Duration drop-down menu or customize your own time range by clicking the Customize icon.

Step 4 Choose an output format (Graph, Table or CSV) from the Output drop-down menu for contents of each output type.

Step 5 To generate the report, click the Run icon (green arrow).

In the tool bar of the right pane, choose a report type from the Type drop-down menu:

- AS Statistics Hourly Reports, page 13-25
- AS Statistics Daily Reports, page 13-27
- AS Peaks Statistics Daily Reports, page 13-29

AS Statistics Hourly Reports

MWTM displays the AS Statistics Hourly report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > ITP Statistics > AS**.

Step 2 Choose AS Statistics Hourly from the Type drop-down menu.

The Send Packets and Receive Packets tables contain summary information as described below:

Field	Description
Node	Name of the node for the application server.
Signaling Point	Name of the signaling point for the application server.
Application Server	Name of the application server.
Average	Average Send or Receive for the packet for the specified time.
Minimum	Minimum Send or Receive for the packet for the specified time.
Minimum Timestamp (*timezone*)	Timestamp when the minimum value occurred.
Maximum	Maximum Send or Receive for the packet for the specified time.
Maximum Timestamp (*timezone*)	Timestamp when the maximum value occurred.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

Report Type	Output	Field	Description
AS Statistics Hourly Report	Table, CSV	Node	Name of the node.
		Signaling Point	Name of the signaling point for the application server.
		AS	Name of the application server.
		Timestamp (*timestamp*)	Timestamp of the report.
		Packets From MTP3	Total number of packets that the application server received, sent from the MTP3 layer.
		Packets To ASPs	Total number of packets that the application server sent to the application server processes.
	Graph	Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing
		Packets	If Output Type is Graph, the Y-axis label shows hourly statistics over time.
		Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
		Legend	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing.

AS Statistics Daily Reports

MWTM displays the AS Statistics Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > ITP Statistics > AS**.

Step 2 Choose AS Statistics Daily from the Type drop-down menu.

The Send Packets and Receive Packets tables contain summary information as described below:

Field	Description
Node	Name of the node for the application server.
Signaling Point	Name of the signaling point for the application server.
Application Server	Name of the application server.
Average	Average Send or Receive for the packet for the specified time.
Minimum	Minimum Send or Receive for the packet for the specified time.
Minimum Timestamp (*timezone*)	Timestamp when the minimum value occurred.
Maximum	Maximum Send or Receive for the packet for the specified time.
Maximum Timestamp (*timezone*)	Timestamp when the maximum value occurred.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

Report Type	Output	Field	Description
AS Statistics Daily Report	Table, CSV	Node	Name of the node.
		Signaling Point	Name of the signaling point for the application server.
		AS	Name of the application server.
		Timestamp (*timezone*)	Timestamp of the report.
		Send	• Packets To ASPs—Total number of packets that the application server sent to the application server processes for the specified date. • Peak To ASPs—Highest hourly Packets To ASPs for the application server for the specified date. • Peak To Hour—Hour in which the Peak To ASPs for the application server occurred for the specified date.
		Receive	• Packets From MTP3—Total number of packets that the application server receives from the MTP3 layer for the specified date. • Peak From MTP3—Highest hourly Packets From MTP3 for the application server for the specified date. • Peak From Hour—Hour in which the Peak From MTP3 for the application server occurred for the specified date.
	Graph	Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing
		Packets	If Output Type is Graph, the Y-axis label shows daily statistics over time.
		Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
		Legend	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing.

AS Peaks Statistics Daily Reports

MWTM displays the AS Peaks Statistics Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > ITP Statistics > AS**.

Step 2 Choose AS Peaks Statistics Daily from the Type drop-down menu.

The Send Peaks and Receive Peaks tables contain summary information as described below:

Field	Description
Node	Name of the node for the application server.
Signaling Point	Name of the signaling point for the application server.
Application Server	Name of the application server.
Average	Average Send or Receive for the peaks for the specified time.
Minimum	Minimum Send or Receive for the peaks for the specified time.
Minimum Timestamp (*timezone*)	Timestamp when the minimum value occurred.
Maximum	Maximum Send or Receive for the peaks for the specified time.
Maximum Timestamp (*timezone*)	Timestamp when the maximum value occurred.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

Report Type	Output	Field	Description
AS Peaks Statistics Daily Report	Table, CSV	Node	Name of the node for the application server.
		SP Name	Name of the signaling point for the application server.
		AS	Name of the application server that recorded the peak value.
		Timestamp (*timezone*)	Timestamp of the report.
		Send	• Peak To ASPs—Highest hourly Packets To ASPs for the application server for the specified date. • Peak To Hour—Hour in which the Peak To ASPs for the application server occurred for the specified date.
		Receive	• Peak From MTP3—Highest hourly Packets From MTP3 for the application server for the specified date. • Peak From Hour—Hour in which the Peak From MTP3 for the application server occurred for the specified date.
	Graph	Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing
		Peaks	If Output Type is Graph, the Y-axis label shows peaks daily statistics over time.
		Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
		Legend	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing

ASP Reports

The MWTM web interface provides node-level Application Server Process (ASP) reports. The information is available in graphical, tabular, and CSV formats. To generate a network-wide ASP report:

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > ITP Statistics > ASP**.

Step 2 In the tool bar of the right pane, choose a report type from the Type drop-down menu for a list of report types and their contents.

Step 3 Choose a time range from the Duration drop-down menu or customize your own time range by clicking the Customize icon.

Step 4 Choose an output format (Graph, Table or CSV) from the Output drop-down menu for contents of each output type.

Step 5 To generate the report, click the Run icon (green arrow).

In the tool bar of the right pane, choose a report type from the Type drop-down menu:

- ASP Statistics Hourly Reports, page 13-31
- ASP Statistics Daily Reports, page 13-33
- ASP Peaks Statistics Daily Reports, page 13-36
- ASP MTP3 Statistics Daily Reports, page 13-38
- ASP MTP3 Peaks Statistics Daily Reports, page 13-40

ASP Statistics Hourly Reports

MWTM displays the ASP Statistics Hourly report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > ITP Statistics > ASP**.

Step 2 Choose ASP Statistics Hourly from the Type drop-down menu.

The Send Packets and Receive Packets tables contain summary information as described below:

Field	Description
Node	Name of the node for the application server process.
Signaling Point	Name of the signaling point for the application server.
Application Server	Name of the application server.
ASP	Name of the application server process.
Average	Average Send or Receive for the peaks for the specified time.
Minimum	Minimum Send or Receive for the peaks for the specified time.

Field	Description
Minimum Timestamp (*timezone*)	Timestamp when the minimum value occurred.
Maximum	Maximum Send or Receive for the peaks for the specified time.
Maximum Timestamp (*timezone*)	Timestamp when the maximum value occurred.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

Report Type	Output	Field	Description
ASP Statistics Hourly	Table, CSV	Node	Name of the node.
		Signaling Point	Name of the signaling point for the application server.
		AS	Name of the application server.
		ASP	Name of the application server process.
		Timestamp (*timezone*)	Timestamp of the report.
		Packets From ASP	Total number of packets that the application server process send for the specified date and hour.
		Packets To ASP	Total number of packets sent to the application server process for the specified date and hour.
		Packets From MTP3	Total number of packets that the application server process received from the MTP3 layer for the specified date and hour.
		Packets To MTP3	Total number of packets the application server process sent to the MTP3 layer for the specified date and hour.
		Send Errors	Total number of errors that occurred when sending packets to the application server process for the specified date and hour.
		Receive Errors	Total number of errors that occurred when receiving packets from the application server process for the specified date and hour.
	Graph	Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing
		Packets	If Output Type is Graph, the Y-axis label shows hourly statistics over time.
		Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
		Legend	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing

ASP Statistics Daily Reports

MWTM displays the ASP Statistics Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > ITP Statistics > ASP**.

Step 2 Choose ASP Statistics Daily from the Type drop-down menu.

The Send Packets and Receive Packets tables contain summary information as described below:

Field	Description
Node	Name of the node for the application server process.
Signaling Point	Name of the signaling point for the application server.
Application Server	Name of the application server.
ASP	Name of the application server process.
Average	Average Send or Receive for the peaks for the specified time.
Minimum	Minimum Send or Receive for the peaks for the specified time.
Minimum Timestamp (*timezone*)	Timestamp when the minimum value occurred.
Maximum	Maximum Send or Receive for the peaks for the specified time.
Maximum Timestamp (*timezone*)	Timestamp when the maximum value occurred.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

Report Type	Output	Field	Description
ASP Statistics Daily	Table, CSV	Node	Name of the node.
		Signaling Point	Name of the signaling point for the application server.
		AS	Name of the application server.
		ASP	Name of the application server process.
		Timestamp (*timezone*)	Timestamp of the report.
		Packets From ASP	Total number of packets that the application server process sent for the specified date.
		Peak From ASP	Highest hourly Packets From ASP for the application server process for the specified date.
		Peak From Hour	Hour in which the Peak From ASP for the application server process occurred for the specified date. Click the hour to see the ASP Hourly Report for the chosen application server process and hour.
		Packets To ASP	Total number of packets that the application server sent to the application server processes for the specified date.
		Peak To ASP	Highest hourly Packets To ASP for the application server process for the specified date.
		Peak To Hour	Hour in which the Peak To ASP for the application server process occurred for the specified date.
		Send Errors	Total number of errors that occurred when sending packets to the application server processes for the specified date.
		Peak Send Errors	Highest hourly Send Errors for the application server process for the specified date.
		Peak Send Hour	Hour in which the Peak Send Errors for the application server process occurred for the specified date.
		Receive Errors	Total number of errors that occurred when receiving packets from the application server processes for the specified date.
		Peak Receive Errors	Highest hourly receive errors for the application server process for the specified date.
		Peak Receive Hour	Hour in which the peak receive errors for the application server process occurred for the specified date.

Report Type	Output	Field	Description
	Graph	Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing
		Packets	If Output Type is Graph, the Y-axis label shows hourly statistics over time.
		Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
		Legend	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing

ASP Peaks Statistics Daily Reports

MWTM displays the ASP Peaks Statistics Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > ITP Statistics > ASP**.

Step 2 Choose ASP Peaks Statistics Daily from the Type drop-down menu.

The Send Peaks and Receive Peaks tables contain summary information as described below:

Field	Description
Node	Name of the node for the application server process.
Signaling Point	Name of the signaling point for the application server.
Application Server	Name of the application server.
ASP	Name of the application server process.
Average	Average Send or Receive for the peaks for the specified time.
Minimum	Minimum Send or Receive for the peaks for the specified time.
Minimum Timestamp (*timezone*)	Timestamp when the minimum value occurred.
Maximum	Maximum Send or Receive for the peaks for the specified time.
Maximum Timestamp (*timezone*)	Timestamp when the maximum value occurred.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

Report Type	Output	Field	Description
ASP Peaks Statistics Daily	Table, CSV	Node	Name of the node.
		SP Name	Name of the signaling point for the application server.
		AS	Name of the application server.
		ASP	Name of the application server process.
		Timestamp (*timestamp*)	Timestamp of the report.
		Peak From ASP	Highest hourly Packets From ASP for the application server process for the chosen day.
		Peak From Hour	Hour in which the Peak From ASP for the application server process occurred for the chosen day.
		Peak To ASP	Highest hourly Packets To ASP for the application server process for the chosen day.
		Peak To Hour	Hour in which the Peak To ASP for the application server process occurred for the chosen day.
		Peak Send Errors	Highest hourly Send Errors for the application server process for the last 30 days.
		Peak Send Hour	Hour in which the Peak Send Errors for the application server process occurred for the chosen day.
		Peak Receive Errors	Highest hourly Receive Errors for the application server process or the last 30 days.
		Peak Receive Hour	Hour in which the Peak Receive Errors for the application server process occurred for the chosen day.
	Graph	Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing
		Peaks	If Output Type is Graph, the Y-axis label shows daily statistics over time.
		Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
		Legend	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing

ASP MTP3 Statistics Daily Reports

MWTM displays the ASP MTP3 Statistics Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > ITP Statistics > ASP**.

Step 2 Choose ASP MTP3 Statistics Daily from the Type drop-down menu.

The Send Packets and Receive Packets tables contain summary information as described below:

Field	Description
Node	Name of the node for the application server process.
Signaling Point	Name of the signaling point for the application server.
Application Server	Name of the application server.
ASP	Name of the application server process.
Average	Average Send or Receive for the peaks for the specified time.
Minimum	Minimum Send or Receive for the peaks for the specified time.
Minimum Timestamp (*timezone*)	Timestamp when the minimum value occurred.
Maximum	Maximum Send or Receive for the peaks for the specified time.
Maximum Timestamp (*timezone*)	Timestamp when the maximum value occurred.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

Report Type	Output	Field	Description
ASP MTP3 Statistics Daily	Table, CSV	Node	Name of the node.
		Signaling Point	Name of the signaling point for the application server.
		AS	Name of the application server.
		ASP	Name of the application server process.
		Timestamp (*timezone*)	Timestamp of the report.
		Packets From MTP3	Total number of packets that the application server process receives from the MTP3 layer for the specified date.
		Peak From MTP3	Highest hourly Packets From MTP3 for the application server process for the specified date.
		Peak From Hour	Hour in which the Peak From MTP3 for the application server process occurred for the specified date. Click the hour to see the ASP Hourly Report for the chosen application server process and hour.
		Packets To MTP3	Total number of packets sent to the MTP3 layer by the application server process for the specified date.
		Peak To MTP3	Highest hourly Packets To MTP3 for the application server process for the specified date.
		Peak To Hour	Hour in which the Peak To MTP3 for the application server process occurred for the specified date.
		Send Errors	Total number of errors that occurred when sending packets to the MTP3 layer for the specified date.
		Peak Send Errors	Highest hourly Send Errors for the application server process for the specified date.
		Peak Send Hour	Hour in which the Peak Send Errors for the application server process occurred for the specified date.
		Receive Errors	Total number of errors that occurred when receiving packets from the MTP3 layer for the specified date.
		Peak Receive Errors	Highest hourly Receive Errors for the application server process for the specified date.
		Peak Receive Hour	Hour in which the Peak Receive Errors for the application server process occurred for the specified date. Click the hour to see the ASP Hourly Report for the chosen application server process and hour.

Report Type	Output	Field	Description
	Graph	Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing
		Packets	If Output Type is Graph, the Y-axis label shows hourly statistics over time.
		Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
		Legend	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing

ASP MTP3 Peaks Statistics Daily Reports

MWTM displays the ASP MTP3 Peaks Statistics Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > ITP Statistics > ASP**.

Step 2 Choose ASP MTP3 Peaks Statistics Daily from the Type drop-down menu.

The Send Peaks and Receive Peaks tables contain summary information as described below:

Field	Description
Node	Name of the node for the application server process.
Signaling Point	Name of the signaling point for the application server.
Application Server	Name of the application server.
ASP	Name of the application server process.
Average	Average Send or Receive for the peaks for the specified time.
Minimum	Minimum Send or Receive for the peaks for the specified time.
Minimum Timestamp (*timezone*)	Timestamp when the minimum value occurred.
Maximum	Maximum Send or Receive for the peaks for the specified time.
Maximum Timestamp (*timezone*)	Timestamp when the maximum value occurred.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

Report Type	Output	Field	Description
ASP MTP3 Peaks Statistics Daily	Table, CSV	Node	Name of the node.
		Signaling Point	Name of the signaling point for the application server.
		AS	Name of the application server.
		ASP	Name of the application server process.
		Timestamp (*timezone*)	Timestamp of the report.
		Peak From MTP3	Highest hourly Packets From MTP3 for the application server process for the specified date.
		Peak From Hour	Hour in which the Peak From MTP3 for the application server process occurred for the specified date.
		Peak To MTP3	Highest hourly Packets To MTP3 for the application server process for the specified date.
		Peak To Hour	Hour in which the Peak To MTP3 for the application server process occurred for the specified date.
		Peak Send Errors	Highest hourly Send Errors for the application server process for the specified date.
		Peak Send Hour	Hour in which the Peak Send Errors for the application server process occurred for the specified date.
		Peak Receive Errors	Highest hourly Receive Errors for the application server process for the specified date.
		Peak Receive Hour	Hour in which the Peak Receive Errors for the application server process occurred for the specified date.
	Graph	Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing
		Peaks	If Output Type is Graph, the Y-axis label shows peaks daily statistics over time.
		Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
		Legend	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing

GTT Rates Reports

You can view peak GTT rates or average GTT rates. The information is available in graphical, tabular, and CSV formats. There are two types of GTT rates reports:

- Peak utilization—Displays the maximum (or peak) GTT rates obtained during the specified period (for example, 15 minutes, hourly, daily).
- Average utilization—Displays the average values obtained during the specified period (for example, 15 minutes, hourly, daily).

Note The 15-minute and hourly reports for GTT Rates are available from the node level only; they are not available from the top level or the network level.

To generate a network-wide GTT reports:

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > ITP Statistics > GTT Rates**.

Step 2 In the tool bar of the right pane, choose a report type from the Type drop-down menu for a list of report types and their contents.

Step 3 Choose a time range from the Duration drop-down menu or customize your own time range by clicking the Customize icon.

Step 4 Choose an output format (Graph, Table, or CSV) from the Output drop-down menu for contents of each output type.

Note The Graph output displays up to twelve GTT Rates data streams based on traffic and/or number of errors. To view all GTT Rates data streams, choose Graph, Table, or CSV.

Step 5 To generate the report, click the Run icon (green arrow).

Step 6 In the tool bar of the right pane, choose a report type from the Type drop-down menu:

- GTT Rate Peak Daily Reports, page 13-44
- GTT Rate Average Daily Reports, page 13-45

Depending on what you select from the Output pulldown and Report type pulldown menu, the following information is displayed:

Field or Column	Description
Node	Name of the node for the object. You can click on a node name to see node-specific reports.
Slot/CPU	Slot number (if known) and CPU number.
CPU Description	Type of CPU.
Average GTT Rate	Average GTT rate for the specified duration.
Maximum GTT Rate	Maximum GTT rate during the specified duration.
Maximum Timestamp (*timezone*)	Timestamp when the maximum GTT rate occurred.

GTT Rate Peak Daily Reports

GTT Rate Peak Daily Report displays the maximum (or peak) GTT rates obtained during the specified period.

Report Type	Output	Field	Description
GTT Rate Peak Daily Report	*Table*	Node	Name of the node for the object. You can click on a node name to see node-specific reports.
		Slot/CPU	Slot number (if known) and CPU number.
		CPU Description	Type of CPU.
		Average GTT Rate	Average GTT rate for the specified duration.
		Maximum GTT Rate	Maximum GTT rate during the specified duration.
		Maximum Timestamp (*timezone*)	Timestamp when the maximum GTT rate occurred.
	Graph	Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing.
		GTT (Secs)	If Output Type is Graph, Y-axis label that shows the Global Title Translations per second. **Note** If no data exists between any two data points, the graph displays a color-coded vertical bar to show the period for which no data is available.
		Time	If Output Type is Graph, X-axis label that shows a historical time scale and the server time zone.
		Legend	If Output Type is Graph, color-coded legend that shows labels for output.

GTT Rate Average Daily Reports

GTT Rate Average Daily Report displays the average values obtained during the specified period.

Report Type	Output	Field	Description
GTT Rate Average Daily Report	*Table*	Node	Name of the node for the object. You can click on a node name to see node-specific reports.
		Slot/CPU	Slot number (if known) and CPU number.
		CPU Description	Type of CPU.
		Average GTT Rate	Average GTT rate for the specified duration.
		Maximum GTT Rate	Maximum GTT rate during the specified duration.
		Maximum Timestamp (*timezone*)	Timestamp when the maximum GTT rate occurred.
	Graph	Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing.
		GTT (Secs)	If Output Type is Graph, Y-axis label that shows the Global Title Translations per second. **Note** If no data exists between any two data points, the graph displays a color-coded vertical bar to show the period for which no data is available.
		Time	If Output Type is Graph, X-axis label that shows a historical time scale and the server time zone.
		Legend	If Output Type is Graph, color-coded legend that shows labels for output.

Link Reports

You can view summary reports of hourly and daily statistics for links, and export the reports.

This section covers:

- Link Statistics Hourly Reports, page 13-45
- Link Statistics Daily Reports, page 13-48
- Link Peaks Statistics Daily Reports, page 13-51

Link Statistics Hourly Reports

You can view hourly summaries of statistics for all links or a specific link that the MWTM detected on the specified date and hour. The Link Hourly Report page shows summary reports of hourly link statistics by date and hour. You can also graph the results.

The Link Hourly Report table is sorted based on the information in the Send Average Utilization column; however, you can sort the table based on the information in one of the other columns (see Navigating Table Columns, page 5-clxiii).

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > ITP Statistics > Link**.

Step 2 In the tool bar of the right pane, from the Type drop-down menu, select Link Hourly Statistics. (See Table 13-1 for a list of report types and their contents).

Step 3 Choose a time range from the Duration drop-down menu or customize your own time range by clicking the Customize icon.

Step 4 Choose an output format (Graph, Table, or CSV) from the Output drop-down menu (see Table 13-1 for contents of each output type).

The Send Utilization and Receive Utilization tables contain summary information as described below:

Field or Column	Description
Node	Name of the node for the link.
Signaling Point	Name of the signaling point for the link.
Linkset	Linkset for the object.
SLC	ID of the link.
Average	Average Send or Receive for the link for the specified time.
Minimum	Minimum Send or Receive for the specified time.
Minimum Timestamp (*timezone*)	Timestamp when the minimum value occurred.
Maximum	Maximum Send or Receive for the specified time.
Maximum Timestamp (*timezone*)	Timestamp when the maximum value occurred.

Depending on what you select from the Output pulldown menu, the following information is displayed:

Field or Column	Description
Graph	
Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing.
Utilization Percentage	If Output Type is Graph, the Y-axis label shows hourly statistics over time.
Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
Legend	If Output Type is Graph, a color-coded legend shows labels for utilization.
Table, CSV	
Date	Date of the report.
Node	Name of the node for the link.
SP Name	Name of the signaling point for the link.
Linkset Name	Linkset for the object.
SLC	ID of the link.
Timestamp (*timezone*)	Timestamp of the report.
Type	Type of link. Possible link types are: • **HSL**—Uses the SS7-over-ATM (Asynchronous Transfer Mode) high-speed protocol. • **SCTP**—Uses the Stream Control Transmission Protocol (SCTP) IP transport protocol. • **Serial**—Uses the serial SS7 signaling protocol. • **Virtual**—A virtual link that connects signaling point instances that run on the same node. The MWTM does not poll virtual links; nor does it display real-time data or accounting statistics for virtual links.
Hourly In-Service	Percentage of time the link was in service on the specified date and hour.
Long Term In-Service	Average percentage of time the link was in service since MWTM polling began for the link, or since the MWTM last reset the averages as a result of bad data.
Congestion %	Percentage of time the link was congested on the specified date and hour.
Average Utilization	Average Send or Receive for the link, expressed as a percentage or number of Erlangs (E) (as set with the **mwtm webutil** command) for the specified date and hour. If you do not set the planned send capacity for the SCTP link, then `NoCap` appears in the field.

Field or Column	Description
Long Term Average Utilization	Long-term average Send or Receive for the link, expressed as a percentage or number of Erlangs (E) (as set with the **mwtm webutil** command), since MWTM polling began for the link, or since the MWTM last reset the averages as a result of bad data. If you do not set the planned send capacity for the SCTP link, then `NoCap` appears in the field.
MSUs	Total number of MTP3 message signal units (MSUs) sent and received on the specified date and hour.

Link Statistics Daily Reports

You can view daily summaries of statistics for all links or for a specific link that the MWTM detected on the specified date and hour. The Link Daily Report page shows summary reports of daily link statistics by date and hour.

The Link Daily Report table is sorted based on the information in the Avg Send or Avg Send Erlangs column. However, you can sort the table based on the information in one of the other columns (see Navigating Table Columns, page 5-clxiii).

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > ITP Statistics > Link**.

Step 2 In the tool bar of the right pane, from the Type drop-down menu, select Link Daily Statistics. (See Table 13-1 for a list of report types and their contents).

Step 3 Choose a time range from the Duration drop-down menu or customize your own time range by clicking the Customize icon.

Step 4 Choose an output format (Graph, Table, or CSV) from the Output drop-down menu (see Table 13-1 for contents of each output type).

The Send Utilization and Receive Utilization tables contain summary information as described below:

Field or Column	Description
Node	Name of the node for the link.
Signaling Point	Name of the signaling point for the link.
Linkset	Linkset for the object.
SLC	ID of the link.
Average	Average Send or Receive for the link for the specified time.
Minimum	Minimum Send or Receive for the specified time.
Minimum Timestamp (*timezone*)	Timestamp when the minimum value occurred.

Field or Column	Description
Maximum	Maximum Send or Receive for the specified time.
Maximum Timestamp (*timezone*)	Timestamp when the maximum value occurred.

Depending on what you select from the Output pulldown menu, the following information is displayed:

Field or Column	Description
Graph	
Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing.
Utilization Percentage	If Output Type is Graph, the Y-axis label shows daily link statistics over time.
Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
Legend	If Output Type is Graph, a color-coded legend shows labels for utilization.
Table, CSV	
Date	Date of the report.
Node	Name of the node for the link.
SP Name	Name of the signaling point for the link.
Linkset Name	Linkset for the object.
SLC	ID of the link.
Timestamp (*timezone*)	Timestamp of the report
Type	Type of link. Possible link types are: • **HSL**—Uses the SS7-over-ATM (Asynchronous Transfer Mode) high-speed protocol. • **SCTP**—Uses the Stream Control Transmission Protocol (SCTP) IP transport protocol. • **Serial**—Uses the serial SS7 signaling protocol. • **Virtual**—A virtual link that connects signaling point instances that run on the same node. The MWTM does not poll virtual links; nor does it display real-time data or accounting statistics for virtual links.
Daily In-Service	Percentage of time the link was in service on the specified date.
Long Term In-Service	Average percentage of time the link was in service since MWTM polling began for the link, or since the MWTM last reset the averages as a result of bad data.
Daily Low In-Service	Lowest hourly in-service percentage for the link for the specified date.
Low Service Hour	Hour in which the lowest in-service percentage occurred for the specified date.
Avg Congestion %	Average percentage of time the link was congested on the specified date.
Average Utilization	Average Send or Receive for the link, expressed as a percentage or number of Erlangs (E) (as set with the **mwtm webutil** command) for the specified date and hour. If you do not set the planned send capacity for the SCTP link, then `NoCap` appears in the field.

Field or Column	Description
Peak Utilization	Highest Send or Receive for the link, expressed as a percentage or number of Erlangs (E) (as set with the **mwtm webutil** command) for the specified date and hour. If you do not set the planned send capacity for the SCTP link, then `NoCap` appears in the field.
Peak Hour	Hour in which the Peak Send or Peak Receive for the link occurred for the specified date. Click the hour to see the Link Hourly Report for the chosen link and hour.
Long Term Average Utilization	Long-term average Send or Receive for the link, expressed as a percentage or number of Erlangs (E) (as set with the **mwtm webutil** command), since MWTM polling began for the link, or since the MWTM last reset the averages as a result of bad data. If you do not set the planned send capacity for the SCTP link, then `NoCap` appears in the field.
MSUs	Total number of MTP3 message signal units (MSUs) sent and received on the specified date and hour.

Link Peaks Statistics Daily Reports

You can view a daily link statistics peaks report using the Link Peaks Daily Report page. The peaks report shows peak values for each day and the hour in which each peak value occurred.

The Link Peaks Daily table is sorted based on the information in the Peak Send or Peak Send Erlangs column. However, you can sort the table based on the information in one of the other columns (see Navigating Table Columns, page 5-clxiii).

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > ITP Statistics > Link**.

Step 2 In the tool bar of the right pane, from the Type drop-down menu, select Link Peaks Daily Statistics. (See Table 13-1 for a list of report types and their contents).

Step 3 Choose a time range from the Duration drop-down menu or customize your own time range by clicking the Customize icon.

Step 4 Choose an output format (Graph, Table, or CSV) from the Output drop-down menu (see Table 13-1 for contents of each output type).

The Send Utilization and Receive Utilization tables contain summary information as described below:

Field or Column	Description
Node	Name of the node for the link.
Signaling Point	Name of the signaling point for the link.

Field or Column	Description
Linkset	Linkset for the object.
SLC	ID of the link.
Average	Average Send or Receive for the link for the specified time.
Minimum	Minimum Send or Receive for the specified time.
Minimum Timestamp (*timezone*)	Timestamp when the minimum value occurred.
Maximum	Maximum Send or Receive for the specified time.
Maximum Timestamp (*timezone*)	Timestamp when the maximum value occurred.

Depending on what you select from the Output pulldown menu, the following information is displayed:

Field or Column	Description
Graph	
Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing.
Utilization Percentage	If Output Type is Graph, the Y-axis label shows daily link statistics over time.
Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
Legend	If Output Type is Graph, a color-coded legend shows labels for utilization.
Table, CSV	
Date	Date of the report.
Node	Name of the node for the link.
SP Name	Name of the signaling point for the link.
Linkset Name	Linkset for the object.
SLC	ID of the link.
Timestamp (*timezone*)	Timestamp of the report
Type	Type of link. Possible link types are: • **HSL**—Uses the SS7-over-ATM (Asynchronous Transfer Mode) high-speed protocol. • **SCTP**—Uses the Stream Control Transmission Protocol (SCTP) IP transport protocol. • **Serial**—Uses the serial SS7 signaling protocol. • **Virtual**—A virtual link that connects signaling point instances that run on the same node. The MWTM does not poll virtual links; nor does it display real-time data or accounting statistics for virtual links.
Peak Utilization	Highest Send or Receive for the link, expressed as a percentage or number of Erlangs (E) (as set with the **mwtm webutil** command) for the specified date and hour. If you do not set the planned send capacity for the SCTP link, then `NoCap` appears in the field.
Peak Hour	Hour in which the Peak Send or Peak Receive for the link occurred for the specified date. Click the hour to see the Link Hourly Report for the chosen link and hour.
Long Term Average Utilization	Long-term average Send or Receive for the link, expressed as a percentage or number of Erlangs (E) (as set with the **mwtm webutil** command), since MWTM polling began for the link, or since the MWTM last reset the averages as a result of bad data. If you do not set the planned send capacity for the SCTP link, then `NoCap` appears in the field.
MSUs	Total number of MTP3 message signal units (MSUs) sent and received on the specified date and hour.

Link Multi-Day Report

The Link Multi-Day Report page shows send and receive percentages for all links for the last three or five days.

The Link Multi-Day table is sorted based on the information in the Avg Send column. However, you can sort the table based on the information in one of the other columns (see Navigating Table Columns, page 5-clxiii).

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > ITP Statistics > Link Multi-Day**.

Step 2 In the tool bar of the right pane, from the Type pulldown menu, select Link Multi-Day. (See Table 13-1 for a list of report types and their contents).

Step 3 Choose a time range from the Duration drop-down menu or customize your own time range by clicking the Customize icon.

Step 4 Choose an output format (Graph, Table, or CSV) from the Output drop-down menu (see Table 13-1 for contents of each output type).

The information described in the following table is displayed for the duration you selected.

Note If there are less than five days of data available, the Link Multi-Day Report displays N/A for the days for which there is no data.

Field or Column	Description
Node	Name of the node for the link.
Network Name	Name of the network for the link.
Signaling Point	Name of the signaling point for the link.
Link	Name of the link.
Avg. Send Utilization	Send for the link, expressed as a percentage or number of Erlangs (E) (as set with the **mwtm webutil** command) for each of the last five days. If you do not set the planned send capacity for the SCTP link, then `NoCap` appears in the field.
Avg. Receive Utilization	Receive for the link, expressed as a percentage or number of Erlangs (E) (as set with the **mwtm webutil** command) for each of the last five days. If you do not set the planned receive capacity for the SCTP link, then `NoCap` appears in the field.

Linkset Reports

You can view summary reports of hourly and daily statistics for linksets, and export the reports.

This section covers:

Linkset Statistics Hourly Reports

You can view hourly summaries of statistics for all linksets or for a specific linkset that the MWTM detected on the specified date and hour. The Linkset Hourly Report page shows summary reports for all archived MWTM hourly linkset statistics by date and hour.

The Linkset Hourly Report table is sorted based on the information in the Send Utilization column. However, you can sort the table based on the information in one of the other columns (see Navigating Table Columns, page 5-clxiii).

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > ITP Statistics > Linkset**.

Step 2 In the tool bar of the right pane, from the Type drop-down menu, select Linkset Hourly Statistics. (See Table 13-1 for a list of report types and their contents).

Step 3 Choose a time range from the Duration drop-down menu or customize your own time range by clicking the Customize icon.

Step 4 Choose an output format (Graph, Table, or CSV) from the Output drop-down menu (see Table 13-1 for contents of each output type).

The Send Utilization and Receive Utilization tables contain summary information as described below:

Field or Column	Description
Node	Name of the node for the linkset.
Signaling Point	Name of the signaling point for the linkset.
Linkset	Linkset for the object.
Average	Average Send or Receive for the linkset for the specified time.
Minimum	Minimum Send or Receive for the specified time.
Minimum Timestamp (*timezone*)	Timestamp when the minimum value occurred.
Maximum	Maximum Send or Receive for the specified time.
Maximum Timestamp (*timezone*)	Timestamp when the maximum value occurred.

Depending on what you select from the Output pulldown menu, the following information is displayed:

Field or Column	Description
Graph	
Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing.
Utilization Percentage	If Output Type is Graph, the Y-axis label shows hourly linkset utilization over time.
Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
Legend	If Output Type is Graph, a color-coded legend shows labels for utilization.
Table, CSV	
Date	Date of the report.
Node	Name of the node for the linkset.
SP Name	Name of the signaling point for the linkset.
Linkset Name	Linkset for the object.
Hourly In-Service	Percentage of time the linkset was in service on the specified date.
Long Term In-Service	Average percentage of time the linkset was in service since MWTM polling began for the link, or since the MWTM last reset the averages as a result of bad data.
Send Utilization	Average Send for the linkset, expressed as a percentage or number of Erlangs (E) (as set with the **mwtm webutil** command) for the specified date and hour. If you do not set the planned send capacity for one or more of the SCTP links associated with the linkset, then `NoCap` appears in the field.
Long Term Send Utilization	Long-term average Send for the linkset, expressed as a percentage or number of Erlangs (E) (as set with the **mwtm webutil** command), since MWTM polling began for the linkset, or since the MWTM last reset the averages as a result of bad data. If you do not set the planned send capacity for one or more of the SCTP links associated with the linkset, then `NoCap` appears in the field.
Receive Utilization or Receive Erlangs	Average Receive for the linkset, expressed as a percentage or number of Erlangs (E) (as set with the **mwtm webutil** command) for the specified date and hour. If you do not set the planned receive capacity for one or more of the SCTP links associated with the linkset, then `NoCap` appears in the field.
Long Term Receive Utilization or Long Term Receive Erlangs	Long-term average Receive for the linkset, expressed as a percentage or number of Erlangs (E) (as set with the **mwtm webutil** command), since MWTM polling began for the linkset, or since the MWTM last reset the averages as a result of bad data. If you do not set the planned receive capacity for one or more of the SCTP links associated with the linkset, then `NoCap` appears in the field.

Linkset Statistics Daily Reports

You can view daily summaries of statistics for all linksets or for a specific linkset that the MWTM detected on the specified date and hour. The Linkset Daily Report page shows summary reports of all archived MWTM daily linkset statistics by date and hour.

The Linkset Daily Report table is sorted based on the information in the Send Average column. You can sort the table based on the information in one of the other columns (see Navigating Table Columns, page 5-clxiii).

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > ITP Statistics > Linkset**.

Step 2 In the tool bar of the right pane, from the Type drop-down menu, select Linkset Daily Statistics. (See Table 13-1 for a list of report types and their contents).

Step 3 Choose a time range from the Duration drop-down menu or customize your own time range by clicking the Customize icon.

Step 4 Choose an output format (Graph, Table, or CSV) from the Output drop-down menu (see Table 13-1 for contents of each output type).

The Send Utilization and Receive Utilization tables contain summary information as described below:

Field or Column	Description
Node	Name of the node for the linkset.
Signaling Point	Name of the signaling point for the linkset.
Linkset	Linkset for the object.
Average	Average Send or Receive for the linkset for the specified time.
Minimum	Minimum Send or Receive for the specified time.
Minimum Timestamp (*timezone*)	Timestamp when the minimum value occurred.

Depending on what you select from the Output pulldown menu, the following information is displayed:

Field or Column	Description
Graph	
Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing.
Utilization Percentage	If Output Type is Graph, the Y-axis label shows daily linkset statistics over time.
Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
Legend	If Output Type is Graph, a color-coded legend shows labels for utilization.
Table, CSV	
Date	Date of the report.
Node	Name of the node for the linkset.
SP Name	Name of the signaling point for the linkset.
Linkset Name	Linkset for the object.
Daily In-Service	Percentage of time the linkset was in service on the specified date.
Long Term In-Service	Average percentage of time the linkset was in service since MWTM polling began for the linkset, or since the MWTM last reset the averages as a result of bad data.
Daily Low In-Service	Lowest hourly in-service percentage for the linkset for the specified date.
Low Service Hour	Hour in which the lowest in-service percentage occurred for the specified date.
Average Utilization	Average Send or Receive for the linkset, expressed as a percentage or number of Erlangs (E) (as set with the **mwtm webutil** command) for the specified date and hour. If you do not set the planned receive capacity for one or more of the SCTP links associated with the linkset, then `NoCap` appears in the field.
Peak Utilization	Highest Send or Receive for the linkset, expressed as a percentage or number of Erlangs (E) (as set with the **mwtm webutil** command) for the specified date and hour.
Peak Hour	Hour in which the Peak Send or Peak Receive for the linkset occurred for the specified date. Click the hour to see the Link Hourly Report for all links associated with the chosen linkset for the chosen hour.
Long Term Average Utilization	Long-term average Send or Receive for the linkset, expressed as a percentage or number of Erlangs (E) (as set with the **mwtm webutil** command), since MWTM polling began for the linkset, or since the MWTM last reset the averages as a result of bad data. If you do not set the planned send capacity for one or more of the SCTP links associated with the linkset, then `NoCap` appears in the field.

Linkset Peaks Statistics Daily Reports

You can view a linkset daily statistics peaks report using the Linkset Peaks Daily Report page. The peaks report shows peak values for each day and the hour in which each peak value occurred.

The Linkset Peaks Daily Report table is sorted based on the information in the Peak Send or Peak Send Erlangs column. However, you can sort the table based on the information in one of the other columns (see Navigating Table Columns, page 5-clxiii).

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > ITP Statistics > Linkset**.

Step 2 In the tool bar of the right pane, from the Type drop-down menu, select Linkset Peaks Daily Statistics. (See Table 13-1 for a list of report types and their contents).

Step 3 Choose a time range from the Duration drop-down menu or customize your own time range by clicking the Customize icon.

Step 4 Choose an output format (Graph, Table, or CSV) from the Output drop-down menu (see Table 13-1 for contents of each output type).

The Send Utilization and Receive Utilization tables contain summary information as described below:

Field or Column	Description
Node	Name of the node for the linkset.
Signaling Point	Name of the signaling point for the linkset.
Linkset	Linkset for the object.
Average	Average Send or Receive for the linkset for the specified time.
Minimum	Minimum Send or Receive for the specified time.
Minimum Timestamp (*timezone*)	Timestamp when the minimum value occurred.
Maximum	Maximum Send or Receive for the specified time.
Maximum Timestamp (*timezone*)	Timestamp when the maximum value occurred.

Depending on what you select from the Output pulldown menu, the following information is displayed:

Field or Column	Description
Graph	
Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing.
Utilization Percentage	If Output Type is Graph, the Y-axis label shows daily linkset statistics over time.
Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
Legend	If Output Type is Graph, a color-coded legend shows labels for utilization.
Table, CSV	
Date	Date of the report.
Node	Name of the node for the linkset.
SP Name	Name of the signaling point for the linkset.
Linkset Name	Linkset for the object.
Peak Utilization	Highest Send or Receive for the linkset, expressed as a percentage or number of Erlangs (E) (as set with the **mwtm webutil** command) for the specified date and hour.
Peak Hour	Hour in which the Peak Send or Peak Receive for the linkset occurred for the specified date. Click the hour to see the Link Hourly Report for all links associated with the chosen linkset for the chosen hour.
Long Term Average Utilization	Long-term average Send or Receive for the linkset, expressed as a percentage or number of Erlangs (E) (as set with the **mwtm webutil** command), since MWTM polling began for the linkset, or since the MWTM last reset the averages as a result of bad data. If you do not set the planned send capacity for one or more of the SCTP links associated with the linkset, then `NoCap` appears in the field.

MLR Reports

Multi-Layer SMS Routing, or MLR, is a routing scheme that enables intelligent routing of Short Message Service (SMS) mobile originated (MO) messages based on the application or service from which they originated or to which they are destined. The MLR feature can make SMS message routing decisions based on information found in the TCAP, MAP, and MAP-user layers; MAP operation codes MAP-MT-FORWARD-SM and SEND-ROUTING-INFO-FOR-SM; and ANSI TCAP and IS-41 MAP operations.

You can view a summary report of daily statistics for MLR. You can also export the reports.

Daily MLR Reports

You can view a summary report of MLR processed, aborts, continues, result invokes, rule matches, subtriggers, and triggers statistics for the MWTM on a specified date. The MLR *type* Daily Report page shows reports of all archived MWTM daily MLR processed, aborts, continues, result invokes, rule matches, subtriggers, and triggers by date.

These archived daily MLR reports are available:

- MLR Aborts Statistics Daily Reports, page 13-61
- MLR Continues Statistics Daily Reports, page 13-62
- MLR Processed Statistics Daily Reports, page 13-62
- MLR ResultInvokes Statistics Daily Reports, page 13-63
- MLR RuleMatches Statistics Daily Reports, page 13-64
- MLR SubTriggers Statistics Daily Reports, page 13-64
- MLR Triggers Statistics Daily Reports, page 13-65

MLR Aborts Statistics Daily Reports

The MLR Aborts Statistics Custom Report table is sorted based on the information in the Total Aborted column. However, you can sort the table based on the information in one of the columns (see Navigating Table Columns, page 5-clxiii).

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Field or Column	Description
Date	Date of the report.
Node	Name of the node for the signaling point.
Network Name	Name of the network for the signaling point.
Signaling Point	Name of the signaling point.
Total Aborted	Total number of MSUs aborted by MLR on the specified date.
No Resources	Number of MSUs aborted by MLR because of a shortage of resources on the specified date.
Results Blocked	Number of MSUs aborted by MLR with a result of **block** on the specified date.
GTI Mismatches	Number of MSUs aborted by MLR because of mis-matched GTIs on the specified date.
Addr Conv Fails	Number of MSUs aborted by MLR because of a failed GTA address conversion on the specified date.
Dest Unavails	Number of MSUs aborted by MLR because the destination was unavailable on the specified date.
No Server Aborteds	Number of MSUs aborted by MLR because no server was available on the specified date.

MLR Continues Statistics Daily Reports

The MLR Continues Statistics Custom Report table is sorted based on the information in the Total Continued column. However, you can sort the table based on the information in one of the columns (see Navigating Table Columns, page 5-clxiii).

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Field or Column	Description
Date	Date of the report.
Node	Name of the node for the signaling point.
Network Name	Name of the network for the signaling point.
Signaling Point	Name of the signaling point.
Total Continued	Total number of MSUs returned to SCCP by MLR with a result of **continue** on the specified date.
Unsupported Message Type	Number of MSUs returned to SCCP by MLR because of unsupported message types on the specified date.
Unsupported Seg SCCP	Number of MSUs returned to SCCP by MLR because of unsupported SCCP segments on the specified date.
Unsupported Messages	Number of MSUs returned to SCCP by MLR because of parse failures resulting from unsupported messages on the specified date.
Parse Errors	Number of MSUs returned to SCCP by MLR because of parse errors on the specified date.
No Results	Number of MSUs returned to SCCP by MLR with no results on the specified date.
Result Continueds	Number of MSUs returned to SCCP by MLR with a result of **continue** on the specified date.
No Server Continueds	Number of MSUs returned to SCCP by MLR because no server was available on the specified date.
Result GTTs	Number of MSUs returned to SCCP by MLR with a result of **GTT** on the specified date.
Failed Triggers	Number of MSUs returned to SCCP by MLR because of no trigger match on the specified date.

MLR Processed Statistics Daily Reports

The MLR Processed Statistics Custom Report table is sorted based on the information in the Routed column. However, you can sort the table based on the information in one of the columns (see Navigating Table Columns, page 5-clxiii).

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Field or Column	Description
Date	Date of the report.
Node	Name of the node for the signaling point.
Network Name	Name of the network for the signaling point.
Signaling Point	Name of the signaling point.
Routed	Total number of packets routed by MLR on the specified date.
Total Continued	Total number of MSUs passed back to SCCP processing by MLR on the specified date.
Total Aborted	Total number of MSUs not processed by MLR because of invalid data or a blocked MSU.
MAP SMS-MOs	Number of MSUs of type GSM-MAP SMS-MO processed by MLR on the specified date.
MAP SMS-MTs	Number of MSUs of type GSM-MAP SMS-MT processed by MLR on the specified date.
MAP SRI-SMs	Number of MSUs of type GSM-MAP SRI-SM processed by MLR on the specified date.
MAP AlertScs	Number of MSUs of type GSM-MAP AlertSc processed by MLR on the specified date.
ANSI-41 SMD-PPs	Number of MSUs of type ANSI-41 SMD-PP processed by MLR on the specified date.
ANSI-41 SMS-Requests	Number of MSUs of type ANSI-41 SMSRequest processed by MLR on the specified date.
ANSI-41 SMS-Notifys	Number of MSUs of type ANSI-41 SMSNotify processed by MLR on the specified date.
Links	Contains links to related MLR reports (Aborts, Continues, Triggers, SubTriggers, RuleMatches, and ResultInvokes). The target report is filtered by the signaling point.

MLR ResultInvokes Statistics Daily Reports

The MLR ResultInvokes Statistics Custom Report table is sorted based on the information in the Invokes column. However, you can sort the table based on the information in one of the columns (see Navigating Table Columns, page 5-clxiii).

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Field or Column	Description
Date	Date of the report.
Node	Name of the node for the signaling point.
Network Name	Name of the network for the signaling point.
Signaling Point	Name of the signaling point.

Field or Column	Description
ResultSet	Name of the result set of which this result is a member.
Result Number	Number of this result in the result set.
Invokes	Total number of times this result was invoked.

MLR RuleMatches Statistics Daily Reports

The MLR RuleMatches Statistics Custom Report table is sorted based on the information in the Matches column. However, you can sort the table based on the information in one of the columns (see Navigating Table Columns, page 5-clxiii).

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Field or Column	Description
Date	Date of the report.
Node	Name of the node for the signaling point.
Network Name	Name of the network for the signaling point.
Signaling Point	Name of the signaling point.
RuleSet	Name of the rule set of which this rule is a member.
Rule Number	Number of this rule in the rule set.
Matches	Total number of times this rule was matched.

MLR SubTriggers Statistics Daily Reports

The MLR SubTriggers Statistics Custom Report table is sorted based on the information in the Matches column. However, you can sort the table based on the information in one of the columns (see Navigating Table Columns, page 5-clxiii).

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Field or Column	Description
Date	Date of the report.
Node	Name of the node for the signaling point.
Network Name	Name of the network for the signaling point.
Signaling Point	Name of the signaling point.
Trigger Index	Index number associated with the trigger.
Sub Trigger Index	Index number associated with the subtrigger.
Action	Action taken by the subtrigger. Clicking on the ruleset name highlights the signaling point in the navigation tree and opens the MLR Trigger Config tab for the chosen ruleset.

Field or Column	Description
Parameters	Parameters that control the behavior of the subtrigger.
Matches	Number of subtrigger matches with result **Action Performed**.

MLR Triggers Statistics Daily Reports

The MLR Triggers Statistics Custom Report table is sorted based on the information in the Matches column. However, you can sort the table based on the information in one of the columns (see Navigating Table Columns, page 5-clxiii).

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Field or Column	Description
Date	Date of the report.
Node	Name of the node for the signaling point.
Network Name	Name of the network for the signaling point.
Signaling Point	Name of the signaling point.
Trigger Index	Index number associated with the trigger.
Action	Action taken by the trigger. Clicking on the ruleset name highlights the signaling point in the navigation tree and opens the MLR Trigger Config tab for the chosen ruleset.
Parameters	Parameters that control the behavior of the trigger.
Preliminary Matches	Preliminary count of trigger matches.
Matches	Number of trigger matches with result **Action Performed**.
Links	Contains links to related MLR SubTrigger reports. The target report is filtered by the signaling point.

MSU Rates Reports

You can view 15 minute, hourly, and daily MSU rates reports. You can also export the reports in CSV format.

This section covers:

- MSU Load Reports, page 13-65
- MSU Peaks Reports, page 13-66

MSU Load Reports

You can view a 15 minute, hourly, or daily report of MSU load rates for all nodes that the MWTM detected in that time. The MSU Load Report provides the distribution of send and receive MSU packets, pertaining to overload thresholds for every CPU.

The MSU Load Report tables are sorted based on the information in the Date column. However, you can sort the tables based on the information in one of the columns (see Navigating Table Columns, page 5-clxiii).

Field or Column	Description
Date	Date of the report.
Node	Name of the node.
Processor /Bay	Number of the processor and the number of the bay containing the processor. This number is set to zero when the platform does not support processors in multiple slots or bays.
Overloaded Threshold	Over this rate of traffic, MSU traffic handling may be impacted.
Duration % Send	Duration of time the send MSU rate is in the specified percentage.
Duration % Receive	Duration in time the receive MSU rate is in the specified percentage.

MSU Peaks Reports

You can view a 15 minute, hourly, or daily report of MSU peak rates for all nodes that the MWTM detected in that time. The MSU Peaks Report page provides information that helps you analyze the maximum send and receive rates for each processor in MSU units per second.

The MSU Peaks Report tables are sorted based on the information in the Send column. However, you can sort the tables based on the information in one of the columns (see Navigating Table Columns, page 5-clxiii).

Field or Column	Description
Date	Date of the report.
Node	Name of the node.
Processor /Bay	Number of the processor and the number of the bay containing the processor. This number is set to zero when the platform does not support processors in multiple slots or bays.
Max Rate (MSU/sec) Send	This value records the highest rate of MSUs per second sent by the processor since the measurement was cleared.
Max Rate (MSU/sec) Receive	This value records the highest rate of MSU per second received by the processor since the measurement was cleared.
Threshold (MSU/sec) Acceptable	Specifies a level of traffic below which traffic is considered to be acceptable. Once the traffic rate exceeds the Warning threshold, it is not Acceptable until traffic falls below this threshold.
Threshold (MSU/sec) Warning	Specifies a level of traffic that should be avoided, but is below a level that impacts MSU routing. Once the traffic rate exceeds the Overloaded threshold, it is not considered non-impacting until the traffic falls below this threshold.
Threshold (MSU/sec) Overloaded	Specifies a level of traffic indicating a rate that might impact MSU routing.
Duration in Acceptable Threshold (minutes) Send	Rate of traffic (in seconds) sent by this processor considered as acceptable.
Duration in Acceptable Threshold (minutes) Receive	Rate of traffic (in seconds) received by this processor considered as acceptable.

Field or Column	Description
Duration in Warning Threshold (minutes) Send	Rate of traffic (in seconds) sent by this processor considered above the acceptable level and below a level that impacts MSU routing.
Duration in Warning Threshold (minutes) Receive	Rate of traffic (in seconds) received by this processor considered above the acceptable level and below a level that impacts MSU routing.
Duration in Overloaded Threshold (minutes) Send	Rate of traffic (in seconds) sent by this processor at a level that might impact MSU routing.
Duration in Overloaded Threshold (minutes) Receive	Rate of traffic (in seconds) received by this processor at a level that might impact MSU routing.

SCTP Reports

The MWTM web interface provides node-level SCTP reports for performance and error statistics. The information is available in graphical, tabular, and CSV formats.

Note SCTP Reports are supported on ITP platforms only.

To generate a network-wide SCTP report:

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > ITP Statistics > SCTP**. You can also click on a node name, then select the Reports tab.

Step 2 In the tool bar of the right pane, choose a report type from the Type drop-down menu:

- SCTP Performance Daily Reports, page 13-67
- SCTP Errors Daily Reports, page 13-69

Note The 15-minute and hourly reports for SCTP are available from the node level only; they are not available from the top level or the network level.

SCTP Performance Daily Reports

MWTM displays the SCTP performance rates obtained during the specified period.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > ITP Statistics > SCTP**.

Note The 15-minute and hourly reports for SCTP are available from the node level only; they are not available from the top level or the network level. Click on a node name in the SCTP reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose SCTP Performance Daily from Type drop-down menu.

The Send and Receive Summary for SCTP Packets displays the following information:

Field or Column		Description
Node. You can click on a node name to go to node-specific reports.		
Send	Average Packets	Average SCTP packets sent.
	Maximum Packets	Maximum SCTP packets sent.
	Maximum Timestamp (*timezone*)	Time when the maximum SCTP packets sent value occurred.
Receive	Average Packets	Average SCTP packets received.
	Maximum Packets	Maximum SCTP packets received.
	Maximum Timestamp (*timezone*)	Time when the maximum SCTP packets received value occurred.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

GUI Element	Description
Graph	If you select **Graph** from the Output menu, the graph displays the SCTP send and receive packets rates over the specified time period.
Table	If you select **Table** from the Output menu, the table contains: • Node—Name of the node. • Timestamp (*timezone*)—Timestamp of the report. • Send – SCTP Packets—Number of SCTP packets sent to peers. – Control Chunks—Number of SCTP control chunks sent to peers (no transmissions included). – Ordered Chunks—Number of SCTP ordered data chunks sent to peers (no transmissions included). – Unordered Chunks—Number of SCTP unordered chunks (which are data chunks in which the U bit is set to one) sent to peers (no transmissions included). • Receive – SCTP Packets—Number of SCTP packets received from peers. – Control Chunks—Number of SCTP control chunks received from peers (no transmissions included). – Ordered Chunks—Number of SCTP ordered data chunks received from peers (no transmissions included). – Unordered Chunks—Number of SCTP unordered chunks (which are data chunks in which the U bit is set to one) received from peers (no transmissions included).
Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing.
Percentage Utilization	If Output Type is Graph, the Y-axis label shows percentage of utilization over time.
Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
Legend	If Output Type is Graph, a color-coded legend shows labels for utilization.

SCTP Errors Daily Reports

MWTM displays the SCTP error rates obtained during the specified period.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Statistics > SCTP**.

Note The 15-minute and hourly reports for SCTP are available from the node level only; they are not available from the top level or the network level. Click on a node name in the SCTP reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose SCTP Errors Daily from Type drop-down menu.

The summary table displays the following information:

Field or Column	Description
Node	Name of the node.
Timestamp (*timezone*)	Timestamp of the report.
Unassociated Packets	Number of SCTP packets received by the host which are correctly formed but for which the receiver is not able to identify the association to which the packet belongs.
Checksum Errors	Number of SCTP packets received from peers with an invalid checksum.
Fragmented User Messages	Number of user messages that have to be fragmented because of the MTU.
Reassembled User Messages	Number of user messages reassembled.
Retransmitted Chunks	Number of SCTP chunks retransmitted due to the T3 timers expiring before the packet is acknowledged.
Retransmitted Chunks (Fast Recovery)	Number of SCTP chunks retransmitted using the fast-recovery retransmission mechanism specified in SCTP.
Destination Address Failures	Number of times a destination IP address was marked unavailable since the start of the association. The IP destination address will be marked unavailable when the specified number of retransmissions have failed.

Viewing Mobile Statistics Reports

Mobile Statistics Reports are located within **Reports > Mobile Statistics** in the MWTM web interface. You can also find Mobile statistics reports in the */opt/CSCOsgm/reports* directory on the MWTM server. All reports are saved as export files in .csv format.

You can view any of the following Mobile statistics reports:

- Access Point Name Reports, page 13-71
- CSG Reports, page 13-84
- GTP Reports, page 13-93
- PDSN Reports, page 13-98

Access Point Name Reports

The MWTM web interface provides node-level Access Point Names reports for bearer performance statistics.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > APN**.

Step 2 In the tool bar of the right pane, choose a report type from the Type drop-down menu for a list of report types and their contents.

Step 3 Choose a time range from the Duration drop-down menu or customize your own time range by clicking the Customize icon.

Step 4 Choose an output format (Table or CSV) from the Output drop-down menu for contents of each output type.

Step 5 To generate the report, click the Run icon (green arrow).

In the tool bar of the right pane, choose a report type from the Type drop-down menu:

- APN Aggregate Miscellaneous Daily Reports, page 13-71
- APN Aggregate PDP Daily Reports, page 13-72
- APN Aggregate PDP Ext Daily Reports, page 13-74
- APN Aggregate Throughput Daily Reports, page 13-75
- APN Instance Miscellaneous Daily Reports, page 13-78
- APN Instance PDP Daily Reports, page 13-79
- APN Instance PDP Ext Daily Reports, page 13-80
- APN Instance Throughput Daily Reports, page 13-81

Note The 15-minute and hourly reports for APN are available from the node level only; they are not available from the top level or the network level.

APN Aggregate Miscellaneous Daily Reports

MWTM displays the APN Aggregate Miscellaneous report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > APN**

Note The 15-minute and hourly reports for APN Aggregate Miscellaneous are available from the node level only; they are not available from the top level or the network level. Click on a node name in the APN Aggregate Miscellaneous reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose APN Aggregate Miscellaneous Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node for the link.
APN Name	The name of the Access Point Name (APN).
APN Index	A unique numerical identifier for the APN.
Timestamp (*timezone*)	Timestamp of the report.
DHCP Requests Success	• Count—Number of DHCP request packets. • Rate—Rate at which DHCP packets are requested.
DHCP Requests Failure	• Count—Number of DHCP failure packets. • Rate—Rate at which DHCP packets are declined.
DHCP Requests Success	• Ratio—Ratio of DHCP successful request packets.
DHCP Releases	• Count—Number of DHCP released packets. • Rate—Rate at which DHCP packets released.
COA Message Success	• Count—Number of COA messages received at GGSN. • Rate—Rate at which COA messages received at GGSN.
COA Message Failure	• Count—Number of Error indication messages received on the GGSN. • Rate—Rate at which Error indication messages received on the GGSN.
COA Message Success	• Ratio—Ratio of COA messages received at GGSN.
Direct Tunnels Enabled	Direct tunnels enabled for the PDP contexts in the GGSN.

APN Aggregate PDP Daily Reports

MWTM displays the APN Aggregate PDP daily report obtained during the specified period.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > APN**.

Note The 15-minute and hourly reports for APN Aggregate PDP are available from the node level only; they are not available from the top level or the network level. Click on a node name in the APN Aggregate PDP reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose APN Aggregate PDP Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

GUI Element	Field	Description
	Node	Name of the node.
	APN	The name of the Access Point Name (APN).
Upstream Bits	Average Rate	Average Rate during the specified duration.
	Maximum	Maximum Rate during the specified duration.
	Maximum Timestamp (*timezone*)	Timestamp that shows time when the maximum bits-per-second value occurred.
Downstream Bits	Average Rate	Average Rate during the specified duration.
	Maximum	Maximum Rate during the specified duration.
	Maximum Timestamp (*timezome*)	Timestamp that shows time when the maximum bits-per-second value occurred.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

Report Type	Output	Field	Description
APN Aggregate PDP Daily	Table, CSV	Node	Name of the node for the link.
		APN	The name of the Access Point Name (APN).
		Average Active PDP Contexts	Average Number of PDP contexts that are currently established on the GGSN devices.
		Maximum Active PDP Contexts	Maximum Number of PDP contexts that are currently established on the GGSN devices.
		Average PDP Activation Success Ratio	Average ratio of PDP context request messages received by the GGSN devices.
		Maximum PDP Activation Success Ratio	Maximum ratio of PDP context request messages received by the GGSN devices.
		Average PDP Retainability	Average number of PDP context messages retained by the GGSN devices.
		Maximum Active PDP Contexts	Average number of PDP context messages retained by the GGSN devices.
		Maximum Timestamp (*timestamp*)	Time the maximum value occurred.
	Graph	Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing.
		Utpstream\ Downstream bits	If Output Type is Graph, the Y-axis label shows Daily statistics over time.
		Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
		Legend	If Output Type is Graph, a color-coded legend shows labels for utilization.

APN Aggregate PDP Ext Daily Reports

MWTM displays the APN Aggregate PDP Ext report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > APN**.

Note The 15-minute and hourly reports for APN Aggregate PDP Ext are available from the node level only; they are not available from the top level or the network level. Click on a node name in the APN Aggregate PDP Ext reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose APN Aggregate PDP Ext Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node for the link.
APN Name	The name of the Access Point Name (APN).
APN Index	A unique numerical identifier for the APN.
Timestamp (*timezone*)	Timestamp of the report.
Dynamic PDP Activation By MS Success	Number of activated PDP context request messages received by the GGSN from an MS without a PDP address.
Dynamic PDP Activation By MS Failure	Number of PDP context request failure messages received by the GGSN from an MS.
Dynamic PDP Activation By MS Success Ratio	Number of successfully activated PDP context request messages received by the GGSN from an MS.
Dynamic PDP Activation By Network Failure	Number of PDP contexts failed on the GGSN that were initiated by the network.
PDP Update By Network Success	Number of Update PDP context requests initiated by the GGSN that were successful.
PDP Update By Network Failure	Number of Update PDP context requests initiated by the GGSN that failed.
PDP Update By Network Success Ratio	Number of Update PDP context requests initiated by the GGSN that were successful.

APN Aggregate Throughput Daily Reports

MWTM displays the APN Aggregate Throughput report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > APN**.

Note The 15-minute and hourly reports for APN Aggregate Throughput are available from the node level only; they are not available from the top level or the network level. Click on a node name in the APN Aggregate Throughput reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose APN Aggregate Throughput Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

GUI Element	Field	Description
	Node	Name of the node.
	APN	The name of the Access Point Name (APN).
Upstream Bits	Average Rate	Average Rate during the specified duration.
	Maximum	Maximum Rate during the specified duration.
	Maximum Timestamp (*timestamp*)	Timestamp that shows time when the maximum bits-per-second value occurred.
Downstream Bits	Average Rate	Average Rate during the specified duration.
	Maximum	Maximum Rate during the specified duration.
	Maximum Timestamp (*timestamp*)	Timestamp that shows time when the maximum bits-per-second value occurred.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

Report Type	Output	Field	Description
APN Aggregate Throughput Daily	Table, CSV	Node	Name of the node for the link.
		APN	The name of the Access Point Name (APN).
		APN Index	The Unique identifier for the Access Point Name.
		Timestamp (*timezone*)	Timestamp of the report.
		Upstream Bytes	• Count—Number of upstream bytes sent on this APN during the last sampling period. • Rate—Rate (per second) of upstream bytes sent on this APN during the last sampling period.
		Downstream Bytes	• Count—Number of downstream bytes sent on this APN during the last sampling period. • Rate—Rate (per second) of downstream bytes sent on this APN during the last sampling period.
		Upstream Packets	• Count—Number of upstream packets sent on this APN during the last sampling period. • Rate—Rate (per second) of upstream packets sent on this APN during the last sampling period.
		Downstream Packets	• Count—Number of downstream packets sent on this APN during the last sampling period. • Rate—Rate (per second) of downstream packets sent on this APN during the last sampling period.
	Graph	Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing.
		Utpstream\Downstream bits	If Output Type is Graph, the Y-axis label shows Daily statistics over time.
		Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
		Legend	If Output Type is Graph, a color-coded legend shows labels for utilization.

APN Instance Miscellaneous Daily Reports

MWTM displays the APN Instance Miscellaneous daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > APN**

Note The 15-minute and hourly reports for APN Instance Miscellaneous are available from the node level only; they are not available from the top level or the network level. Click on a node name in the APN Instance Miscellaneous reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose APN Instance Miscellaneous Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node for the link.
APN Name	The name of the Access Point Name (APN)
APN Index	A unique numerical identifier for the APN.
Timestamp (*timezone*)	Timestamp of the report.
DHCP Requests Success	• Count—Number of DHCP request packets. • Rate—Rate at which DHCP packets are requested.
DHCP Requests Failure	• Count—Number of DHCP failure packets. • Rate—Rate at which DHCP packets are declined.
DHCP Requests Success	• Ratio—Ratio of DHCP successful request packets.
DHCP Releases	• Count—Number of DHCP released packets. • Rate—Rate at which DHCP packets released.
COA Message Success	• Count—Number of COA messages received at GGSN. • Rate—Rate at which COA messages received at GGSN.
COA Message Failure	• Count—Number of Error indication messages received on the GGSN. • Rate—Rate at which Error indication messages received on the GGSN.
COA Message Success	• Ratio—Ratio of COA messages received at GGSN.
Direct Tunnels Enabled	Direct tunnels enabled for the PDP contexts in the GGSN.

APN Instance PDP Daily Reports

MWTM displays the APN Instance PDP report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > APN**.

Note The 15-minute and hourly reports for APN Instance PDP are available from the node level only; they are not available from the top level or the network level. Click on a node name in the APN Instance PDP reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose APN Instance PDP Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

GUI Element	Field	Description
	Node	Name of the node.
	APN	The name of the Access Point Name (APN).
Upstream Bits	Average Rate	Average Rate during the specified duration.
	Maximum	Maximum Rate during the specified duration.
	Maximum Timestamp (*timezone*)	Timestamp that shows time when the maximum bits-per-second value occurred.
Downstream Bits	Average Rate	Average Rate during the specified duration.
	Maximum	Maximum Rate during the specified duration.
	Maximum Timestamp (*timezone*)	Timestamp that shows time when the maximum bits-per-second value occurred.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

Report Type	Output Type	Field	Description
APN Instance PDP Daily	Table, CSV	Node	Name of the node for the link.
		APN	The name of the Access Point Name (APN).
		Average Active PDP Contexts	Average number of activated PDP contexts received by the GGSN.
		Maximum Active PDP Contexts	Maximum number of activated PDP contexts received by the GGSN.
		Average PDP Activation Success Ratio	Average number of successfully activated PDP context messages received by the GGSN.
		Maximum PDP Activation Success Ratio	Maximum number of successfully activated PDP contexts received by the GGSN.
		Average PDP Retainability	Average number of activated PDP contexts retained by the GGSN.
		Maximum Active PDP Contexts	Maximum number of activated PDP contexts received by the GGSN.
		Maximum Timestamp (*timezone*)	Timestamp that shows time when the maximum bits-per-second value occurred.
	Graph	Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing.
		Utpstream\ Downstream bits	If Output Type is Graph, the Y-axis label shows Daily statistics over time.
		Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
		Legend	If Output Type is Graph, a color-coded legend shows labels for utilization.

APN Instance PDP Ext Daily Reports

MWTM displays the APN Instance PDP Ext report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > APN**.

Note The 15-minute and hourly reports for APN Instance PDP Ext are available from the node level only; they are not available from the top level or the network level. Click on a node name in the APN Instance PDP Ext reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose APN Instance PDP Ext Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node for the link.
APN Name	The name of the Access Point Name (APN).
APN Index	A unique numerical identifier for the APN.
Timestamp (*timezone*)	Timestamp of the report.
Dynamic PDP Activation By MS Success	Number of activated PDP context request messages received by the GGSN from an MS without a PDP address.
Dynamic PDP Activation By MS Failure	Number of PDP context request failure messages received by the GGSN from an MS.
Dynamic PDP Activation By MS Success Ratio	Number of successfully activated PDP context request messages received by the GGSN from an MS.
Dynamic PDP Activation By Network Failure	Number of PDP contexts failed on the GGSN that were initiated by the network.
PDP Update By Network Success	Number of update PDP context requests initiated by the GGSN that were successful.
PDP Update By Network Failure	Number of update PDP Context Requests initiated by the GGSN that failed.
PDP Update By Network Success Ratio	Number of update PDP context requests initiated by the GGSN that were successful.

APN Instance Throughput Daily Reports

MWTM displays the APN Instance Throughput report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > APN**.

Note The 15-minute and hourly reports for APN Instance Throughput are available from the node level only; they are not available from the top level or the network level. Click on a node name in the APN Instance Throughput reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose APN Instance Throughput Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

GUI Element	Field	Description
	Node	Name of the node.
	APN	The name of the Access Point Name (APN).
Upstream Bits	Average Rate	Average Rate during the specified duration.
	Maximum	Maximum Rate during the specified duration.
	Maximum Timestamp (*timestamp*)	Timestamp that shows time when the maximum bits-per-second value occurred.
Downstream Bits	Average Rate	Average Rate during the specified duration.
	Maximum	Maximum Rate during the specified duration.
	Maximum Timestamp (*timestamp*)	Timestamp that shows time when the maximum bits-per-second value occurred.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

Report Type	Output	Field	Description
APN Instance Throughput Daily	Table or CSV	Node	Name of the node for the link.
		APN	The name of the Access Point Name (APN).
		APN Index	The Unique identifier for the Access Point Name.
		Timestamp (*timezone*)	Timestamp of the report.
		Upstream Bytes	• Count—Number of upstream bytes sent on this APN during the last sampling period. • Rate— Rate (per second) of the upstream bytes sent on this APN during the last sampling period.
		Downstream Bytes	• Count—Number of downstream bytes sent on this APN during the last sampling period. • Rate— Rate (per second) of the downstream bytes sent on this APN during the last sampling period.
		Upstream Packets	• Count—Number of upstream packets sent on this APN during the last sampling period. • Rate— Rate (per second) of the upstream packets sent on this APN during the last sampling period.
		Downstream Packets	• Count—Number of downstream packets sent on this APN during the last sampling period. • Rate— Rate (per second) of the downstream packets sent on this APN during the last sampling period.
	Graph	Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing.
		Utpstream\ Downstream bits	If Output Type is Graph, the Y-axis label shows Daily statistics over time.
		Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
		Legend	If Output Type is Graph, a color-coded legend shows labels for utilization.

CSG Reports

The MWTM web interface provides node-level Content services reports. Content Service is a capability to examine IP/TCP/UDP headers, payload and enable billing based on the content being provided.

To generate a network-wide Content services report:

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > CSG**.

Step 2 In the tool bar of the right pane, choose a report type from the Type drop-down menu for a list of report types and their contents.

Step 3 Choose a time range from the Duration drop-down menu or customize your own time range by clicking the Customize icon.

Step 4 Choose an output format (Table or CSV) from the Output drop-down menu for contents of each output type.

Step 5 To generate the report, click the Run icon (green arrow).

In the tool bar of the right pane, choose a report type from the Type drop-down menu:

- CSG BMA Statistics Daily Reports, page 13-84
- CSG Global Peaks Rates Daily Reports, page 13-85
- CSG Protocol Rates Daily Reports, page 13-86
- CSG Load Session Rates Daily Reports, page 13-87
- CSG Load Radius Rates Daily Reports, page 13-88
- CSG Load BMA Rates Daily Reports, page 13-89
- CSG Load User DB Rates Daily Reports, page 13-90
- CSG Load Gx Event Rates Daily Reports, page 13-91
- CSG Quota Manager Statistics Daily Reports, page 13-92

CSG BMA Statistics Daily Reports

MWTM displays the CSG BMA Statistics Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > CSG**.

Note The 15-minute and hourly CSG BMA Statistics reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the CSG BMA Statistics reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose CSG BMA Statistics Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Server	Name of the Server.
Port	Name of the Port.
VRF Name	Name of the VRF.
Timestamp (*timezone*)	Timestamp of the report.
Sent	Number of records sent to the billing mediation agent.
Sent Per Second	Number of records sent per second to the billing mediation agent.
Retransmits	Number of messages retransmitted to the billing mediation agent.
Failed Acks	Number of acknowledgments received from the billing mediation agent for which there are no outstanding requests.
Lost Records	Number of lost records since system initialization or the last time the counter wrapped.
Bad Records	Number of bad records received. These are records in which an error was detected while attempting to decode the contents.

CSG Global Peaks Rates Daily Reports

MWTM displays the CSG Global Peaks Rates Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > CSG**.

Note The 15-minute and hourly CSG Global Peaks Rates reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the CSG Global Peaks Rates reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose CSG Global Peaks Rates Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Average	Average CSG rate for the specified duration.
Minimum	Minimum CSG rate during the specified duration.

Field	Description
Minimum Timestamp (*timezone*)	Timestamp when the minimum value occurred.
Maximum	Maximum CSG rate during the specified duration
Maximum Timestamp (*timezone*)	Timestamp when the maximum value occurred.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

Report Type	Output	Field	Description
CSG Global Peak Rates Daily	Table, CSV	Node	Name of the node.
		Timestamp (*timezone*)	Time value occurred.
		Average Users	The average number of users using the network.
		Peak Users	The maximum number of users using the network.
		Average Sessions	The average number of sessions in the network.
		Peak Sessions	The maximum number of sessions in the network.
	Graph	Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing
		Users/Sessions	If Output Type is Graph, the Y-axis label shows Daily statistics over time.
		Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
		Utilization	If Output Type is Graph, a color-coded legend shows labels for utilization.
		Legend	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing

CSG Protocol Rates Daily Reports

MWTM displays the CSG Protocol Rates Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > CSG**.

Note The 15-minute and hourly CSG Protocol Rates reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the CSG Protocol Rates reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose CSG Protocol Rates Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Protocol	Name of the protocol.
Timestamp (*timezone*)	Timestamp shows the time bits-per second value occurred.
Inspection Method	The type of inspection method applied in the network.
Transactions	Total number of transactions occurred in the network.
Subscriber Send Packets	Total number of subscriber packets sent by the network.
Subscriber Send Bits	Total number of subscriber bits sent by the network.
Network Send Packets	Total number of packets sent by the network.
Network Send Bits	Total number of bits sent by the network.

CSG Load Session Rates Daily Reports

MWTM displays the CSG Load Session Rates Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > CSG**.

Note The 15-minute and hourly CSG Load Session Rates reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the CSG Load Session Rates reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose CSG Load Session Rates Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Timestamp (*timezone*)	Timestamp shows the time bits-per second value occurred.
IPC Queue Depth Tolerance	Maximum queue depth for Radius Start requests in the IPC queue.
Allowed	Number of outgoing Radius Start requests allowed.
Allowed Rate	Number of outgoing Radius Start requests allowed per second.
Allowed Peak	Number of outgoing Radius Start maximum requests allowed.
Denied	Number of outgoing Radius Start requests denied.
Denied Rate	Number of outgoing Radius Start requests denied per second.
Denied Peak	Number of outgoing Radius Start maximum requests denied.

CSG Load Radius Rates Daily Reports

MWTM displays the CSG Load Radius Rates Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > CSG**.

Note The 15-minute and hourly CSG Load Radius Rates reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the CSG Load Radius Rates reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose CSG Load Radius Rates Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Timestamp (*timezone*)	Timestamp of the report.
IPC Queue Depth Tolerance	Maximum queue depth for Radius Start requests in the IPC queue.
Allowed	Number of outgoing Radius Start requests allowed.
Allowed Rate	Number of outgoing Radius Start requests allowed per second.
Allowed Peak	Number of outgoing Radius Start maximum requests allowed.
Denied	Number of outgoing Radius Start requests denied.
Denied Rate	Number of outgoing Radius Start requests denied per second.
Denied Peak	Number of outgoing Radius Start maximum requests denied.

CSG Load BMA Rates Daily Reports

MWTM displays the CSG Load BMA Rates Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > CSG**.

Note The 15-minute and hourly CSG Load BMA Rates reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the CSG Load BMA Rates reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose CSG Load BMA Rates Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Timestamp (*timezone*)	Timestamp of the report.
IPC Queue Depth Tolerance	Maximum queue depth for Radius Start requests in the IPC queue.
Allowed	Number of outgoing Radius Start requests allowed.
Allowed Rate	Number of outgoing Radius Start requests allowed per second.
Allowed Peak	Number of outgoing Radius Start maximum requests allowed.
Denied	Number of outgoing Radius Start requests denied.
Denied Rate	Number of outgoing Radius Start requests denied per second.
Denied Peak	Number of outgoing Radius Start maximum requests denied.

CSG Load User DB Rates Daily Reports

MWTM displays the CSG Load User DB Rates Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > CSG**.

Note The 15-minute and hourly CSG Load User DB Rates reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the CSG Load User DB Rates reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose CSG Load User DB Rates Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Timestamp (*timezone*)	Timestamp of the report.
IPC Queue Depth Tolerance	Maximum queue depth for Radius Start requests in the IPC queue.
Allowed	Number of outgoing Radius Start requests allowed.
Allowed Rate	Number of outgoing Radius Start requests allowed per second.
Allowed Peak	Number of outgoing Radius Start maximum requests allowed.
Denied	Number of outgoing Radius Start requests denied.
Denied Rate	Number of outgoing Radius Start requests denied per second.
Denied Peak	Number of outgoing Radius Start maximum requests denied.

CSG Load Gx Event Rates Daily Reports

MWTM displays the CSG Load Gx Event Rates Daily report, obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > CSG**.

Note The 15-minute and hourly CSG Load Gx Event Rates reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the CSG Load Gx Event Rates reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose CSG Load Gx Event Rates Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Timestamp (*timezone*)	Timestamp of the report.
IPC Queue Depth Tolerance	Maximum queue depth for Radius Start requests in the IPC queue.
Allowed Count	Number of outgoing Radius Start requests allowed.
Allowed Rate	Number of outgoing Radius Start requests allowed per second.
Allowed Peak	Number of outgoing Radius Start maximum requests allowed.
Denied Count	Number of outgoing Radius Start requests denied.
Denied Rate	Number of outgoing Radius Start requests denied per second.
Denied Peak	Number of outgoing Radius Start maximum requests denied.

CSG Quota Manager Statistics Daily Reports

MWTM displays the CSG Quota Manager Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > CSG**.

Note The 15-minute and hourly CSG Quota Manager Statistics reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the CSG Quota Manager Statistics reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose CSG Quota Manager Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Timestamp (*timezone*)	Timestamp of the report.
IPC Queue Depth Tolerance	Maximum queue depth for Radius Start requests in the IPC queue.
Allowed	Number of outgoing Radius Start requests allowed.
Allowed Rate	Number of outgoing Radius Start requests allowed per second.
Allowed Peak	Number of outgoing Radius Start maximum requests allowed.
Denied	Number of outgoing Radius Start requests denied.
Denied Rate	Number of outgoing Radius Start requests denied per second.
Denied Peak	Number of outgoing Radius Start maximum requests denied.

GTP Reports

The MWTM web interface provides network wide and node-level GTP reports. To generate a network-wide GTP report:

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > GTP**.

Step 2 In the tool bar of the right pane, choose a report type from the Type drop-down menu for a list of report types and their contents.

Step 3 Choose a time range from the Duration drop-down menu or customize your own time range by clicking the Customize icon.

Step 4 Choose an output format (Graph, Table or CSV) from the Output drop-down menu for contents of each output type.

Step 5 To generate the report, click the Run icon (green arrow).

In the tool bar of the right pane, choose a report type from the Type drop-down menu:

- GTP Active Statistics Daily Reports, page 13-93
- GTP Error Statistics Daily Reports, page 13-95
- GTP PDP Statistics Daily Reports, page 13-96
- GTP Throughput Statistics Daily Reports, page 13-97

GTP Active Statistics Daily Reports

MWTM displays the GTP Active Statistics Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > GTP**.

Note The 15-minute and hourly GTP Active Statistics reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the GTP Active Statistics reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose GTP Active Statistics Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Average Active Sessions	Average sessions which are in active state.
Maximum Active Session	Maximum sessions which are in active state.
Maximum Timestamp (*timezone*)	Timestamp when the maximum value occurred
Average GTP v0 PDP Contexts	Average PDP contexts (GTP version 0) that are active.
Maximum GTP v0 PDP Contexts	Maximum PDP contexts (GTP version 0) that are active.
Average GTP v1 PDP Contexts	Average PDP contexts (GTP version 1) that are active.
Maximum GTP v1 PDP Contexts	Maximum PDP contexts (GTP version 1) that are active.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

Report Type	Output	Field	Description
GTP Active Statistics Daily	Table, CSV	Node	Name of the node.
		Timestamp (*timezone*)	Timestamp of the report.
		Active Sessions	Total number of sessions currently established with the system.
		Direct Tunnel PDP Contexts	Direct tunnels enabled for the PDP contexts in the GGSN.
		GTP v0 PDP Contexts	PDP contexts (GTP version 0) that are active.
		GTP v1 PDP Contexts	PDP contexts (GTP version 1) that are active.
		PPP Regen PDPs	Device-specific interfaces created for association with PDP contexts regenerated to a Point-to-Point (PPP) session.
		PPP PDPs	Total number of point to point PDP contexts.
	Graph	Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing
		Active Sessions/ GTP v0 PDP Contexts/ GTP v1 PDP Contexts	If Output Type is Graph, the Y-axis label shows Daily statistics over time.
		Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
		Legend	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing

GTP Error Statistics Daily Reports

MWTM displays the GTP Error Statistics Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > GTP**.

Note The 15-minute and hourly GTP Error Statistics reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the GTP Error Statistics reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose GTP Error Statistics Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Timestamp (*timezone*)	Timestamp of the report.
PDP Context Activations	• Insufficient Resources Rejection—Number of PDP context requests rejected due to insufficient resources.
PDP Context Requests	• PPP Regeneration Insufficient Resources Rejection—PDP context requests rejected due to insufficient resources for PPP regeneration. • PPP Regeneration Threshold Limit Drops—Number of PDP context requests dropped due to the PPP regeneration threshold limit.
PDP Context Messages	• TFT Semantic Errors—Total number of received PDP context messages that had Traffic Flow Templates (TFT) with semantic errors. • TFT Syntax Errors—Total number of received PDP context messages that had TFTs with syntax errors. • Packet Filter Semantic Errors—Total number of received PDP context messages that had packet filters with semantic errors. • Packet Filter Syntax Errors—Total number of received PDP context messages that had packet filters with syntax errors.
Signaling Messages	• Unexpected—Number of unexpected GTP signaling messages sent or received. • GTP Message Parsers Errors—Number of GTP messages received with wrong value.

GTP PDP Statistics Daily Reports

MWTM displays the GTP PDP Statistics Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > GTP**.

Note The 15-minute and hourly GTP PDP Statistics reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the GTP PDP Statistics reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose GTP PDP Statistics Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Timestamp (*timezone*)	Timestamp of the report.
Active failure Ratio	Failure ratio.
Created	• Count—Number of PDP contexts created. • Rate—Rate at which the PDP contexts were created.
Rejected	• Count—Number of PDP contexts rejected. • Rate—Rate at which the PDP contexts were rejected.
Deleted	• Count—Number of PDP contexts deleted. • Rate—Rate at which the PDP contexts were deleted.

GTP Throughput Statistics Daily Reports

MWTM displays the GTP Throughput Statistics Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > GTP**.

Note The 15-minute and hourly GTP Throughput Statistics reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the GTP Throughput Statistics reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose GTP Throughput Statistics Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Timestamp (*timezone*)	Timestamp of the report.
GTP Signaling Messages	**Sent** • Count—GTP signaling messages sent between the Serving GPRS Support Node (SGSN) and GGSN. • Rate—Rate at which the GTP signaling messages are sent between SGSN and GGSN. **Received** • Count—GTP signaling messages received between the Serving GPRS Support Node (SGSN) and GGSN • Rate—Rate at which the GTP signaling messages are received between SGSN and GGSN.
G-PDU Messages	**Sent** • Count—Number of GTP Packet Data Unit (G-PDU) messages sent on a SGSN path. • Rate—Rate at which the G-PDU messages are sent on a SGSN path. **Received** • Count—Number of G-PDU messages received on a SGSN path. • Rate—Rate at which the G-PDU messages are received on a SGSN path.
G-PDU Bits	**Sent** • Count—Number of G-PDU bits sent on a SGSN path. • Rate—Rate at which the G-PDU bits are sent on a SGSN path. **Received** • Count—Number of G-PDU bits received on a SGSN path. • Rate—Rate at which the G-PDU bits are received on a SGSN path.

PDSN Reports

The MWTM web interface provides node-level PDSN reports. To generate a network-wide PDSN report:

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > PDSN**.

Step 2 In the tool bar of the right pane, choose a report type from the Type drop-down menu for a list of report types and their contents.

Step 3 Choose a time range from the Duration drop-down menu or customize your own time range by clicking the Customize icon.

Step 4 Choose an output format (Graph, Table or CSV) from the Output drop-down menu for contents of each output type.

Step 5 To generate the report, click the Run icon (green arrow).

In the tool bar of the right pane, choose a report type from the Type drop-down menu:

- PDSN Session Statistics Daily Reports, page 13-99
- PDSN Session Bandwidth Statistics Daily Reports, page 13-102
- PDSN Flow Statistics Daily Reports, page 13-104
- PDSN Flow Extended Statistics Daily Reports, page 13-106
- PDSN Packet Control Function Statistics Daily Reports, page 13-109
- PDSN Traffic Statistics Daily Reports, page 13-110
- PDSN Traffic Extended Statistics Daily Reports, page 13-112

PDSN Session Statistics Daily Reports

MWTM displays the PDSN Session Statistics Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > PDSN**.

Note The 15-minute and hourly PDSN Session reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the PDSN Session reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose PDSN Session Statistics Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Total Sessions	Total number of sessions currently established with the system.
Maximum Allowed Session	Maximum number of sessions allowed by the system.
Average Session Utilization	Average session utilization during the specified duration.

Field	Description
Maximum Session Utilization	Maximum session utilization during the specified duration.
Maximum Timestamp (*timezone*)	Timestamp when the maximum value occurred

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

Report Type	Output	Field	Description
PDSN Session Statistics Daily	Table, CSV	Node	Name of the node.
		Timestamp (*timezone*)	Timestamp of the report.
		Total Sessions	Total number of sessions currently established with the system.
		Maximum Allowed Sessions	Maximum number of sessions allowed by the system.
		Session Utilization	Total session utilization.
		Total Active Sessions	Total number of sessions in active state.
		Total Dormant Sessions	Total number of sessions in dormant state.
		Total PPP over GRE Sessions	Total number of PPPoGRE sessions currently established with the system.
		Total HDLC over GRE Sessions	Total number of HDLCoGRE sessions currently established with the system.
		Total Sessions Established	Total number of sessions established since system was last restarted.
		Total Sessions Established Rate	Rate at which the sessions were established since system was last restarted.
		Total Sessions Released	Total number of sessions released since system was last restarted.
		Total Sessions Released Rate	Rate at which the sessions were released since system was last restarted.
		Total Session Failures	Number of A10/A11 session failures occurring since PDSN agent restarted.
		Session Failure Ratio	Ratio of session failures.

Report Type	Output	Field	Description
	Graph	Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing
		Maximum Allowed Sessions/ Total Sessions/ Session Utilization	If Output Type is Graph, the Y-axis label shows Daily statistics over time.
		Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
		Utilization	If Output Type is Graph, a color-coded legend shows labels for utilization.
		Legend	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing

PDSN Session Bandwidth Statistics Daily Reports

MWTM displays the PDSN Session Bandwidth Statistics Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > PDSN**.

Note The 15-minute and hourly PDSN Session Bandwidth reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the PDSN Session Bandwidth reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose PDSN Session Bandwidth Statistics Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Total Allocated Bandwidth	Total bandwidth allocated for sessions currently established on the PDSN.

Field	Description
Total Configured Bandwidth	Total bandwidth value configured via the CLI that would be supported by PDSN system.
Average Bandwidth Utilization	Average bandwidth utilization during the specified duration.
Maximum Bandwidth Utilization	Maximum bandwidth utilization during the specified duration.
Maximum Timestamp (*timezone*)	Timestamp when the maximum value occurred

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

Report Type	Output	Field	Description
PDSN Session Bandwidth Statistics Daily	Table, CSV	Node	Name of the node.
		Timestamp (*timezone*)	Timestamp of the report.
		Total Available Bandwidth	Bandwidth available on the PDSN system for creation of new sessions.
		Total Allocated Bandwidth	Total bandwidth allocated for sessions currently established on the PDSN.
		Total Configured Bandwidth	Total bandwidth value configured via the CLI that would be supported by PDSN system.
		Bandwidth Utilization	Total bandwidth that has been utilized.
	Graph	Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing
		Total Allocated Bandwidth/ Total Configured Bandwidth/ Bandwidth Utilization	If Output Type is Graph, the Y-axis label shows Daily statistics over time.
		Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
		Utilization	If Output Type is Graph, a color-coded legend shows labels for utilization.
		Legend	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing

PDSN Flow Statistics Daily Reports

MWTM displays the PDSN Flow Statistics Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > PDSN**.

Note The 15-minute and hourly PDSN Flow reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the PDSN Flow reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose PDSN Flow Statistics Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Total Simple IP Flows	Total number of flows currently using simple IP service.
Total Mobile IP Flows	Total number of flows currently using MoIP services.
Maximum Timestamp (*timezone*)	Timestamp when the maximum value occurred.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

Report Type	Output	Field	Description
PDSN Flow Statistics Daily Reports	Table, CSV	Node	Name of the node.
		Timestamp (*timezone*)	Timestamp of the report.
		Total Simple IP Flows	Total number of flows currently using simple IP service.
		Total Mobile IP Flows	Total number of flows currently using MoIP services.
		Total Proxy Mobile IP Flows	Total number of flows currently using proxy MoIP service.
		Total MSID Flows	Total number of flows currently using MSID service.
		Total VPDN Flows	The total number of flows currently using VPDN service.
	Graph	Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing
		Total Simple IP Flows/ Total Mobile IP Flows	If Output Type is Graph, the Y-axis label shows Daily statistics over time.
		Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
		Legend	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing

PDSN Flow Extended Statistics Daily Reports

MWTM displays the PDSN Flow Extended Statistics Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > PDSN**.

Note The 15-minute and hourly PDSN Flow Extended Statistics reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the PDSN Flow Extended Statistics reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose PDSN Flow Extended Statistics Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Timestamp (*timezone*)	Timestamp of the report.
Total Simple IP Flows Established	• Count—Total number of Simple IP flow that has been established successfully since system reboot. • Rate—Rate at which the Simple IP flow is established successfully since system reboot.
Total Mobile IP Flows Established	• Count—Total number of mobile IP flow that has been established successfully since system reboot. • Rate—Rate at which the mobile IP flow is established successfully since system reboot.
Total Proxy Mobile IP Flows Established	• Count—Total number of proxy mobile IP flow that has been established successfully since system reboot. • Rate—Rate at which the proxy mobile IP flow is established successfully since system reboot.
Total VPDN Flows Established	• Count—Total number of VPDN flow that has been established successfully since system reboot. • Rate—Rate at which the VPDN flow is established successfully since system reboot.
Total Simple IP Flow Failures	• Count—Total number of simple IP flow setup request failed since last system reboot. • Rate—Rate at which the simple IP flow setup request is failed since last system reboot.
Total Mobile IP Flow Failures	• Count—Total number of mobile IP flow setup request failed since system reboot. • Rate—Rate at which the mobile IP flow setup request is failed since system reboot.
Total Proxy Mobile IP Flow Failures	• Count—Total number of proxy mobile IP flow setup request failed since system reboot. • Rate—Rate at which the proxy mobile IP flow setup request is failed since system reboot.
Total VPDN Flow Failures	• Count—Total number of VPDN flow setup request failed since last system reboot. • Rate—Rate at which the VPDN flow setup request is failed since last system reboot.
Total Unknown Type Flow Failures	• Count—Total number of unknown type flow setup request failed since last system reboot. • Rate—Rate at which the unknown type flow setup request is failed since last system reboot.
Flow Failure Ratio	Ratio of flow failures.

PDSN Packet Control Function Statistics Daily Reports

MWTM displays the PDSN Packet Control Function Statistics Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > PDSN**.

Note The 15-minute and hourly PDSN PCF Statistics reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the PDSN PCF reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose PDSN Packet Control Function Statistics Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Total PCFs	Total number of PCF currently interacting with the system.
Maximum Allowed PCFs	Maximum number of PCF allowed by the system.
Average PCF Utilization	Average PCF utilization during the specified duration.
Maximum PCF Utilization	Maximum PCF utilization during the specified duration.
Maximum Timestamp (*timezone*)	Timestamp for when the maximum value occurred.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

Report Type	Output	Field	Description
PDSN Packet Control Function Statistics Daily Reports	Table, CSV	Node	Name of the node.
		Timestamp (*timezone*)	Timestamp of the report.
		Total PCFs	Total number of PCF currently interacting with the system.
		Maximum Allowed PCFs	Maximum number of PCF allowed by the system.
		PCF Utilization	PCF utilization.
	Graph	Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing
		Total PCFs/ PCF Utilization/ Maximum Allowed PCFs	If Output Type is Graph, the Y-axis label shows Daily statistics over time.
		Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
		Legend	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing

PDSN Traffic Statistics Daily Reports

MWTM displays the PDSN Traffic Statistics Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > PDSN**.

Note The 15-minute and hourly PDSN Traffic Statistics reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the PDSN Traffic Statistics reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose PDSN Traffic Statistics Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Timestamp (*timezone*)	Timestamp of the report.
Simple IP Bits Sent	• Count—Total number of simple IP data octets (in unit of 1024 octets) sent to mobile stations from PDSN since system was last restarted. • Rate—Rate at which the simple IP data octets (in unit of 1024 octets) are sent to mobile stations from PDSN since system was last restarted.
Simple IP Bits Received	• Count—Total number of simple IP data octets (in unit of 1024 octets) received from mobile stations by PDSN since system was last restarted. • Rate—Rate at which the simple IP data octets (in unit of 1024 octets) are received from mobile stations by PDSN since system was last restarted.
Simple IP Packets Sent	• Count—Total number of simple IP data packets sent to mobile stations since system was last restarted. • Rate—Rate at which the simple IP data packets are sent to mobile stations since system was last restarted.
Simple IP Packets Received	• Count—Total number of simple IP data packets received from mobile stations since system was last restarted. • Rate—Rate at which the simple IP data packets are received from mobile stations since system was last restarted.
Mobile IP Bits Sent	• Count—Total number of mobile IP data octets (in unit of 1024 octets) sent to mobile stations from PDSN since system was last restarted. • Rate—Rate at which the mobile IP data octets (in unit of 1024 octets) are sent to mobile stations from PDSN since system was last restarted.
Mobile IP Bits Received	• Count—Total number of mobile IP data octets (in unit of 1024 octets) received from mobile stations by PDSN since system was last restarted. • Rate—Rate at which the mobile IP data octets (in unit of 1024 octets) are received from mobile stations by PDSN since system was last restarted.
Mobile IP Packets Sent	• Count—Total number of mobile IP data packets sent to mobile stations from PDSN since system was last restarted. • Rate—Rate at which the mobile IP data packets are sent to mobile stations from PDSN since system was last restarted.
Mobile IP Packets Received	• Count—Total number of mobile IP data packets received from mobile stations since system was last restarted. • Rate—Rate at which the mobile IP data packets are received from mobile stations since system was last restarted.
Proxy Mobile IP Bits Sent	• Count—Total number of proxy mobile IP data octets (in unit of 1024 octets) sent to mobile stations from PDSN since system was last restarted. • Rate—Rate at which the proxy mobile IP data octets (in unit of 1024 octets) are sent to mobile stations from PDSN since system was last restarted.

Field	Description
Proxy Mobile IP Bits Received	• Count—Total number of proxy mobile IP data octets (in unit of 1024 octets) received from mobile stations since system was last restarted. • Rate—Rate at which the proxy mobile IP data octets (in unit of 1024 octets) are received from mobile stations since system was last restarted.
Proxy Mobile IP Packets Sent	• Count—Total number of proxy mobile IP data packets sent to mobile stations from PDSN since system was last restarted. • Rate—Rate at which the proxy mobile IP data packets are sent to mobile stations from PDSN since system was last restarted.
Proxy Mobile IP Packets Received	• Count—Total number of mobile IP data packets received from mobile stations since system was last restarted. • Rate—Rate at which the mobile IP data packets are received from mobile stations since system was last restarted.

PDSN Traffic Extended Statistics Daily Reports

MWTM displays the PDSN Traffic Extended Statistics Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > Mobile Statistics > PDSN**.

Note The 15-minute and hourly PDSN Traffic Extended Statistics reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the PDSN Traffic Extended Statistics reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose PDSN Traffic Extended Statistics Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Timestamp (*timezone*)	Timestamp of the report.
Short Data Burst Packets Sent	• Count—Total number of SDB marked data packets sent to PCF from PDSN since system was last restarted. • Rate—Rate at which the SDB marked data packets are sent to PCF from PDSN since system was last restarted.
Short Data Burst Bits Sent	• Count—Total number of SDB marked data octets sent to PCF from PDSN since system was last restarted. • Rate—Rate at which the SDB marked data octets are sent to PCF from PDSN since system was last restarted.
No GRE Key Packet Discards	• Count—Total number of packets discarded from PCF because of the missing GRE Keying since system was last restarted. • Rate—Rate at which the packets are discarded from PCF because of the missing GRE Key since system was last restarted.
No Session Packet Discards	• Count—Total number of packets discarded from PCF because of missing session since system was last restarted. • Rate—Rate at which the packets are discarded from PCF because of missing session since system was last restarted.
Invalid GRE Protocol Packet Discards	• Count—Total number of packets discarded from PCF because of invalid GRE protocol since system was last restarted. • Rate—Rate at which the packets are discarded from PCF because of invalid GRE protocol since system was last restarted.
Invalid Checksum Packet Discards	• Count—Total number of packets discarded from PCF because of invalid checksum since system was last restarted. • Rate—Rate at which the packets are discarded from PCF because of invalid checksum since system was last restarted.

Viewing RAN Statistics Reports

RAN Statistics Reports are located within **Reports > RAN Reports** in the MWTM web interface. You can also find the RAN statistics reports in the */opt/CSCOsgm/reports* directory on the MWTM client. All reports are saved as export files in.csv format.

You can view any of the following RAN statistics reports:

- PWE3 Reports, page 13-114
- QOS Reports, page 13-119
- RAN-Optimized Reports, page 13-125

PWE3 Reports

The MWTM web interface provides network-wide and node level reports that summarize PWE3 over a specified time period. The information is available in graphical, tabular, and CSV formats. Administrators use these reports for analysis of network-wide performance and errors for RAN backhauls and shorthauls. For example, you can generate a report to show which backhaul links were the most heavily utilized in the last 24 hours.

To generate a network-wide PWE3 report:

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > RAN Statistics > PWE3**.

Step 2 In the tool bar of the right pane, choose a report type from the Type drop-down menu (see Table 13-1 for a list of report types and their contents).

Step 3 Choose a time range from the Duration drop-down menu or customize your own time range by clicking the Customize icon.

Step 4 Choose an output format (Graph, Table, or CSV) from the Output drop-down menu (see Table 13-1 for contents of each output type).

Note The Graph output displays up to twelve RAN data streams based on traffic and/or number of errors. To view all RAN data streams, choose Table or CSV.

Step 5 To generate the report, click the Run icon (green arrow).

In the tool bar of the right pane, choose a report type from the Type drop-down menu:

- PWE3 Peak Performance Daily Reports, page 13-114
- PWE3 Average Performance Daily Reports, page 13-117

PWE3 Peak Performance Daily Reports

MWTM displays the PWE3 Peak Performance Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > RAN Statistics > PWE3**.

Note The 15-minute and hourly PWE3 Peak Performance reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the PWE3 Peak Performance reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose PWE3 Peak Performance Daily from Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Virtual Circuit	Name of the Virtual Circuit
Send Bits/Sec	• Average—Average bits/second sent. • Maximum—Maximum bits/second sent. • Maximum Timestamp (*timezone*)—Timestamp when the maximum value occurred.
Recv Bits/Sec	• Average—Average bits/second received. • Maximum—Maximum bits/second received. • Maximum Timestamp (*timezone*)—Timestamp when the maximum value occurred.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

Report Type	Output	Field	Description
PWE3 Peak Performance Daily	Table, CSV	Node	Name of the node for the virtual circuit.
		ID	Virtual circuit ID.
		Timestamp (*timezone*)	Timestamp of the report.
		Peer Address	IP address of the peer node.
		Received	• Packet Count—Number of packets received. • Packet Max Rate—Maximum packet rate for traffic received. • Packet Avg Rate—Average packet rate for traffic received. • Packet Min Rate—Minimum packet rate for traffic received. • Total—Total bits received. • Max Rate—Maximum bits received. • Avg Rate—Average bits received. • Min Rate—Minimum bits received.
		Sent	• Packet Count—Number of packets sent. • Packet Max Rate—Maximum packet rate for traffic sent. • Packet Avg Rate—Average packet rate for traffic sent. • Packet Min Rate—Minimum packet rate for traffic sent. • Total—Total bits sent. • Max Rate—Maximum bits sent. • Avg Rate—Average bits sent. • Min Rate—Minimum bits sent.
	Graph	Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing
		Average Bits/Sec	If Output Type is Graph, the Y-axis label shows Daily statistics over time.
		Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
		Legend	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing

PWE3 Average Performance Daily Reports

MWTM displays the PWE3 Average Performance Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > RAN Statistics > PWE3**.

Note The 15-minute and hourly PWE3 Average Performance reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the PWE3 Average Performance reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose PWE3 Average Performance Daily from Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Virtual Circuit	Name of the Virtual Circuit
Send Bits/Sec	• Average—Average bits/second sent. • Maximum—Maximum bits/second sent. • Maximum Timestamp (*timezone*)—Timestamp when the maximum value occurred.
Recv Bits/Sec	• Average—Average bits/second received. • Maximum—Maximum bits/second received. • Maximum Timestamp (*timezone*)—Timestamp when the maximum value occurred.

Step 3 Select the duration and output (see Using the Toolbar, page 11-5), and the following information is displayed:

Report Type	Output	Field	Description
PWE3 Average Performance Daily	Table, CSV	Node	Name of the node for the virtual circuit.
		ID	Virtual circuit ID.
		Timestamp (*timezone*)	Timestamp of the report.
		Peer Address	IP address of the peer node.
		Received	• Packet Count—Number of packets received. • Packet Max Rate—Maximum packet rate for traffic received. • Packet Avg Rate—Average packet rate for traffic received. • Packet Min Rate—Minimum packet rate for traffic received. • Total—Total bits received. • Max Rate—Maximum bits received. • Avg Rate—Average bits received. • Min Rate—Minimum bits received.
		Sent	• Packet Count—Number of packets sent. • Packet Max Rate—Maximum packet rate for traffic sent. • Packet Avg Rate—Average packet rate for traffic sent. • Packet Min Rate—Minimum packet rate for traffic sent. • Total—Total bits sent. • Max Rate—Maximum bits sent. • Avg Rate—Average bits sent. • Min Rate—Minimum bits sent.
	Graph	Expand to Full Screen	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing
		Maximum Bits/Sec	If Output Type is Graph, the Y-axis label shows Daily statistics over time.
		Time	If Output Type is Graph, the X-axis label shows a historical time scale and the server time zone.
		Legend	If Output Type is Graph, this text link displays the graph in a new, full-screen window for easier viewing

QOS Reports

The MWTM web interface provides node-level QOS reports. To generate a network-wide QOS report:

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > RAN Statistics > QOS**

Step 2 In the tool bar of the right pane, choose a report type from the Type drop-down menu for a list of report types and their contents.

Step 3 Choose a time range from the Duration drop-down menu or customize your own time range by clicking the Customize icon.

Step 4 Choose an output format (Table or CSV) from the Output drop-down menu for contents of each output type.

Step 5 To generate the report, click the Run icon (green arrow).

In the tool bar of the right pane, choose a report type from the Type drop-down menu:

- QOS Class Map Daily Reports, page 13-119
- QOS Match Statement Daily Reports, page 13-120
- QOS Packet Marking Daily Reports, page 13-121
- QOS Policing Daily Reports, page 13-122
- QOS Queuing Daily Reports, page 13-123
- QOS Traffic Shaping Daily Reports, page 13-124

QOS Class Map Daily Reports

MWTM displays the QOS Class Map Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > RAN Statistics > QOS**.

Note The 15-minute and hourly QOS Class Map reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the QOS Class Map Statistics reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose QOS Class Map Daily from the Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Class Map	User-defined traffic class that contains one or many match statements used to classify packets into different categories.

Field	Description
Service Policy Direction	The direction of traffic for which the service policy is applied.
Timestamp (*timezone*)	Timestamp shows the time bits-per second value occurred.
Pre-Policy	• Packets—The number of inbound packets prior to executing any QoS policies. • Bits—The number of inbound octets prior to executing any QoS policies. • Bits Rate—The rate of the traffic prior to executing any QoS policies.
Post-Policy	• Packets—The number of outbound packets after executing QoS policies. • Bits—The number of outbound octets after executing QoS policies. • Bits Rate—The rate of the traffic after executing QoS policies
Dropped	• SRAM Buffer Packets—The number of drop packet count which occurred due to a lack of SRAM buffers during output processing on an interface. • Bits—The number of drop octet count which occurred due to a lack of SRAM buffers during output processing on an interface. • Bits Rate—The rate of the traffic due to a lack of SRAM buffers during output processing on an interface.

QOS Match Statement Daily Reports

MWTM displays the QOS Match Statement Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > RAN Statistics > QOS**.

Note The 15-minute and hourly QOS Match Statement Statistics reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the QOS Match Statement Statistics reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose QOS Match Statement Daily from Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Class Map	User-defined traffic class that contains one or many match statements used to classify packets into different categories.
Service Policy Direction	The direction of traffic for which the service policy is applied.
Match Statement	The specific match criteria to identify packets for classification purposes.
Timestamp (*timezone*)	Timestamp shows the time bits-per second value occurred.
Pre-Policy	• Packets—The number of inbound packets prior to executing any QoS policies. • Bits—The number of inbound octets prior to executing any QoS policies. • Bits Rate—The rate of the traffic prior to executing any QoS policies.

QOS Packet Marking Daily Reports

MWTM displays the QOS Packet Marking Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > RAN Statistics > QOS**.

Note The 15-minute and hourly QOS Packet Marking Statistics reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the QOS Packet Marking Statistics reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose QOS Packet Marking Daily from Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Class Map	User-defined traffic class that contains one or many match statements used to classify packets into different categories.
Service Policy Direction	The direction of traffic for which the service policy is applied.
Timestamp (*timezone*)	Timestamp shows the time bits-per second value occurred.
QOS Group Packets	The number of packets whose QoS Group field is marked by Set feature.
ATM CLP Packets	The number of packets whose ATM CLP Bit is marked by Set feature.
Layer 2 COS Packets	The Layer 2 CoS value to use when mapping this DSCP to layer 2 CoS.
Discard Class Packets	The number of packets whose Discard Class field is marked by Set feature.
SRP Priority Packets	The number of packets whose SRP Priority field is marked by Set feature.
Precedance	• Packets—The number of packets whose Precedence field is marked by Set feature. • Tunnel Packets—The number of packets whose Precedence Tunnel field is marked by Set feature.
Frame Relay	• DE Packets—The number of packets whose Frame Relay DE Bit is marked by Set feature. • FECN—The number of packets whose Frame Relay FECN BECN field is marked by Set feature.
MPLS Experimental	• Imposition Packets—The number of packets whose MPLS Experimental Imposition field is marked by Set feature. • Topmost Packets—The number of packets whose MPLS Experimental Top Most field is marked by Set feature.
DSCP	• Packets—The number of packets whose DSCP field is marked by Set feature. • Tunnel Packets—The number of packets whose Precedence Tunnel field is marked by Set feature.

QOS Policing Daily Reports

MWTM displays the QOS Policing Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > RAN Statistics > QOS**.

Note The 15-minute and hourly QOS Policing Statistics reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the QOS Policing Statistics reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose QOS Policing Daily from Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Class Map	User-defined traffic class that contains one or many match statements used to classify packets into different categories.
Service Policy Direction	The direction of traffic for which the service policy is applied.
Timestamp (*timezone*)	Timestamp shows the time bits-per second value occurred.
Conformed	• Packets—The number of packets treated as conforming by the policing feature. • Bits—The number of octets treated as conforming by the policing feature. • Bits Rate—The rate of conforming traffic.
Exceeded	• Packets—The number of packets treated as non-conforming by the policing feature. • Bits—The number of octets treated as non-conforming by the policing feature. • Bits Rate—The rate of non-conforming traffic.
Violated	• Packets—The number of packets treated as violated by the policing feature. • Bits—The number of octets treated as violated by the policing feature. • Bits Rate—The rate of the violating traffic.

QOS Queuing Daily Reports

MWTM displays the QOS Queuing Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > RAN Statistics > QOS**.

Note The 15-minute and hourly QOS Queuing Statistics reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the QOS Queuing Statistics reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose QOS Queuing Daily from Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Class Map	User-defined traffic class that contains one or many match statements used to classify packets into different categories.
Service Policy Direction	The direction of traffic for which the service policy is applied.
Timestamp (*timezone*)	Timestamp shows the time bits-per second value occurred.
Queue Depth	The current depth of the queue.
Max Queue Depth	The maximum depth of the queue.
Queue Discarded	• Bits—The number of octets, associated with this class, that were dropped by queueing. • Packets—The number of packets, associated with this class, that were dropped by queueing.

QOS Traffic Shaping Daily Reports

MWTM displays the QOS Traffic Shaping Daily report obtained during the specified period.

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > RAN Statistics > QOS**.

Note The 15-minute and hourly QOS Traffic Shaping Statistics reports are available from the node level only; they are not available from the top level or the network level. Click on a node name in the QOS Traffic Shaping Statistics reports to navigate to a specific node to view hourly and 15 minute reports for that node.

Step 2 Choose QOS Traffic Shaping Daily from Type drop-down menu.

A summary table displays the information described in the following table:

Field	Description
Node	Name of the node.
Class Map	User-defined traffic class that contains one or many match statements used to classify packets into different categories.
Service Policy Direction	The direction of traffic for which the service policy is applied.
Timestamp (*timezone*)	Timestamp shows the time bits-per second value occurred.
Active	The current traffic-shaping state. When traffic-shaping is enabled and the traffic rate exceeds the shape rate, traffic-shaping is considered to be active. Otherwise, it is considered inactive.
Queue Size	The current traffic-shaping queue depth in packets.
Delayed	• Bits—The number of octets that have been delayed. • Packets—The number of packets that have been delayed.
Dropped	• Bits—The number of octets that have been dropped during shaping. • Packets—The number of packets that have been dropped during shaping.

RAN-Optimized Reports

The MWTM web interface provides network-wide reports that summarize IP-RAN over a specified time period. The information is available in graphical, tabular, and CSV formats. Administrators use these reports for analysis of network-wide performance and errors for RAN backhauls and shorthauls. For example, you can generate a report to show which backhaul links were the most heavily utilized in the last 24 hours.

To generate a network-wide RAN report:

Step 1 In the left pane (navigation tree) of the MWTM web interface, choose **Reports > RAN Statistics > RAN-Optimized**.

Step 2 In the tool bar of the right pane, choose a report type from the Type drop-down menu (see Table 13-1 for a list of report types and their contents).

Step 3 Choose a time range from the Duration drop-down menu or customize your own time range by clicking the Customize icon.

Step 4 Choose an output format (Graph, Table, or CSV) from the Output drop-down menu (see Table 13-1 for contents of each output type).

Note The Graph output displays up to twelve RAN data streams based on traffic and/or number of errors. To view all RAN data streams, choose Table or CSV.

Step 5 To generate the report, click the Run icon (green arrow).

Step 6 To understand the report, click the report type listed in Table 13-1 for a detailed description of the report fields.

Report Type	Output	Contents
Backhaul Performance Daily Report	Graph	Minimum, maximum, and average performance data for all the RAN backhauls in the network: • Send Summary—Table summary of backhaul send data. • Receive Summary—Table summary of backhaul receive data. • Send Backhaul Performance Daily—Graph of backhaul send data. • Receive Backhaul Performance Daily—Graph of backhaul receive data.
	Table or CSV	Send and receive data, node, and backhaul in tabular format.
Backhaul Errors Daily Report	Graph	For all the RAN backhauls in the network: • Table—Average error rate, total errors, and total GSM-Abis and UMTS-Iub errors in tabular format. • Backhaul Errors Daily—Graph that shows total errors, GSM errors, and UMTS errors.
	Table or CSV	Tabular information that shows total errors, total GSM-Abis errors, total UMTS-Iub errors, node, and backhaul.
Shorthaul Performance Daily Report	Graph	Minimum, maximum, and average performance data for all the RAN shorthauls in the network: Send Summary—Table summary of shorthaul send data. Receive Summary —Table summary of shorthaul receive data. Send Shorthaul Performance Daily—Graph of shorthaul send data. Receive Shorthaul Performance Daily—Graph of shorthaul receive data.
	Table or CSV	Tabular information that shows send and receive data, protocol type, node, and shorthaul.
GSM Errors Daily Reports	Graph	Table—Tabular data that shows total GSM error counts and average error rate over the chosen time period. GSM Errors Daily—Graph of GSM errors over the chosen time period.
	Table or CSV	Tabular information that shows total errors, total missed packets, total protocol errors, total miscellaneous errors, node, backhaul, and shorthaul.
UMTS Errors Daily Reports	Graph	Table—Tabular data that shows total UMTS error counts and average error rate over the chosen time period. UMTS Errors Daily—Graph of UMTS errors over the chosen time period.
	Table or CSV	Tabular information that shows total errors, total protocol errors, total miscellaneous errors, node, backhaul, and shorthaul.

Backhaul Performance Daily Report

Output	GUI Element	Description
Graph	Node	Table column that lists nodes that contain RAN backhauls. To access details for a specific node, click a node in this column.
	Backhaul	Table column that lists the visible backhauls. To access details for a specific backhaul, click a backhaul in this column. **Note** The column shows a maximum of 12 backhauls by default. To change the number of visible backhauls, use the Graph Series Editor. See Using the Toolbar, page 11-5, for more information.
	Average Utilization	Table column that shows the average of the backhaul. A value greater than 100% indicates that the backhaul is oversubscribed.
	Average	Table column that shows average bits per second for the backhaul.
	Minimum Utilization	Table column that shows the minimum of the backhaul. A value greater than 100% indicates that the backhaul is oversubscribed.
	Minimum	Table column that shows minimum number of bits per second for the backhaul.
	Minimum Timestamp	Table column that shows time when the minimum bits-per-second value occurred.
	Maximum Utilization	Table column that shows the maximum of the backhaul. A value greater than 100% indicates that the backhaul is oversubscribed.
	Maximum	Table column that shows maximum number of bits per second for the backhaul.
	Maximum Timestamp	Table column that shows time when the maximum bits-per-second value occurred.
	Expand to Full Screen	Click this link to open the graph in a full-screen window for better viewing.
	Minimum Bits (or Bytes)/Sec	Y-axis labels for graphs that show minimum, average, and maximum bits per second for the visible backhauls. **Note** The graph shows a maximum of 12 backhauls by default. To change the number of visible backhauls, use the Graph Series Editor. See Using the Toolbar, page 11-5, for more information.
	Average Bits (or Bytes)/Sec	
	Maximum Bits (or Bytes)/Sec	
	Legend	Appearing below each graph, a legend of color-coded labels for each backhaul that appears in the graph.

Output	GUI Element	Description
Table, CSV	Node	Table column that lists all network nodes that contain backhauls. If Output is Table, to access performance details for a specific node, click a node in this column.
	Backhaul	Table column that lists all the backhauls in the network. If Output is Table, to access performance details for a specific backhaul, click a backhaul in this column.
	Errors	Table column that shows total error counts for each backhaul.
	Send Bits	Table columns that show minimum, average, and maximum values and their timestamps for send traffic on the backhaul.
	Receive Bits	Table columns that show minimum, average, and maximum values and their timestamps for receive traffic on the backhaul.

Backhaul Errors Daily Report

Output	GUI Element	Description
Graph	Node	Table column that lists nodes that contain RAN backhauls. To access details for a specific node, click a node in this column.
	Backhaul	Table column that lists the visible backhauls. To access details for a specific backhaul, click a backhaul in this column. **Note** The graph shows a maximum of 12 backhauls by default. To change the number of visible backhauls, use the Graph Series Editor. See Using the Toolbar, page 11-5, for more information.
	Avg. Error Rate (Per Sec)	Table column that lists the average error rate each second for the visible backhauls.
	Total Errors	Table column that lists the total number of errors (GSM and UMTS) for each visible backhaul.
	Total Errors GSM-Abis	Table column that lists the total number of GSM-Abis errors for each visible backhaul.
	Total Errors UMTS-Iub	Table column that lists the total number of UMST-Iub errors for each visible backhaul.
	Expand to Full Screen	Click this link to open the graph in a full-screen window for better viewing.
	UMTS Errors	Y-axis labels for graphs that show total UMTS errors, total GSM errors, and a combined total of UMTS and GSM errors for the visible backhauls. **Note** The graph shows a maximum of 12 backhauls by default. To change the number of visible backhauls, use the Graph Series Editor. See Using the Toolbar, page 11-5, for more information.
	GSM Errors	
	Total Errors	
	Legend	Positioned below the graph, a legend of color-coded labels for each backhaul that appears in the graph.
Table, CSV	Lists the same information as the graph output type, but in tabular format; also includes one unique field: Timestamp—identifies the time that each error value occurred for each visible backhaul.	

Shorthaul Performance Daily Report

Output	GUI Element	Description
Graph	Node	Table column that lists nodes that contain RAN shorthauls. To access details for a specific node, click a node in this column.
	Backhaul	Table column that lists the visible backhauls. To access details for a specific backhaul, click a backhaul in this column.
	Shorthaul	Table column that lists the visible shorthauls. To access details for a specific shorthaul, click a shorthaul in this column. **Note** The graph shows a maximum of 12 shorthauls by default. To change the number of visible shorthauls, use the Graph Series Editor. See Using the Toolbar, page 11-5, for more information.
	Average	Table column that shows the average bits per second for the shorthaul.
	Minimum	Table column that shows the minimum number of bits per second for the shorthaul.
	Minimum Timestamp	Table column that shows time when the minimum bits-per-second value occurred.
	Maximum	Table column that shows maximum number of bits per second for the shorthaul.
	Maximum Timestamp	Table column that shows time when the maximum bits-per-second value occurred.
	Expand to Full Screen	Click this link to open the graph in a full-screen window for better viewing.
	Minimum Bits (or Bytes)/Sec	Y-axis labels for graphs that show minimum, average, and maximum bits per second for the visible shorthauls. **Note** The graph shows a maximum of 12 shorthauls by default. To change the number of visible shorthauls, use the Graph Series Editor. See Using the Toolbar, page 11-5, for more information.
	Average Bits (or Bytes)/Sec	
	Maximum Bits (or Bytes)/Sec	
	Legend	Positioned below each graph, a legend of color-coded labels for each shorthaul that appears in the graph.

Output	GUI Element	Description
Table, CSV	Node	Table column that lists all the nodes that contain RAN backhauls. If Output is Table, to access details for a specific node, click a node in this column.
	Backhaul	Table column that lists all the RAN backhauls in the network. If Output is Table, to access details for a specific backhaul, click a backhaul in this column.
	Shorthaul	Table column that lists all the RAN shorthauls in the network. If Output is Table, to access details for a specific shorthaul, click a shorthaul in this column.
	Protocol	Table column that shows whether the shorthaul protocol is GSM or UMTS.
	Send Bits	Table columns that show minimum, average, and maximum values and their timestamps for send traffic on the shorthaul.
	Receive Bits	Table columns that show minimum, average, and maximum values and their timestamps for receive traffic on the shorthaul.

GSM Errors Daily Reports

Output	GUI Element	Description
Graph	Node	Table column that lists nodes that contain GSM shorthauls. To access details for a specific node, click a node in this column.
	Backhaul	Table column that lists backhauls that contain GSM shorthauls. To access details for a specific backhaul, click a backhaul in this column.
	Shorthaul	Table column that lists the visible GSM shorthauls. To access details for a specific shorthaul, click a shorthaul in this column. **Note** The table shows a maximum of 12 shorthauls by default. To change the number of visible shorthauls, use the Graph Series Editor. See Using the Toolbar, page 11-5, for more information.
	Total Counts	Table column that lists the total number of GSM errors for the visible shorthauls during the chosen duration.
	Avg. Error Rate (Per Sec)	Table column that lists the average error rate each second for the visible shorthauls.
	Expand to Full Screen	Click this link to open the graph in a full-screen window for better viewing.
	Error Counts	Y-axis label for graph that shows total GSM errors for the visible GSM shorthauls. **Note** The graph shows a maximum of 12 shorthauls by default. To change the number of visible shorthauls, use the Graph Series Editor. See Using the Toolbar, page 11-5, for more information.
	Legend	Positioned below the graph, a legend of color-coded labels for each shorthaul that appears in the graph.

Output	GUI Element	Description
Table, CSV	Node	Table column that lists all the nodes that contain GSM shorthauls. If Output is Table, to access details for a specific node, click a node in this column.
	Backhaul	Table column that lists all the backhauls that contain GSM shorthauls. If Output is Table, to access details for a specific backhaul, click a backhaul in this column.
	Shorthaul	Table column that lists all the GSM shorthauls in the network. If Output is Table, to access details for a specific shorthaul, click a shorthaul in this column.
	Total Errors	Table column that lists the total number of GSM errors for the visible shorthauls during the chosen duration.
	Total Missed Packets	Total number of missed packets on the GSM shorthaul.
	Total Protocol Errors	Total number of protocol errors on the GSM shorthaul.
	Total Miscellaneous Errors	Total number of miscellaneous errors on the GSM shorthaul.

UMTS Errors Daily Reports

Output	GUI Element	Description
Graph	Node	Table column that lists nodes that contain UMTS shorthauls. To access details for a specific node, click a node in this column.
	Backhaul	Table column that lists backhauls that contain UMTS shorthauls. To access details for a specific backhaul, click a backhaul in this column.
	Shorthaul	Table column that lists the visible UMTS shorthauls. To access details for a specific shorthaul, click a shorthaul in this column. **Note** The table shows only 12 shorthauls by default. To change the number of visible shorthauls, use the Graph Series Editor. See Using the Toolbar, page 11-5, for more information.
	Total Counts	Table column that lists the total number of UMTS errors that occurred for the visible shorthauls during the chosen duration.
	Avg. Error Rate (Per Sec)	Table column that lists the average error rate each second for the visible shorthauls during the chosen duration.
	Expand to Full Screen	Click this link to open the graph in a full-screen window for better viewing.
	Error Counts	Y-axis label for the graph that shows the total number of UMTS errors for the visible UMTS shorthauls. **Note** The graph shows only 12 shorthauls by default. To change the number of visible shorthauls, use the Graph Series Editor. See Using the Toolbar, page 11-5, for more information.
	Legend	Positioned below the graph, a legend of color-coded labels for each UMTS shorthaul that appears in the graph.
Table, CSV	Node	Table column that lists nodes that contain UMTS shorthauls. If Output is Table, to access details for a specific node, click a node in this column.
	Backhaul	Table column that lists all the backhauls that contain UMTS shorthauls. If Output is Table, to access details for a specific backhaul, click a backhaul in this column.
	Shorthaul	Table column that lists all the UMTS shorthauls in the network. If Output is Table, to access details for a specific shorthaul, click a shorthaul in this column.
	Timestamp	Time that the error values occurred for the visible shorthauls.
	Total Errors	Table column that lists the total number of UMTS errors for the visible shorthauls during the chosen duration.
	Total Protocol Errors	Table column that lists the total number of protocol errors on the UMTS shorthaul.
	Total Miscellaneous Errors	Table column that lists the total number of miscellaneous errors on the UMTS shorthaul.

Generating Node-Level CPU/Memory Reports

In addition to generating network-wide CPU/Memory reports as explained in CPU Reports, page 13-8, you can also generate node-level CPU/Memory reports as explained in the following steps.

Step 1 From the MWTM web interface, click on a node name.

Step 2 Click the Performance tab.

Step 3 From the View pulldown menu, select **Historical CPU Utilization** or **Historical Memory Utilization**.

If the device you selected has multiple CPUs, in addition to the Summary tab, there are also separate Slot tabs. Each Slot tab contains CPU statistics for the CPUs in that slot.

Step 4 From the Type menu, select which CPU or Memory report to view:

- CPU Peak Utilization 15 Minutes
- CPU Average Utilization 15 Minutes
- CPU Peak Utilization Hourly
- CPU Average Utilization Hourly
- CPU Peak Utilization Daily
- CPU Average Utilization Daily
- Memory Peak Utilization 15 Minutes
- Memory Average Utilization 15 Minutes
- Memory Peak Utilization Hourly
- Memory Average Utilization Hourly
- Memory Peak Utilization Daily
- Memory Average Utilization Daily

Viewing ITP Accounting Reports

You can view any of the following statistics reports:

- AS Accounting Reports, page 13-134
- GTT Accounting Reports, page 13-135
- MTP3 Accounting Reports, page 13-136

Note All accounting reports are supported on ITP platforms only.

AS Accounting Reports

You can view daily reports for application server (AS) accounting statistics by using the MWTM. You can also export the report. AS accounting describes MTP3 layer traffic in support of application servers.

Field or Column	Description
Date	Date of the report.
Node	Name of the node for the linkset.
Network Name	Name of the network for the linkset.
Signaling Point	Name of the signaling point for the linkset.
AS	Name of the application server.
OPC	Originating point code of the traffic, which is a unique identifier for each set of statistics. To see only statistics that match a specific OPC for a given linkset, find the linkset and click the point code.
DPC	Destination point code of the traffic. To see only statistics that match a specific DPC for a given linkset, find the linkset and click the point code.
SI	Service indicator, which indicates the type of Signaling System 7 (SS7) traffic. Valid values include: • **0**—Signaling Network Management Message (SNM) • **1**—Maintenance Regular Message (MTN) • **2**—Maintenance Special Message (MTNS) • **3**—Signaling Connection Control Part (SCCP) • **4**—Telephone User Part (TUP) • **5**—ISDN User Part (ISUP) • **6**—Data User Part (call and circuit-related messages) • **7**—Data User Part (facility registration/cancellation messages) To see only more information for a specific type of SI, click the SI type.
Send MSUs	Total number of MTP3 MSUs sent on the specified date.
Receive MSUs	Total number of MTP3 MSUs received on the specified date.
Send Bytes	Total number of bytes sent on the specified date.
Receive Bytes	Total number of bytes received on the specified date.

GTT Accounting Reports

You can view summary reports of daily GTT accounting statistics. You can also export the reports.

GTT Accounting Daily Reports

You can view a daily summary of GTT accounting reports for all nodes that the MWTM detected on a specified date. The GTT Accounting Daily Report page shows all MWTM daily GTT accounting reports by date. Each file contains a daily summary of GTT accounting statistics for all nodes that the MWTM detected on a specified date.

The GTT Accounting Daily Report table is sorted based on the information in the Packets column. However, you can sort the table based on the information in one of the other columns (see Navigating Table Columns, page 5-clxiii).

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Field or Column	Description
Date	Date of the report.
Node	Name of the node associated with the **From Network Name** for which data is visible.
From Network Name	Name of the network from which GTT traffic originated, and for which data is visible.
Signaling Point	Name of the signaling point associated with the **From Network Name** instance for which data is visible.
Linkset	Name of the linkset associated with the **From Network Name** instance for which data is visible.
Selector	Name of the selector.
GTA	Global Title Address (GTA) associated with the selector.
To Network Name	Name of the network in which the translated point code resides.
Point Code	Destination point code for the GTA.
Packets	Total number of packets requiring translation by GTT on the specified date.
Octets	Total number of octets requiring translation by GTT on the specified date.

MTP3 Accounting Reports

MTP3 accounting describes MTP3 layer traffic in support of linksets. You can also export the MTP3 accounting reports.

Note Every five minutes (by default), the ITP moves data records from a quick-access table to a database that stores long term accounting records. This database contains accumulated accounting data since the last clearing or from the time accounting was originally enabled. The MWTM shows only the data from this database, not from the quick-access table.

MTP3 Accounting Daily Reports

You can view a daily summary of MTP3 accounting statistics for the MWTM on a specified date. The MTP3 Accounting Daily Report page shows detail reports of all MWTM daily MTP3 accounting statistics by date. Each file contains a daily summary of MTP3 accounting statistics for the MWTM on a specified date.

The MTP3 Accounting Daily Report table is sorted based on the information in the Send MSUs column. However, you can sort the table based on the information in one of the other columns (see Navigating Table Columns, page 5-clxiii).

Note If a statistics calculation results in an undefined value, such as a number divided by zero (0), or an undefined number, based on the configuration, then `MathError` appears in the field.

Field or Column	Description
Date	Date of the report.
Node	Name of the node for the linkset.
Network Name	Name of the network for the linkset.
Signaling Point	Name of the signaling point for the linkset.
Linkset	Name of the linkset.
Gateway Screening	Indicates whether the traffic passed or failed the Gateway Screening test at the ITP. To see only statistics that passed or failed for a specific linkset, select a linkset and click **Pass**, **Fail**, or **Unroutable**.
OPC	Originating point code of the traffic, which is a unique identifier for each set of statistics. To see only statistics that match a specific OPC for a given linkset, find the linkset and click the point code.
DPC	Destination point code of the traffic. To see only statistics that match a specific DPC for a given linkset, find the linkset and click the point code.
SI	Service indicator, which indicates the type of SS7 traffic. Valid values include: • **0**—Signaling Network Management Message (SNM) • **1**—Maintenance Regular Message (MTN) • **2**—Maintenance Special Message (MTNS) • **3**—Signaling Connection Control Part (SCCP) • **4**—Telephone User Part (TUP) • **5**—ISDN User Part (ISUP) • **6**—Data User Part (call and circuit-related messages) • **7**—Data User Part (facility registration/cancellation messages) To see only more information for a specific type of SI, click the SI type.
Send MSUs	Total number of MTP3 MSUs sent on the specified date.
Receive MSUs	Total number of MTP3 MSUs received on the specified date.
Send Bytes	Total number of bytes sent on the specified date.
Receive Bytes	Total number of bytes received on the specified date.

Viewing Mobile Subscriber Count Reports

You can view any of the following subscriber count reports:

- BWG Subscribers Reports, page 13-138
- CSG2 Subscribers Reports, page 13-139
- GGSN Subscribers Reports, page 13-140
- HA Subscribers Reports, page 13-141

Node Instance Counts in BWG and GGSN Subscriber Reports

When viewing BWG and GGSN subscriber reports, you might notice a discrepancy in the Node Instance column between the most recent record and older records. This occurs when the most recent record is not complete due to the differences in polling intervals of BWG and GGSN devices. Up to 6 BWG and GGSN IOS instances can run on a single SAMI card. MWTM sees each instance as a separate device and is not aware at the management level that different devices might run on the same physical card. As a result, the devices are polled and data is collected at different times during the regular polling interval.

For example, *GGSN A* on *SAMI 1* is polled at 12:01 p.m. and *GGSN B* on *SAMI 1* is polled at 12:14 p.m. during a regular 15-minute polling interval. When you view the latest report data for reports that aggregate data at the SAMI card level, such as subscriber reports, there are discrepancies. The subscriber report is a card- level report that aggregates the results of each device instance that runs on a SAMI card by adding the subscriber count of all devices with the same serial number. Using the times given in the above example, if you view the GGSN subscriber report for the last 6 hours at 12:10 p.m., you see the results from *GGSN A* only, and only *GGSN A* contributes to those results. If you view the same report at 12:15 p.m., you will see the sum of *GGSN A* and *GGSN B* subscriber counts, and both devices contribute to the results.

BWG Subscribers Reports

You can view any of the following BWG Subscriber Count Reports

- BWG Subscribers Hourly Reports, page 13-138
- BWG Subscribers Daily Reports, page 13-139
- BWG Subscribers Monthly Reports, page 13-139

Related Topic

- Node Instance Counts in BWG and GGSN Subscriber Reports, page 13-138

BWG Subscribers Hourly Reports

The BWG Subscribers Hourly Report table is sorted based on the information in the **Subscriber Count** column. However, you can sort the table based on the information in one of the other columns (see Navigating Table Columns, page 5-clxiii).

Field or Column	Description
Timestamp (*timezone*)	Timestamp of the report.
Serial Number	Serial number of the chassis.

Field or Column	Description
Subscriber Count	Number of subscribers per node.
Node Instances	Number of node instances per SAMI.

BWG Subscribers Daily Reports

The BWG Subscribers Daily Report table is sorted based on the information in the **Subscriber Count** column. However, you can sort the table based on the information in one of the other columns (see Navigating Table Columns, page 5-clxiii).

Field or Column	Description
Timestamp (*timezone*)	Timestamp of the report.
Serial Number	Serial number of the chassis.
Subscriber Count	Number of subscribers per node.
Node Instances	Number of node instances per SAMI.

BWG Subscribers Monthly Reports

The BWG Subscribers Monthly Report table is sorted based on the information in the **Subscriber Count** column. However, you can sort the table based on the information in one of the other columns (see Navigating Table Columns, page 5-clxiii).

Field or Column	Description
Timestamp (*timezone*)	Timestamp of the report.
Serial Number	Serial number of the chassis.
Subscriber Count	Number of subscribers per node.
Node Instances	Number of node instances per SAMI.

CSG2 Subscribers Reports

You can view any of the following CSG2 Subscriber Count Reports:

- CSG2 Subscribers Hourly Reports, page 13-139
- CSG2 Subscribers Daily Reports, page 13-140
- CSG2 Subscribers Monthly Reports, page 13-140

CSG2 Subscribers Hourly Reports

The CSG2 Subscribers Hourly Report table is sorted based on the information in the **Subscriber Count** column. However, you can sort the table based on the information in one of the other columns (see Navigating Table Columns, page 5-clxiii).

Field or Column	Description
Timestamp (*timezone*)	Timestamp of the report.
Node	Name of the node.
Serial Number	Serial number of the chassis.
Subscriber Count	Number of subscribers per node.

CSG2 Subscribers Daily Reports

The CSG2 Subscribers Daily Report table is sorted based on the information in the **Subscriber Count** column. However, you can sort the table based on the information in one of the other columns (see Navigating Table Columns, page 5-clxiii).

Field or Column	Description
Timestamp (*timezone*)	Timestamp of the report.
Node	Name of the node.
Serial Number	Serial number of the chassis.
Subscriber Count	Number of subscribers per node.

CSG2 Subscribers Monthly Reports

The CSG2 Subscribers Monthly Report table is sorted based on the information in the **Subscriber Count** column. However, you can sort the table based on the information in one of the other columns (see Navigating Table Columns, page 5-clxiii).

Field or Column	Description
Timestamp (*timezone*)	Timestamp of the report.
Node	Name of the node.
Serial Number	Serial number of the chassis.
Subscriber Count	Number of subscribers per node.

GGSN Subscribers Reports

You can view any of the following GGSN Subscribers Reports:

- GGSN Subscribers Hourly Reports, page 13-141
- GGSN Subscribers Daily Reports, page 13-141
- GGSN Subscribers Monthly Reports, page 13-141

Related Topic

- Node Instance Counts in BWG and GGSN Subscriber Reports, page 13-138

GGSN Subscribers Hourly Reports

The GGSN Subscribers Hourly Report tables are sorted based on the information in the **Subscriber Count** column. However, you can sort each table based on the information in one of the other columns (see Navigating Table Columns, page 5-clxiii).

Field or Column	Description
Timestamp (*timezone*)	Timestamp of the report.
Serial Number	Serial number of the chassis.
Subscriber Count	Number of subscribers.
Node Instances	Number of node instances per SAMI.

GGSN Subscribers Daily Reports

The GGSN Subscribers Daily Report tables are sorted based on the information in the **Subscriber Count** column. However, you can sort the tables based on the information in one of the other columns (see Navigating Table Columns, page 5-clxiii).

Field or Column	Description
Timestamp (*timezone*)	Timestamp of the report.
Serial Number	Serial number of the chassis.
Subscriber Count	Number of subscribers.
Node Instances	Number of node instances per SAMI.

GGSN Subscribers Monthly Reports

The GGSN Subscribers Monthly Report table is sorted based on the information in the **Subscriber Count** column. However, you can sort the table based on the information in one of the other columns (see Navigating Table Columns, page 5-clxiii).

Field or Column	Description
Timestamp (*timezone*)	Timestamp of the report.
Serial Number	Serial number of the chassis.
Subscriber Count	Number of subscribers.
Node Instances	Number of node instances per SAMI.

HA Subscribers Reports

You can view any of the following HA Subscribers Reports:

- HA Subscribers Hourly Reports, page 13-142
- HA Subscribers Daily Reports, page 13-142
- HA Subscribers Monthly Reports, page 13-142

HA Subscribers Hourly Reports

The HA Subscribers Hourly Report table is sorted based on the information in the **Subscriber Count** column. However, you can sort the table based on the information in one of the other columns (see Navigating Table Columns, page 5-clxiii).

Field or Column	Description
Timestamp (*timezone*)	Timestamp of the report.
Node	Name of the node.
Serial Number	Serial number of the chassis.
Subscriber Count	Number of subscribers.

HA Subscribers Daily Reports

The HA Subscribers Daily Report table is sorted based on the information in the **Subscriber Count** column. However, you can sort the table based on the information in one of the other columns (see Navigating Table Columns, page 5-clxiii).

Field or Column	Description
Timestamp (*timezone*)	Timestamp of the report.
Node	Name of the node.
Serial Number	Serial number of the chassis.
Subscriber Count	Number of subscribers.

HA Subscribers Monthly Reports

The HA Subscribers Monthly Report table is sorted based on the information in the **Subscriber Count** column. However, you can sort the table based on the information in one of the other columns (see Navigating Table Columns, page 5-clxiii).

Field or Column	Description
Timestamp (*timezone*)	Timestamp of the report.
Node	Name of the node.
Serial Number	Serial number of the chassis.
Subscriber Count	Number of subscribers.

Viewing File Archive Common Reports

Common Reports that have been archived are located within **File Archive > Common Reports** in the MWTM web interface. You can also find archived reports in the */opt/CSCOsgm/reports* directory on the MWTM client. All archived reports are saved as export files in.csv format.

You can view full descriptions of all fields in export file archive reports by clicking **Administrative** from the MWTM web interface, then clicking **Export Reports README** under System Information.

You can view any of the following Common archived reports:

AAA Archived Reports

You can access these following AAA Archived Reports:

AAA Accounting Statistics 15 Minute Archived Reports

The 15 minute AAA Accounting Statistics Archived Reports page shows summary reports for all archived MWTM 15 minute AAA accounting statistics reports for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by type, date, hour, and minute; for example, the *AAAAccounting.2009-06-22-16-00.csv.zip* file contains the summary report of archived 15 minute AAA accounting statistics for June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of 15 minute AAA accounting statistics on that date, hour, and minute. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

AAA Accounting Statistics Hourly Archived Reports

The Hourly AAA Accounting Statistics Archived Reports page shows all summary reports for archived MWTM hourly AAA accounting statistics for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by type, date, and hour; for example, the *AAAAccounting2009-06-22-11.csv.zip* file contains the summary report for hourly AAA accounting statistics for the11th hour on June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of hourly AAA accounting statistics on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

AAA Accounting Statistics Daily Archived Reports

The Daily AAA Accounting Statistics Archived Reports page shows all summary reports for archived MWTM daily AAA accounting statistics for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by type and date; for example, the daily *AAAAccounting.2009-06-22-16-00.csv.zip* file contains the summary report of archived daily AAA accounting statistics for June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of daily AAA accounting statistics on that date. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

AAA Authentication Statistics 15 Minute Archived Reports

The 15 minute AAA Authentication Statistics Archived Reports page shows summary reports for all archived MWTM 15 minute AAA authentication statistics reports for the server to which you connect, stored as downloadable*.zip* files.

The *.zip* files are archived by type, date, hour, and minute; for example, the *AAAAuthentication.2009-06-22-16-00.csv.zip* file contains the summary report of archived 15 minute AAA authentication statistics for June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of 15 minute AAA authentication statistics on that date, hour, and minute. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

AAA Authentication Statistics Hourly Archived Reports

The Hourly AAA Authentication Statistics Archived Reports page shows all summary reports for archived MWTM hourly AAA authentication statistics for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by type, date, and hour; for example, the *AAAAuthentication.2009-06-22-11.csv.zip* file contains the summary report for hourly AAA authentication statistics for the11th hour on June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of hourly AAA authentication statistics on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

AAA Authentication Statistics Daily Archived Reports

The Daily AAA Authentication Statistics Archived Reports page shows all summary reports for archived MWTM daily AAA authentication statistics for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by type and date; for example, the daily *AAAAuthentication.2009-06-22-16-00.csv.zip* file contains the summary report of archived daily AAA authentication statistics for June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of daily AAA authentication statistics on that date. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

Chassis Inventory Archived Reports

You can access these following Chassis Inventory Archived Reports:

- Chassis Inventory Daily Archived Reports, page 13-145

Chassis Inventory Daily Archived Reports

The Daily Chassis Inventory Daily Archived Reports page shows summary reports for all archived MWTM daily chassis inventory statistics reports for the server to which you connect, stored as downloadable*.zip* files.

The *.zip* files are archived by type and date; for example, the *chassisInventory.2009-06-22.csv.zip* file contains the summary report for daily chassis inventory statistics for June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of daily chassis inventory statistics on that date. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

CPU Archived Reports

You can access these following CPU Archived Reports:

- CPU Utilization 15 Minute Archived Reports, page 13-145
- CPU Utilization Hourly Archived Reports, page 13-145
- CPU Utilization Daily Archived Reports, page 13-146

CPU Utilization 15 Minute Archived Reports

The CPU Utilization 15 Minute Archived Reports page shows all summary reports for archived MWTM 15 minute CPU statistics for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by type, date, hour, and minute; for example, the *CPUStats.2009-06-22-11-20.csv.zip* file contains the summary report of archived 15 minute CPU statistics for June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of 15 minute CPU statistics on that date, hour, and minute. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

CPU Utilization Hourly Archived Reports

The CPU Utilization Hourly Archived Reports page shows all summary reports for archived MWTM hourly CPU statistics for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by type, date, and hour; for example, the *CPUStats.2009-06-22-11.csv.zip* file contains the summary report for hourly CPU statistics for the 11th hour on June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of hourly CPU statistics on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

CPU Utilization Daily Archived Reports

The CPU Utilization Daily Archived Reports page shows summary reports for all archived MWTM daily CPU statistics reports for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by type and date; for example, the *CPUStats.2009-06-22.csv.zip* file contains the summary report for daily CPU statistics for June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of daily CPU statistics on that date. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

Interface Archived Reports

You can access the following Interface Archived Reports. These reports are supported on mSEF platforms only:

- Interface Statistics 15 Minute Archived Reports, page 13-146
- Interface Statistics Hourly Archived Reports, page 13-146
- Interface Statistics Daily Archived Reports, page 13-147

Interface Statistics 15 Minute Archived Reports

The Interface Statistics 15 Minute Archived Reports page shows all summary reports for archived MWTM 15 minute interface statistics for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by type, date, hour, and minute; for example, the *InterfaceStats.2009-06-22-16-00.csv.zip* file contains the summary report of archived 15 minute interface statistics for June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of 15 minutes Interface statistics on that date, hour, and minute. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

Interface Statistics Hourly Archived Reports

The Interface Statistics Hourly Archived Reports page shows all summary reports for archived MWTM hourly interface statistics for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by type, date, and hour; for example, the *InterfaceStats.2009-06-22-11.csv.zip* file contains the summary report for hourly interface statistics for the 11th hour on June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of hourly Interface statistics on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

Interface Statistics Daily Archived Reports

The Interface Statistics Daily Archived Reports page shows summary reports for all archived MWTM daily interface statistics reports for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by type and date; for example, the *InterfaceStats.2009-06-22.csv.zip* file contains the summary report for daily interface statistics for June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of daily Interface statistics on that date. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

Memory Archived Reports

You can access the following Memory Archived reports:

- Memory Utilization 15 Minute Archived Reports, page 13-147
- Memory Utilization Hourly Archived Reports, page 13-147
- Memory Utilization Daily Archived Reports, page 13-148

Memory Utilization 15 Minute Archived Reports

The Memory Utilization 15 Minute Archived Reports page shows summary reports for all archived MWTM 15 minute memory statistics for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by type, date, hour, and minute; for example, the *MemStats.2009-06-22-16-00.csv.zip* file contains the summary report for 15 minute memory statistics for June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of 15 minute memory statistics on that date, hour, and minute. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

Memory Utilization Hourly Archived Reports

The Memory Utilization Hourly Archived Reports page shows all summary reports for archived MWTM hourly memory statistics for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by type, date, and hour; for example, the *MemStats.2009-06-22-08.csv.zip* file contains the summary report for hourly memory statistics for the 8th hour on June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of hourly memory statistics on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

Memory Utilization Daily Archived Reports

The Memory Utilization Daily Archived Reports page shows summary reports for all archived MWTM daily memory statistics for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by type and date; for example, the *MemStats.2009-06-22.csv.zip* file contains the summary report for daily memory statistics for June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of daily memory statistics on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

Viewing File Archive ITP Reports

ITP Reports that have been archived are located within **File Archive > ITP Reports** in the MWTM web interface. You can also find archived reports in the */opt/CSCOsgm/reports* directory on the MWTM client. All archived reports are saved as export files in .csv format.

You can view full descriptions of all fields in export file archive reports by clicking **Administrative** from the MWTM web interface, then clicking **Export Reports README** under System Information.

You can view any of the following ITP archived reports:

- Custom Archived Reports, page 13-148
- Rolling Archived Reports, page 13-152
- Application Server Archived Reports, page 13-153
- Application Server Process Archived Reports, page 13-154
- GTT Rates Archived Reports, page 13-155
- Link Archived Reports, page 13-155
- Linkset Archived Reports, page 13-156
- MLR Archived Reports, page 13-157
- MSU Archived Reports, page 13-158
- MTP3/AS Events Archived Reports, page 13-158
- Point Code Archived Reports, page 13-160
- Q752 Archived Reports, page 13-160
- SCTP Archived Reports, page 13-161

Custom Archived Reports

The Custom Archived Report pages show all archived MWTM custom network and accounting statistics reports for the server to which you connect. These reports can be viewed on the web, or downloaded as *.zip* files. These *.zip* files are also stored in the default directory (*/opt/CSCOsgm* by default) in the */reports/custom* directory.

Note Custom archive reports are supported on ITP platforms only.

Note Custom reports are *custom* because you can specify that they run at custom time intervals. The content of custom reports is the same as regularly scheduled reports.

Custom archived reports are those that you enable by using these commands:

Command	Generates these custom statistics:
mwtm accstats	MTP3/AS accounting
mwtm gttstats	GTT
mwtm linkstats	Link and linkset
mwtm mlrstats	MLR
mwtm msustats	MSU rates
mwtm mtpevents	MTP3/AS events
mwtm q752stats	Q.752
mwtm xuastats	Application server and application server process

Note For detailed descriptions of these commands, see Appendix B, "Command Reference."

Note Custom ITP reports can be run manually from the command line or setup to run at custom intervals by creating crontab entries. See Generating Custom ITP Statistics Reports Using the CLI, page 13-181 and Including or Excluding Specified Objects in ITP Reports, page 13-182 for more information.

The Custom Report tables are sorted based on the information in the Export File column. However, you can sort a table based on the information in one of the other columns (see Navigating Table Columns, page 5-clxiii).

The Custom Report tables contain:

Column	Description
Export File	Name of the custom statistics export *.zip* file, archived by type, date, and hour; for example, the *sgmLinksetStats.custom.20867.2009-06-24-16:15.csv.zip* file contains the summary report of custom linkset statistics with the ID tag 20867 for the 15th minute of the 16th hour on June 24, 2009. Each archived *.zip* file contains a comma-separated value (CSV) text file with a daily statistics report for that date. You can download the *.zip* files and extract them. To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.
Report Date (*timezone*)	Date the custom report began.
Report Hour	Time the custom report began.

Column	Description
Last Modified Date (*timezone*)	Date and time the custom report was last modified.
View	Shows the detail report for the object. Not available for Q.752 reports.

To show details in HTML for custom archived reports, click on a link in the View column of the Custom Archived Report page:

Link	Description
Application Servers	AS Statistics Custom Archived Reports, page 13-154
Application Server Processes	ASP Statistics Custom Archived Reports, page 13-155
Events	MTP3/AS Accounting Custom Archived Reports, page 13-175
GTT	GTT Accounting Custom Archived Reports, page 13-174
Links	Link Statistics Custom Archived Reports, page 13-156
Linksets	Linkset Statistics Custom Archived Reports, page 13-157
Aborts and Continues	•MLR Aborts & Continuous Statistics Custom Archived Reports, page 13-158
Processed	•MLR Processed Statistics Custom Archived Reports, page 13-158
ResultInvokes	•MLR ResultInvokes Statistics Custom Archived Reports, page 13-158
RuleMatches	•MLR RuleMatches Statistics Custom Archived Reports, page 13-158
SubTriggers	•MLR Sub Triggers Statistics Custom Archived Reports, page 13-158
Triggers	•MLR Triggers Statistics Custom Archived Reports, page 13-158

All custom detail reports contain these headings and general menu options:

Heading/ Menu Option	Description
Date and Hour (in heading)	Date and hour of the report.
Offset (in heading)	Shows the number of rows in the table, prior to the first visible row; for example, if the first visible row is 501, the **Offset** is 500.
Number and Sort Order (in heading)	Shows the number of records (rows) in the table, the column by which the table is sorted, and whether the sort is in ascending or descending order.
10/Page	Shows 10 rows in the table.
20/Page	Shows 20 rows in the table.
50/Page	Shows 50 rows in the table.
100/Page	Shows 100 rows in the table.
300/Page	Shows 300 rows in the table.
500/Page	Shows 500 rows in the table.

Heading/ Menu Option	Description
Max/Page	Shows up to 15,000 rows in the table. **Note** Depending on the number of rows, this could take up to 15 minutes.
DefPrefs	Resets the **/Page** preferences for this web page to the default settings for the MWTM server.
First (at bottom of table)	Shows the first page of entries for the table. For example, if the table is sorted by **Total Aborted** in descending order, clicking this field shows the entries with the highest number of MSUs aborted by MLR. You cannot click this field if the first page of entries is already visible.
Previous (Rows) (at bottom of table)	Shows the previous page of entries for the table. You cannot click this field if the first page of entries is already visible.
Next (Rows) (at bottom of table)	Shows the next page of entries for the table. You cannot click this field if the last page of entries is already visible.
Last (at bottom of table)	Shows the last page of entries for the table. For example, if the table is sorted by **Total Aborted** in descending order, clicking this field shows the entries with the lowest number of MSUs aborted by MLR. You cannot click this field if the last page of entries is already visible.
Total (at bottom of table)	Shows the total number of entries in the table.

Daily Archived Reports

The Daily Archived Reports pages display summary reports for all report types that generate daily reports. You can also view a subset of daily file archive reports by selecting a report from the Type pulldown menu that appears at the top of the report list.

The *.zip* files are archived by type and date; for example, the *sgmLinksetStats.DailySum.2009-06-22.csv.zip* file contains the summary report of daily linkset statistics for the June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of daily network statistics for all report types that generate daily reports. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

Hourly Archived Reports

The Hourly Archived Reports pages show summary reports for all exported file archive reports that generate hourly reports. You can also view a subset of hourly file archive reports by selecting a report from the Type pulldown menu that appears at the top of the report list.

The summary reports of archived hourly network statistics are stored as downloadable *.zip* files. The *.zip* files are archived by type, date, and hour; for example, the *sgmLinksetStats.2009-06-24-08.csv.zip* file contains summary reports for the hourly linkset statistics for the eighth hour on June 24, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of hourly network statistics for all report types that generate daily reports. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

15 Minute Archived Reports

The 15 Minute Archived Reports page shows summary reports for all archived MWTM 15-minute statistics for all report types that generate 15-minute reports. You can also view a subset of 15-minute file archive reports by selecting a report from the Type pulldown menu that appears at the top of the report list.

The summary reports of archived 15-minute statistics are stored as downloadable *.zip* files. The *.zip* files are archived by type and hour; for example, the *sgmSCTPStats.2009-06-22-16-00.csv.zip* contains the summary report of archived 15-minute statistics for June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of 15-minute statistics for all report types that generate 15-minute reports. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

Rolling Archived Reports

The All Rolling Reports page shows summary reports of concatenated MWTM hourly and daily network statistics for all of the following objects detected by the MWTM for the server you are connected to:

- Application servers
- Application server processes
- Links
- Linksets

These statistics are stored as downloadable *.zip* files. The *.zip* files are archived by type and number of days (7 or 30). For example:

- *sgmLinkStats.RollingSevenDayAllHours.csv.zip*
- *sgmLinkStats.Rolling30DayAllDays.csv.zip*
- *sgmASEStats.Rolling30DayAllDays.csv.zip*
- *sgmASEStats.RollingSevenDayAllHours.csv.zip*
- *sgmASPStats.Rolling30DayAllDays.csv.zip*
- *sgmASPStats.RollingSevenDayAllHours.csv.zip*
- *sgmLinkStats.Rolling30DayAllDays.csv.zip*
- *sgmLinkStats.RollingSevenDayAllHours.csv.zip*
- *sgmLinksetStats.Rolling30DayAllDays.csv.zip*
- *sgmLinksetStats.RollingSevenDayAllHours.csv.zip*

Note To limit the maximum number of rows in export CSV files (for example, Excel can only handle 65,535 rows.) See mwtm statreps, page B-76.

Note Rolling Archived Reports are supported for ITP platforms only.

The MWTM creates a new set of files every hour.

You can download the *.zip* files and extract them. To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

Application Server Archived Reports

You can access the following Application Server Archived Reports. These reports are supported on ITP platforms only:

- AS Statistics Daily Archived Reports, page 13-153
- AS Statistics Hourly Archived Reports, page 13-153
- AS Statistics Custom Archived Reports, page 13-154

AS Statistics Daily Archived Reports

The AS Statistics Daily Archived Reports page shows summary reports for all archived MWTM daily network statistics for all application servers that the MWTM detects for the server to which you connect. The information is stored as downloadable *.zip* files.

The *.zip* files are archived by type and date; for example, the *sgmASEStats.DailySum.2009-06-22.csv.zip* file contains the summary report for daily application server statistics for June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of daily network statistics for all application servers that the MWTM detects on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

AS Statistics Hourly Archived Reports

The AS Statistics Hourly Archived Reports page shows all summary reports for archived MWTM hourly network statistics for all application servers that the MWTM detects for the server to which you connect. The information is stored as downloadable *.zip* files.

The *.zip* files are archived by type, date, and hour; for example, the *sgmASEStats.2009-06-22-08.csv.zip* file contains the summary report for hourly application server statistics for the 8th hour on June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of hourly network statistics for all application servers that the MWTM detected on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

AS Statistics Custom Archived Reports

The Application Server Statistics Custom Archived Report pages show all archived MWTM custom network and accounting statistics reports for all application servers that the MWTM detects for the server to which you connect. These reports can be viewed on the web, or downloaded as *.zip* files. These *.zip* files are also stored in the default directory (*/opt/CSCOsgm* by default) in the */reports/custom* directory.

The detailed information about custom archived reports is available in Custom Archived Reports.

Application Server Process Archived Reports

You can access the following Application Server Process Archived Reports. These reports are supported on ITP platforms only:

- ASP Statistics Hourly Archived Reports, page 13-154
- ASP Statistics Daily Archived Reports, page 13-154
- ASP Statistics Custom Archived Reports, page 13-155

ASP Statistics Hourly Archived Reports

The ASP Hourly Statistics Archived Reports page shows the summary reports of all archived MWTM hourly network statistics for all application server processes that the MWTM detects for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by type, date, and hour; for example, the *sgmASPStats.2009-06-22-11.csv.zip* file contains the summary report of hourly application server process statistics for the 11th hour on June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with the summary report for hourly network statistics for all application server processes that the MWTM detected on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

ASP Statistics Daily Archived Reports

The ASP Daily Statistics Archived Reports page shows summary reports of all archived MWTM daily network statistics for all application server processes that the MWTM detects for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by type and date; for example, the *sgmASPStats.DailySum.2009-06-22.csv.zip* file contains the summary report of daily application server process statistics for June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of daily network statistics for all application server processes that the MWTM detected on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

ASP Statistics Custom Archived Reports

The ASP Statistics Custom Archived Report pages show all archived MWTM custom network and accounting statistics reports for all application server processes that the MWTM detects for the server to which you connect. These reports can be viewed on the web, or downloaded as *.zip* files. These *.zip* files are also stored in the default directory (*/opt/CSCOsgm* by default) in the */reports/custom* directory.

The detailed information about custom archived reports is available in Custom Archived Reports.

GTT Rates Archived Reports

You can access the following GTT Rates Archived Report. This report is supported on ITP platforms only:

- GTT Rates Statistics Hourly Archived Reports, page 13-155.

GTT Rates Statistics Hourly Archived Reports

The GTT Rates Statistics Hourly Archived Reports page shows all archived MWTM hourly GTT rates statistics reports for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by type, date, and hour; for example, the *sgmGTTRates.2009-06-22-11.csv.zip* file contains the hourly GTT rates statistics report for the 11th hour on June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with an hourly GTT rates statistics report for that date. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

Link Archived Reports

You can access the following Link Archived Reports. These reports are supported on ITP platforms only:

- Link Statistics Hourly Archived Reports, page 13-155
- Link Statistics Daily Archived Reports, page 13-156
- Link Statistics Custom Archived Reports, page 13-156

Link Statistics Hourly Archived Reports

The Link Statistics Hourly Archived Reports page shows summary reports for all archived MWTM hourly network statistics for all links that the MWTM detected for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by type, date, and hour; for example, the *sgmLinkStats.2009-06-24-09.csv.zip* file contains the summary reports for hourly link statistics for June 24, 2009 at 9:00 a.m.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of an hourly network statistics for all links that the MWTM detected on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

Link Statistics Daily Archived Reports

The Link Statistics Daily Archived Reports page shows summary reports for all archived MWTM daily network statistics for all links that the MWTM detected for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by type and date; for example, the *sgmLinkStats.DailySum.2009-06-24.csv.zip* file contains the summary report of daily link statistics for June 24, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of daily network statistics for all links that the MWTM detected on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

Link Statistics Custom Archived Reports

The Link Statistics Custom Archived Report pages show all archived MWTM custom network and accounting statistics reports for all Link statistics servers that the MWTM detects for the server to which you connect. These reports can be viewed on the web, or downloaded as *.zip* files. These *.zip* files are also stored in the default directory (*/opt/CSCOsgm* by default) in the */reports/custom* directory.

The detailed information about custom archived reports is available in Custom Archived Reports.

Linkset Archived Reports

You can access the following Linkset Archived Reports. These reports are supported on ITP platforms only:

- Linkset Statistics Hourly Archived Reports, page 13-156
- Linkset Statistics Daily Archived Reports, page 13-156
- Linkset Statistics Custom Archived Reports, page 13-157

Linkset Statistics Hourly Archived Reports

The Linkset Statistics Hourly Archived Reports page shows summary reports of all archived MWTM hourly network statistics for all linksets that the MWTM detects for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by type, date, and hour; for example, the *sgmLinksetStats.2009-06-24-09.csv.zip* file contains the summary report for the hourly linkset statistics for June 24, 2009 at 9:00 a.m.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of hourly network statistics for all linksets that the MWTM detected on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

Linkset Statistics Daily Archived Reports

The Linkset Statistics Daily Archived Reports page shows the summary report of all archived MWTM daily network statistics for all linksets that the MWTM detected for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by type and date; for example, the *sgmLinksetStats.DailySum.2009-06-24.csv.zip* file contains the summary reports of daily linkset statistics for June 24, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of daily network statistics for all linksets that the MWTM detected on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

Linkset Statistics Custom Archived Reports

The Link Statistics Custom Archived Report pages show all archived MWTM custom network and accounting statistics reports for all Linkset statistics servers that the MWTM detects for the server to which you connect. These reports can be viewed on the web, or downloaded as *.zip* files. These *.zip* files are also stored in the default directory (*/opt/CSCOsgm* by default) in the */reports/custom* directory.

The detailed information about custom archived reports is available in Custom Archived Reports.

MLR Archived Reports

You can access the following MLR Archived Reports. These reports are supported on ITP platforms only:

- MLR Daily Archived Reports, page 13-157
- MLR Custom Archived Reports, page 13-157

MLR Daily Archived Reports

The MLR Daily Archived Reports pages show all archived MWTM daily MLR statistics for the server to which you connect, stored as downloadable *.zip* files. MWTM creates the following MLR archived report files:

- MLR Abort & Continues Statistics Daily Archived Reports
- MLR Processed Statistics Daily Archived Reports
- MLR ResultInvokes Statistics Daily Archived Reports
- MLR RuleMatches Statistics Daily Archived Reports
- MLR SubTriggers Statistics Daily Archived Reports
- MLR Triggers Statistics Daily Archived Reports

Each archived *.zip* file contains a comma-separated value (CSV) text file with a daily MLR statistics report for that date. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

MLR Custom Archived Reports

The MLR Custom Archived Report pages show all archived MWTM custom network and accounting statistics reports for all MLR servers that the MWTM detects for the server to which you connect. These reports can be viewed on the web, or downloaded as *.zip* files. These *.zip* files are also stored in the default directory (*/opt/CSCOsgm* by default) in the */reports/custom* directory.

MWTM displays the following MLR Custom archived reports:

- MLR Aborts & Continuous Statistics Custom Archived Reports
- MLR Processed Statistics Custom Archived Reports
- MLR ResultInvokes Statistics Custom Archived Reports
- MLR RuleMatches Statistics Custom Archived Reports
- MLR Sub Triggers Statistics Custom Archived Reports
- MLR Triggers Statistics Custom Archived Reports

The detailed information about custom archived reports is available in Custom Archived Reports.

MSU Archived Reports

You can access the following MSU Archived Reports. These reports are supported on ITP platforms only:

- MSU Statistics Hourly Archived Reports, page 13-158
- MSU Statistics Daily Archived Reports, page 13-158

MSU Statistics Hourly Archived Reports

The MSU Statistics Hourly Archived Reports page shows summary reports of all archived MWTM hourly MSU rates that the MWTM detects for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by type, date, and hour; for example, the *itpHourlyMsuLoad.2009-06-24-09.csv.zip* file contains the summary report for the hourly MSU rates for June 24, 2009 at 9:00 a.m.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of hourly MSU rates that the MWTM detected on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

MSU Statistics Daily Archived Reports

The MSU Daily Archived Reports page shows the summary report of all archived MWTM daily MSU rates that the MWTM detected for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by type and date; for example, the *itpDailyMsuLoad.2009-06-24.csv.zip* file contains the summary reports of daily MSU rates for June 24, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of daily MSU rates that the MWTM detected on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

MTP3/AS Events Archived Reports

You can access the following MTP3/AS Events Reports. These reports are supported on ITP platforms only:

- MTP3/AS Events Hourly Archived Reports, page 13-159

- MTP3/AS Events Custom Archived Reports, page 13-159

MTP3/AS Events Hourly Archived Reports

To create hourly MTP3/AS event reports for the MWTM:

Step 1 Log in as the root user, as described in Starting the MWTM Client, page 4-cxi, or as a superuser, as described in Specifying a Super User (Server Only), page 2-18.

Step 2 Enter these commands:

```
# cd /opt/CSCOsgm/bin
# ./mwtm evreps enable
# ./mwtm evreps mtp
```

For more details on the **mwtm evreps** commands, see Appendix B, "Command Reference."

Field or Column	Description
Export File	Name of the network events export *.zip* file, archived by type, date, and hour; for example, the *sgmMTP3Events.custom.20867.2009-06-24-16-15.csv.zip* file contains the summary report of custom network events with ID tag 20867 for the 15th minute of the 16th hour on June 24, 2009. Each archived *.zip* file contains a comma-separated value (CSV) text file with a daily statistics report for that date. You can download the *.zip* files and extract them. To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.
Report Start Date (*timezone*)	Date and time the custom report began.
Report Finish Date (*timezone*)	Date and time the custom report ended.
Last Modified Date (*timezone*)	Date and time the custom report was last modified.
View	Shows the custom detail report for the object.

MTP3/AS Events Custom Archived Reports

The MTP3/AS Custom Archived Report pages show all archived MWTM custom network and accounting statistics reports for all MTP3/AS servers that the MWTM detects for the server to which you connect. These reports can be viewed on the web, or downloaded as *.zip* files. These *.zip* files are also stored in the default directory (*/opt/CSCOsgm* by default) in the */reports/custom* directory.

The detailed information about custom archived reports is available in Custom Archived Reports.

Point Code Archived Reports

You can access the following Point Code Archived Report. This report is supported on ITP platforms only:

- Point Codes Daily Archived Reports, page 13-160

Point Codes Daily Archived Reports

The Point Codes Daily Archived Reports page shows all archived MWTM daily point code inventory reports for the server to which you connect, stored as downloadable *.zip* files.

On the Point Codes Daily Archived Reports page, the *.zip* files are archived by date; for example, the *sgmPointCodes.DailyInv.2009-06-24.csv.zip* file contains the daily point code inventory report for June 24, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a list of all point codes that were being used by all nodes that the MWTM detected on that date. You can download the The *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

Q752 Archived Reports

You can access the following Q752 Archived Reports:

- Q752 Statistics Hourly Archived Reports, page 13-160
- Q752 Statistics Daily Archived Reports, page 13-160
- Q752 Statistics Custom Archived Reports, page 13-161

Q752 Statistics Hourly Archived Reports

The Q752 Statistics Archived Reports page shows all archived MWTM hourly Q752 reports for the server to which you connect, stored as downloadable *.zip* files. The MWTM creates the following Q752 hourly archived report files each hour:

- Q752 Statistics Hourly
- Q752 Table 4 Statistics Hourly
- Q752 Table 5 Destination Congestion Statistics Hourly
- Q752 Table 5 Routing Drops Statistics Hourly
- Q752 Table 5 User Part Unavailable Statistics Hourly

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of all Q752 links that the MWTM detected on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

Q752 Statistics Daily Archived Reports

The Q752 Statistics Archived Reports page shows all archived MWTM daily Q752 reports for the server to which you connect, stored as downloadable *.zip* files. The MWTM creates the following Q752 daily archived report files each day:

- Q752 Statistics Daily
- Q752 Table 4 Statistics Daily
- Q752 Table 5 Destination Congestion Statistics Daily
- Q752 Table 5 Routing Drops Statistics Daily
- Q752 Table 5 User Part Unavailable Statistics Daily

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of all Q752 links that the MWTM detected on that date. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

Q752 Statistics Custom Archived Reports

The Q752 Statistics Custom Archived Reports page shows all archived MWTM hourly Q752 reports for the server to which you connect, stored as downloadable *.zip* files.

On the Q752 Custom Archived Reports page, the *.zip* files are archived by date; for example, the *sgmQ752Stats.2009-06-24.csv.zip* file contains the Custom Q752 report for June 24, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of all Q752 links that the MWTM detected on that date. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

SCTP Archived Reports

You can access the following SCTP Archived Report:

- SCTP Statistics 15 Minute Archived Reports, page 13-161
- SCTP Statistics Hourly Archived Reports, page 13-161
- SCTP Statistics Daily Archived Reports, page 13-162

SCTP Statistics 15 Minute Archived Reports

The SCTP Statistics 15 Minute Archived Reports page shows all archived MWTM SCTP 15 minute reports for the server to which you connect, stored as downloadable *.zip* files.

On the SCTP Statistics 15 Minute Archived Reports page, the *.zip* files are archived by date; for example, the *sgmSCTPStats.2009-06-22-11-30.csv.zip* file contains the SCTP 15-minute report for the 11th hour, 30 minutes on June 22, 2009.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of all SCTP links that the MWTM detected on that date, hour, and minute. You can download the The *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

SCTP Statistics Hourly Archived Reports

The SCTP Statistics Hourly Archived Reports page shows all archived MWTM SCTP hourly reports for the server to which you connect, stored as downloadable *.zip* files.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of all SCTP links that the MWTM detected on that date and hour. You can download the The *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

SCTP Statistics Daily Archived Reports

The SCTP Statistics Daily Archived Reports page shows all archived MWTM SCTP daily reports for the server to which you connect, stored as downloadable *.zip* files.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of all SCTP links that the MWTM detected on that date. You can download the The *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

Viewing File Archive Mobile Reports

Mobile Reports that have been archived are located within **File Archive > Mobile Reports** in the MWTM web interface. You can also find archived reports in the */opt/CSCOsgm/reports* directory on the MWTM client. All archived reports are saved as export files in .csv format.

You can view full descriptions of all fields in export file archive reports by clicking **Administrative** from the MWTM web interface, then clicking **Export Reports README** under System Information.

You can view any of the following Mobile archived reports:

- Access Point Name Archived Reports, page 13-162
- CSG Archived Reports, page 13-164
- GTP Archived Reports, page 13-165
- HA Archived Reports, page 13-166
- IP Local Pool Archived Reports, page 13-167
- PDSN Archived Reports, page 13-168
- SLB Archived Reports, page 13-169

Access Point Name Archived Reports

You can access these reports:

- APN 15 Minute Archived Reports, page 13-162
- APN Hourly Archived Reports, page 13-163
- APN Daily Archived Reports, page 13-163

APN 15 Minute Archived Reports

The 15 minute APN Archived Reports page shows summary reports of all archived MWTM 15 minute network statistics for all access point names that the MWTM detects for the server to which you connect. MWTM creates the following APN 15 Minute archived report files for every 15 Minutes:

- APN Aggregate Miscellaneous Statistics 15 Minute Archived Reports

- APN Aggregate PDP Statistics 15 Minute Archived Reports
- APN Aggregate PDP Extended Statistics 15 Minute Archived Reports
- APN Instance Miscellaneous Statistics 15 Minute Archived Reports
- APN Instance PDP Statistics 15 Minute Archived Reports
- APN Instance PDP Extended Statistics 15 Minute Archived Reports

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of 15 minute network statistics for all application servers that the MWTM detects on that date, hour, and minute. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

APN Hourly Archived Reports

The Hourly APN Archived Reports page shows all summary reports for archived MWTM hourly network statistics for all access point names that the MWTM detects for the server to which you connect. MWTM creates the following APN hourly archived report files for each hour:

- APN Aggregate Miscellaneous Statistics Hourly Archived Reports
- APN Aggregate PDP Statistics Hourly Archived Reports
- APN Aggregate PDP Extended Statistics Hourly Archived Reports
- APN Instance Miscellaneous Statistics Hourly Archived Reports
- APN Instance PDP Statistics Hourly Archived Reports
- APN Instance PDP Extended Statistics Hourly Archived Reports

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of hourly network statistics for all application servers that the MWTM detected on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

APN Daily Archived Reports

The APN Daily Archived Reports page shows summary reports for all archived MWTM daily network statistics for all access point names that the MWTM detects for the server to which you connect. MWTM creates the following APN daily archived report files for each day:

- APN Aggregate Miscellaneous Statistics Daily Archived Reports
- APN Aggregate PDP Statistics Daily Archived Reports
- APN Aggregate PDP Extended Statistics Daily Archived Reports
- APN Instance Miscellaneous Statistics Daily Archived Reports
- APN Instance PDP Statistics Daily Archived Reports
- APN Instance PDP Extended Statistics Daily Archived Reports

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of daily network statistics for all application servers that the MWTM detects on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

CSG Archived Reports

You can access the following CSG Archived Reports:

- CSG 15 Minute Archived Reports, page 13-164
- CSG Hourly Archived Reports, page 13-164
- CSG Daily Archived Reports, page 13-165

CSG 15 Minute Archived Reports

The 15 minute CSG Archived Reports page shows summary reports of all archived MWTM 15 minute CSG statistics. MWTM creates the following CSG 15 Minute archived report files for every 15 Minutes:

- CSG BMA Statistics 15 Minute Archived Reports
- CSG Global Peak Rates 15 Minute Archived Reports
- CSG Protocol Rates 15 Minute Archived Reports
- CSG Load Session Rates 15 Minute Archived Reports
- CSG Load Radius Rates 15 Minute Archived Reports
- CSG Load BMA Rates 15 Minute Archived Reports
- CSG Load User DB Rates 15 Minute Archived Reports
- CSG Load Quota Manager Rates 15 Minute Archived Reports
- CSG Quota Manager Statistics 15 Minute Archived Reports
- CSG Gx Event Statistics 15 Minute Archived Reports

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of 15 minute CSG statistics on that date, hour, and minute. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

CSG Hourly Archived Reports

The CSG Hourly Archived Reports page shows the summary reports of all archived MWTM hourly CSG statistics. MWTM creates the following CSG hourly archived report files each hour:

- CSG BMA Statistics Hourly Archived Reports
- CSG Global Peak Rates Hourly Archived Reports
- CSG Protocol Rates Hourly Archived Reports
- CSG Load Session Rates Hourly Archived Reports
- CSG Load Radius Rates Hourly Archived Reports
- CSG Load BMA Rates Hourly Archived Reports
- CSG Load User DB Rates Hourly Archived Reports
- CSG Load Quota Manager Rates Hourly Archived Reports
- CSG Quota Manager Statistics Hourly Archived Reports
- CSG Gx Event Statistics Hourly Archived Reports

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

CSG Daily Archived Reports

The Daily CSG Archived Reports page shows summary reports of all archived MWTM daily CSG statistics. MWTM creates the following CSG daily archived report files each day:

- CSG BMA Statistics Daily Archived Reports
- CSG Global Peak Rates Daily Archived Reports
- CSG Protocol Rates Daily Archived Reports
- CSG Load Session Rates Daily Archived Reports
- CSG Load Radius Rates Daily Archived Reports
- CSG Load BMA Rates Daily Archived Reports
- CSG Load User DB Rates Daily Archived Reports
- CSG Load Quota Manager Rates Daily Archived Reports
- CSG Quota Manager Statistics Daily Archived Reports
- CSG Gx Event Statistics Daily Archived Reports

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of daily CSG statistics on that date. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

GTP Archived Reports

You can access these reports:

- GTP 15 Minute Archived Reports, page 13-165
- GTP Hourly Archived Reports, page 13-166
- GTP Daily Archived Reports, page 13-166

GTP 15 Minute Archived Reports

The 15 Minute GTP Archived Reports page shows all archived MWTM GTP 15 minute reports for the server to which you connect, stored as downloadable *.zip* files. MWTM creates the following GTP 15 Minute archived report files for every 15 minutes:

- GTP Active Statistics 15 Minute (GGSN) Archived Reports
- GTP Errors 15 Minute (GGSN) Archived Reports
- GTP PDP Statistics 15 Minute Archived Reports
- GTP PDP Statistics 15 Minute (GGSN) Archived Reports
- GTP Throughput Statistics Minute Archived Reports
- GTP Throughput Statistics 15 Minute (GGSN) Archived Reports

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of hourly GTP statistics on that date, hour, and minute. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

GTP Hourly Archived Reports

The GTP Hourly Archived Reports page shows summary reports of all archived MWTM hourly GTP statistics. MWTM creates the following GTP hourly archived report files each day:

- GTP Active Statistics Hourly (GGSN) Archived Reports
- GTP Errors Hourly (GGSN) Archived Reports
- GTP PDP Statistics Hourly Archived Reports
- GTP PDP Statistics (GGSN) Hourly Archived Reports
- GTP Throughput Statistics Hourly Archived Reports
- GTP Throughput Statistics (GGSN) Hourly Archived Reports

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of hourly GTP statistics on that date. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

GTP Daily Archived Reports

The GTP Daily Archived Reports page shows summary reports of all archived MWTM daily GTP statistics. MWTM creates the following GTP daily archived report files each day:

- GTP Active Statistics Daily (GGSN) Archived Reports
- GTP Errors Daily Archived (GGSN) Reports
- GTP PDP Statistics Daily Archived Reports
- GTP PDP Statistics (GGSN) Daily Archived Reports
- GTP Throughput Statistics Daily Archived Reports
- GTP Throughput Statistics (GGSN) Daily Archived Reports

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of hourly GTP statistics on that date. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

HA Archived Reports

You can access these HA Archived Reports:

- HA Registration Statistics 15 Minute Archived Reports, page 13-166
- HA Registration Statistics Hourly Archived Reports, page 13-167
- HA Registration Statistics Daily Archived Reports, page 13-167

HA Registration Statistics 15 Minute Archived Reports

The HA Registration Statistics 15 Minute Archived Reports page shows summary reports of 15-minute statistical details on Home Agent registration and binding updates. The HA 15 Minute Archived Report has the file name HomeAgentRegistrationStatsEntry.*year.month-day-hour-minute*.csv.zip.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of 15-minute registration statistics on that date, hour, and minute. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

HA Registration Statistics Hourly Archived Reports

The HA Registration Statistics Hourly Archived Reports page shows summary reports of hourly statistical details on Home Agent registration and binding updates. The HA Hourly Archived Report has the file name HomeAgentRegistrationStatsEntry.*year-month-day-hour*.csv.zip

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of hourly registration statistics on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

HA Registration Statistics Daily Archived Reports

The HA Registration Statistics Daily Archived Reports page shows summary reports of daily statistical details on Home Agent registration and binding updates. The HA Daily Archived Report has the file name HomeAgentRegistrationStatsEntry.*year-month-day*.csv.zip.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of daily registration statistics on that date. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

IP Local Pool Archived Reports

You can access the following IP Local Pool Archived Reports. These reports are supported on mSEF platforms only:

- IP Local Pool Statistics 15 Minute Archived Reports, page 13-167
- IP Local Pool Statistics Hourly Archived Reports, page 13-168
- IP Local Pool Statistics Daily Archived Reports, page 13-168

IP Local Pool Statistics 15 Minute Archived Reports

The IP Local Pool 15 Minute Archived Reports page shows summary reports of 15-minute statistical details of the IP Local Pool. The 15 Minute IP Local Pool Statistics Archived Report has the file name IpLocalPoolStats.*year-month-day-hour-minute*.csv.zip.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of 15-minute IP local pool statistics on that date, hour, and minute. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

IP Local Pool Statistics Hourly Archived Reports

The IP Local Pool Hourly Archived Reports page shows summary reports of hourly statistical details of the IP Local Pool. The Hourly IP Local Pool Statistics Archived Report has the filename IpLocalPoolStats.*year-month-day-hour*.csv.zip.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of hourly IP local pool statistics on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

IP Local Pool Statistics Daily Archived Reports

The IP Local Pool Daily Archived Reports page shows summary reports of daily statistical details of the IP Local Pool. The Daily IP Local Pool Statistics Archived Report has the filename IpLocalPoolStats.*year-month-day*.csv.zip.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of daily IP local pool statistics on that date. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

PDSN Archived Reports

You can access the following PDSN Archived Reports:

- PDSN 15 Minute Archived Reports, page 13-168
- PDSN Hourly Archived Reports, page 13-169
- PDSN Daily Archived Reports, page 13-169

PDSN 15 Minute Archived Reports

The PDSN 15 Minute Archived Reports page shows summary reports of 15-minute statistical details of the PDSN. The MWTM creates the following PDSN 15 minute archived report files for every 15 minutes:

- PDSN Session Statistics 15 Minute Archived Reports
- PDSN Session Bandwidth Statistics 15 Minute Archived Reports
- PDSN Flow Statistics 15 Minute Archived Reports
- PDSN Flow Extended Statistics 15 Minute Archived Reports
- PDSN Packet Control Function Statistics 15 Minute Archived Reports
- PDSN Traffic Statistics 15 Minute Archived Reports
- PDSN Traffic Extended Statistics 15 Minute Archived Reports

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of 15-minute PDSN statistics on that date, hour, and minute. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

PDSN Hourly Archived Reports

The PDSN Hourly Archived Reports page shows summary reports of hourly statistical details of the PDSN. MWTM creates the following PDSN hourly archived reports every hour:

- PDSN Session Statistics Hourly Archived Reports
- PDSN Session Bandwidth Statistics Hourly Archived Reports
- PDSN Flow Statistics Hourly Archived Reports
- PDSN Flow Extended Statistics Hourly Archived Reports
- PDSN Packet Control Function Statistics Hourly Archived Reports
- PDSN Traffic Statistics Hourly Archived Reports
- PDSN Traffic Extended Statistics Hourly Archived Reports

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of hourly PDSN statistics on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

PDSN Daily Archived Reports

The PDSN Daily Archived Reports page shows summary reports of daily statistical details of the PDSN. MWTM creates the following PDSN daily archived reports each day:

- PDSN Session Statistics Daily Archived Reports
- PDSN Session Bandwidth Statistics Daily Archived Reports
- PDSN Flow Statistics Daily Archived Reports
- PDSN Flow Extended Statistics Daily Archived Reports
- PDSN Packet Control Function Statistics Daily Archived Reports
- PDSN Traffic Statistics Daily Archived Reports
- PDSN Traffic Extended Statistics Daily Archived Reports

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of daily PDSN statistics on that date. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

SLB Archived Reports

The SLB archived reports shows all the archived MWTM reports for the server to which you connected.

You can access these reports:

- SLB 15 Minute Archived Reports, page 13-170
- SLB Hourly Archived Reports, page 13-170
- SLB Hourly Archived Reports, page 13-170

SLB 15 Minute Archived Reports

The 15 Minute SLB Archived Reports page shows all archived MWTM SLB 15 minute reports for the server to which you connect, stored as downloadable *.zip* files. MWTM creates the following SLB15 Minute archived report files for every 15 minutes:

- SLB Global Statistics 15 Minute Archived Reports
- SLB Real Server Statistics 15 Minute Archived Reports
- SLB Virtual Server Statistics 15 Minute Archived Reports

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of hourly SLB statistics on that date, hour, and minute. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

SLB Hourly Archived Reports

The SLB Hourly Archived Reports page shows the summary reports of all archived MWTM hourly SLB statistic. MWTM creates the following SLB hourly archived report files for each hour:

- SLB Global Statistics Hourly Archived Reports
- SLB Real Server Statistics Hourly Archived Reports
- SLB Virtual Server Statistics Hourly Archived Reports

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of hourly SLB statistics on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

SLB Daily Archived Reports

The SLB Daily Archived Reports page shows summary reports of all archived MWTM daily SLB statistics. MWTM creates the following SLB daily archived report files each day:

- SLB Global Statistics Daily Archived Reports
- SLB Real Server Statistics Daily Archived Reports
- SLB Virtual Server Statistics Daily Archived Reports

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of hourly SLB statistics on that date. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

Viewing File Archive RAN Reports

RAN Reports that have been archived are located within **File Archive > RAN Reports** in the MWTM web interface. You can also find archived reports in the */opt/CSCOsgm/reports* directory on the MWTM client. All archived reports are saved as export files in .csv format.

You can view full descriptions of all fields in export file archive reports by clicking **Administrative** from the MWTM web interface, then clicking **Export Reports README** under System Information.

You can view any of the following RAN archived reports:

Ethernet Archived Reports

The Ethernet archived reports shows all the archived MWTM reports for the server to which you connected.

You can access these reports:

Ethernet Statistics 15 Minute Archived Reports

The Ethernet Statistics 15 Minute Archived Reports page shows summary reports of 15-minute statistical details of the Ethernet.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of 15-minute Ethernet statistics on that date, hour, and minute. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

Ethernet Statistics Hourly Archived Reports

The Ethernet Statistics Hourly Archived Reports page shows summary reports of hourly statistical details of the Ethernet

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of hourly Ethernet statistics on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

Ethernet Statistics Daily Archived Reports

The Ethernet Statistics Daily Archived Reports page shows summary reports of daily statistical details of the Ethernet.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of daily Ethernet statistics on that date. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

PWE3 Archived Reports

The PWE3 archived reports shows all the archived MWTM reports for the server to which you connected.

Note PWE3 reports are available for IPRAN platforms with PWE3 data tunnels configured only. All other RAN reports are available for RAN-O platforms only.

You can access these reports:

- PWE3 Performance 15 Minute Archived Reports, page 13-172
- PWE3 Performance Hourly Archived Reports, page 13-172
- PWE3 Performance Daily Archived Reports, page 13-172

PWE3 Performance 15 Minute Archived Reports

The PWE3 Performance15 Minute Archived Reports page shows summary reports of 15-minute statistical details of the PWE3 performance.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of 15-minute PWE3 Performance statistics on that date, hour, and minute. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

PWE3 Performance Hourly Archived Reports

The PWE3 Performance Hourly Archived Reports page shows summary reports of hourly statistical details of the PWE3 Performance.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of hourly PWE3 Performance statistics on that date and hour. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

PWE3 Performance Daily Archived Reports

The PWE3 Performance Daily Archived Reports page shows summary reports of daily statistical details of the PWE3 performance.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of daily PWE3 Performance statistics on that date. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

QOS Archived Reports

The QOS archived reports shows all the archived MWTM reports for the server to which you connected.

You can access these reports:

- QOS Class Map Statistics 15 Minute Archived Reports
- QOS Class Map Statistics Hourly Archived Reports
- QOS Class Map Statistics Daily Archived Reports
- QOS Match Statement Statistics 15 Minute Archived Reports

- QOS Match Statement Statistics Hourly Archived Reports
- QOS Match Statement Statistics Daily Archived Reports
- QOS Packet Marking Statistics 15 Minute Archived Reports
- QOS Packet Marking Statistics Hourly Archived Reports
- QOS Packet Marking Statistics Daily Archived Reports
- QOS Policing Statistics 15 Minute Archived Reports
- QOS Policing Statistics Hourly Archived Reports
- QOS Policing Statistics Daily Archived Reports
- QOS Queuing Statistics 15 Minute Archived Reports
- QOS Queuing Statistics Hourly Archived Reports
- QOS Queuing Statistics Daily Archived Reports
- QOS Traffic Shaping Statistics 15 Minute Archived Reports
- QOS Traffic Shaping Statistics Hourly Archived Reports
- QOS Traffic Shaping Statistics Daily Archived Reports

The QOS Archived Reports page shows all archived MWTM QOS reports for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by date; for example, the QosClassMapStats.2009-10-21.csv.zip file contains the daily QOS report for October 21, 2009.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

RAN-Optimized Archived Reports

The RAN-Optimized archived reports shows all the archived MWTM reports for the server to which you connected. You can access these reports:

- RAN-O Backhaul Statistics 15 Minute Archived Reports
- RAN-O Backhaul Statistics Hourly Archived Reports
- RAN-O Backhaul Statistics Daily Archived Reports
- RAN-O Congestion Statistics 15 Minute Archived Reports
- RAN-O Congestion Statistics Hourly Archived Reports
- RAN-O Congestion Statistics Daily Archived Reports
- RAN-O GSM Errors 15 Minute Archived Reports
- RAN-OGSM Errors Hourly Archived Reports
- RAN-OGSM Errors Daily Archived Reports
- RAN-O Shorthaul Performance15 Minute Archived Reports
- RAN-O Shorthaul Performance Hourly Archived Reports
- RAN-O Shorthaul Daily Archived Reports
- RAN-O UMTS Errors 15 Minute Archived Reports
- RAN-O UMTS Errors Hourly Archived Reports

- RAN-O UMTS Errors Daily Archived Reports

The RAN-Optimized Archived Reports page shows all archived MWTM RAN-Optimized reports for the server to which you connect, stored as downloadable *.zip* files.

The *.zip* files are archived by date; for example, the r*anoBHStats2009-06-24.csv.zip* file contains the daily RAN Backhaul report for June 24, 2009.

To download a *.zip* file, click a filename, then save the file to a location of your choice. You can also import the file directly into Microsoft Excel.

Viewing ITP Accounting Archived Reports

ITP Accounting Reports that have been archived are located within **File Archive > ITP Accounting** in the MWTM web interface. You can also find archived reports in the */opt/CSCOsgm/reports* directory on the MWTM client. All archived reports are saved as export files in .csv format.

You can view full descriptions of all fields in export file archive reports by clicking **Administrative** from the MWTM web interface, then clicking **Export Reports README** under System Information.

You can view any of the following ITP Accounting archived reports:

- GTT Accounting Archived Reports, page 13-174
- MTP3/AS Accounting Archived Reports, page 13-175

GTT Accounting Archived Reports

The GTT accounting archived reports shows all the archived MWTM reports for the server to which you connected. You can access these reports:

- GTT Accounting Daily Archived Reports, page 13-174
- GTT Accounting Custom Archived Reports, page 13-174

GTT Accounting Daily Archived Reports

The GTT Accounting Daily Archived Reports page shows summary reports of daily statistical details of the GTT Accounting Daily Reports.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of daily GTT accounting statistics on that date. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

GTT Accounting Custom Archived Reports

The GTT Accounting Custom Archived Reports page shows summary reports of daily statistical details of the GTT accounting custom reports.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of daily GTT accounting custom statistics on that date. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

MTP3/AS Accounting Archived Reports

The MTP3/AS Accounting archived reports shows all the archived MWTM reports for the server to which you connected. You can access these reports:

- MTP3/AS Accounting Daily Archived Reports, page 13-175
- MTP3/AS Accounting Custom Archived Reports, page 13-175

MTP3/AS Accounting Daily Archived Reports

The MTP3/AS Accounting Daily Archived Reports page shows summary reports of daily statistical details of the MTP3/AS Accounting Daily Reports.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of daily MTP3/AS accounting statistics on that date. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

MTP3/AS Accounting Custom Archived Reports

The MTP3/AS Accounting Custom Archived Reports page shows summary reports of daily statistical details of the GTT accounting custom reports.

Each archived *.zip* file contains a comma-separated value (CSV) text file with a summary report of daily MTP3/AS accounting custom statistics on that date. You can download the *.zip* files and extract them.

To download a *.zip* file, right-click a filename, then save the file to a location of your choice. You can also import the file into Microsoft Excel.

Viewing the MWTM Statistics Reports Logs

You can view a log that contains all messages pertaining to MWTM reports, and a display of the current values of MWTM report parameters and timers.

This section contains this information:

- Viewing the MWTM Report Log, page 13-175
- Viewing the MWTM Report Parameters and Timers, page 13-175

Viewing the MWTM Report Log

For details on viewing the MWTM report log, see Viewing the Report Log, page 12-15.

Viewing the MWTM Report Parameters and Timers

The Report Parameters and Timers page shows the current values of report parameters and timers for the server to which you connect, and which is currently running the MWTM server.

To access the Report Parameters and Timers page, you must run the **mwtm statrep** CLI command on the server.

Column	Description
AcctReports	Indicates whether the MWTM should generate MTP3 accounting statistics reports. For more information, see the description of the **mwtm statreps** [**acct** | **noacct**] command in mwtm status, page B-82.
CPUReports	Indicates whether the MWTM should generate CPU statistics reports. For more information, see the description of the **mwtm statreps [ggsn | noggsn]** command in mwtm statreps, page B-76.
CSGReports	Indicates whether the MWTM should generate CSG statistics reports. For more information, see the description of the **mwtm statreps [ggsn | noggsn]** command in mwtm statreps, page B-76.
Custom Age	Indicates the maximum number of days the MWTM should archive custom network statistics reports. For more information, see the description of the **mwtm statreps custage** and **mwtm repcustage** commands in mwtm statreps, page B-76.
Daily Age	Indicates the maximum number of days the MWTM should archive daily network statistics reports. For more information, see the description of the **mwtm statreps dailyage** and **mwtm repdailyage** commands in mwtm statreps, page B-76.
DiskCheck	Indicates whether the MWTM should verify that a disk has at least 10 MB of space remaining before enabling network statistics reports. For more information, see the description of the **mwtm statreps** [**diskcheck** | **nodiskcheck**] command in mwtm statreps, page B-76.
ExportReports	Indicates whether the MWTM should generate network statistics reports in export format. For more information, see the description of the **mwtm statreps** [**export** | **noexport**] command in mwtm statreps, page B-76.
GGSNReports	Indicates whether the MWTM should generate GGSN statistics reports. For more information, see the description of the **mwtm statreps [ggsn | noggsn]** command in mwtm statreps, page B-76.
GTTRatesReports	Indicates whether the MWTM should generate GTT Rates statistics reports. For more information, see the description of the **mwtm statreps [gttrates | nogttrates]** command in mwtm statreps, page B-76.
GTTReports	Indicates whether the MWTM should generate GTT accounting statistics reports. For more information, see the description of the **mwtm statreps** [**gtt** | **nogtt**] command in mwtm statreps, page B-76.
HAReports	Indicates whether the MWTM should generate HA statistics reports. For more information, see the description of the **mwtm statreps [ha | noha]** command in mwtm statreps, page B-76.
Hourly Age	Indicates the maximum number of days the MWTM should archive hourly network statistics reports. For more information, see the description of the **mwtm statreps hourlyage** and **mwtm rephourlyage** commands in mwtm statreps, page B-76.
IPLinks	*For ITP link and linkset reports only.* Indicates whether the MWTM should include links that use the Stream Control Transmission Protocol (SCTP) IP transport protocol in network statistics reports. For more information, see the description of the **mwtm statreps** [**iplinks** | **noiplinks**] command in mwtm statreps, page B-76.

Column	Description
LinkReports	Reports of ITP link and linkset statistics.
Max CSV Rows	Indicates the maximum number of rows the MWTM should include in export CSV files. For more information, see the description of the **mwtm statreps maxcsvrows** command in mwtm statreps, page B-76.
MEMReports	Indicates whether the MWTM should generate Memory statistics reports. For more information, see the description of the **mwtm statreps [csg | nocsg]** command in mwtm statreps, page B-76.
MLRReports	Indicates whether the MWTM should generate MLR statistics reports. For more information, see the description of the **mwtm statreps** [**mlr** | **nomlr**] command in mwtm statreps, page B-76.
MSUReports	Indicates whether the MWTM should generate MSU rates reports. For more information, see the description of the **mwtm statreps** [**msu** | **nomsu**] command in mwtm statreps, page B-76.
NullCaps	Indicates whether the MWTM should include SCTP links that do not have planned send and receive capacities in network statistics reports. For more information, see the description of the **mwtm statreps** [**nullcaps** | **nonullcaps**] command in mwtm statreps, page B-76.
PWE3Reports	Indicates whether the MWTM should generate PWE3 statistics reports. For more information, see the description of the **mwtm statreps [pwe3 | nopwe3]** command in mwtm statreps, page B-76.
Q752Reports	Indicates whether the MWTM should generate Q752 reports. For more information, see the description of the **mwtm statreps** [**q752** | **noq752**] command in mwtm statreps, page B-76.
RANOReports	Indicates whether the MWTM should generate RANO statistics reports. For more information, see the description of the **mwtm statreps [rano | norano]** command in mwtm statreps, page B-76.
Report Dir	Path and name of the directory in which the MWTM stores reports. The default reports directory is */opt/CSCOsgm/reports*, but you can change the reports directory using the **mwtm repdir** command (see mwtm repdir, page B-55).
SCTPReports	Indicates whether the MWTM should generate SCTP statistics reports. For more information, see the description of the **mwtm statreps [sctp | nosctp]** command in mwtm statreps, page B-76.
ServRatio	*For ITP link and linkset reports only.* In-Service values that are outside a normal range are indicated with a red status ball icon in the In-Service cell. An In-Service value is outside the normal range if the following condition is met: **Current In-Service <** *factor* *** Long-Term In-Service** This inequality is used to recognize drops in the In-Service value. Assuming the default factor of 0.95, the Current In-Service value must be greater than or equal to 95% of the Long-Term In-Service value to be in the normal range. For more information, see the description of the **mwtm statreps servratio** command in mwtm statreps, page B-76.
Status	Indicates whether the MWTM should generate network statistics reports. For more information, see the description of the **mwtm statreps** [**disable** | **enable**] command in mwtm statreps, page B-76.

Column	Description
TimeMode	Indicates the time mode for dates in network statistics reports. For more information, see the description of the **mwtm statreps timemode** [**12** | **24**] command in mwtm statreps, page B-76.
Timer files	Indicates timer activities during the last report run by the MWTM. The timer file is useful for identifying how much time the MWTM spends gathering report data and generating reports.
UtilRatio	*For ITP link and linkset reports only.* Values that are outside a normal range are indicated with a red status ball icon in the Send or Receive cell. A value is outside the normal range if the following condition is met: **Current** > *factor* * **Long-Term** This inequality is used to recognize increases in the value. Assuming the default factor of 1.5, the Current value must be less than or equal to 150% of the Long-Term value to be in the normal range. The default value for *factor* is **1.5**. For more information, see the description of the **mwtm statreps utilratio** command in mwtm statreps, page B-76.
Web Names	Indicates whether the MWTM should show real node names or display names in web pages. For more information, see the description of the **mwtm webnames** [**display** | **real**] command in the mwtm webnames, page B-93.
Web Util	*For ITP link and linkset reports only.* Indicates whether the MWTM should display send and receive for linksets and links as percentages or in Erlangs (E), in web pages. For more information, see the description of the **mwtm webutil** [**percent** | **erlangs**] command in mwtm who, page B-94.
XUAReports	Indicates whether the MWTM should generate accounting statistics reports for application servers and application server processes. For more information, see the description of the **mwtm statreps** [**xua** | **noxua**] command in mwtm statreps, page B-76.

Viewing Graph Series Editor Details

The Graph Series Editor window allows you to select data series to show or hide. This window box is available when you select the report output as *Graph*. Most network-level reports contain more than 12 series.

The Graph Series Editor window contains:

Column or Buttons	Description
Selected Series	Displays the FQDN IDs for the data that is used to create the report.
Available Series	Displays the list of available objects for this report. **Note** If there are many objects in the report, the objects in the Available Series column span multiple pages and not all objects are shown on one page. See Using the Toolbar, page 11-5 for more information on using the paging features. To view all selected objects, sort the table by the Display column.

Column or Buttons	Description
Display **Note** Depending on the report type you select, other columns displayed will differ.	Column of check boxes that allow you to display (by checking) or hide (by unchecking) the data series associated with the chosen backhaul. The MWTM displays no more than 12 series by default. You can change this setting for the MWTM Client Display or the MWTM Web Display: **MWTM Client Display** To change the maximum number of data series that the MWTM client interface displays by default, edit the MAX_CHART_SERIES parameter in the client-side *System.properties* file: • For the Windows client: *C:\Program Files\Cisco Systems\MWTM Client \properties\System.properties* • For Solaris or Linux client: */opt/CSCOsgmClient/System.properties* **Caution** Depending on the processing power and memory of your client system, setting the MAX_CHART_SERIES parameter too high can cause the client display to become unresponsive. If the client becomes unresponsive, set the MAX_CHART_SERIES to a lower value. Remember to restart the client to activate the new MAX_CHART_SERIES value. **MWTM Web Display** To change the maximum number of data series that the MWTM web interface displays by default, edit the MAX_CHART_SERIES parameter in the server-side *System.properties* file: */opt/CSCOsgm/properties/System.properties*. **Caution** Depending on the number of shorthauls that you display, setting the MAX_CHART_SERIES parameter too high can cause the web display to become unresponsive. If the web become unresponsive, set the MAX_CHART_SERIES to a lower value. Remember to restart the client to activate the new MAX_CHART_SERIES value.
Clear Selection	Deselects the selected list of series and then the **OK** button is grayed out. This is a simple way to deselect all the display check boxes.
OK	Applies the selections you made. If you deselect all items in the dialog box, the **OK** and **Clear Selection** buttons are grayed out.
Cancel	Cancels your selections and closes the Graph Series Editor window.
Help	Opens the help system for the Graph Series Editor window.

Locating Stored Reports

The MWTM stores all reports in the report files directory on the */reports* directory. If you installed the MWTM in:

- The default directory, */opt*, then the default report files directory is */opt/CSCOsgm/reports*.

- A different directory or used the **mwtm repdir** command to specify a new directory in which the MWTM should store report files, then the default report files directory resides in that directory.

Note For details on changing the default reports directory by using the **mwtm repdir** command, see Changing the MWTM Reports Directory, page 13-180.

The */reports* directory contains these subdirectories:

Subdirectory	Description
/custom	Contains all custom report files. These are the report files that you generate using these commands: **mwtm accstats**, **mwtm gttstats**, **mwtm linkstats**, **mwtm mlrstats**, **mwtm mtpevents**, **mwtm q752stats**, and **mwtm xuastats** **Note** A unique ID tag, specified when you enter the command, identifies each file. If the user does not specify an ID tag, the MWTM uses the process ID of the command.
/etc	Contains additional files that the MWTM reporting scripts and web pages use, including the *nodes.include*, *linksets.include*, *nodes.exclude*, *linksets.exclude* and *filter.include* files, if they exist.
/export15min	Contains all 15 minute report files exported in *csv.zip* format.
/exportdaily	Contains all daily report files exported in *csv.zip* format.
/exporthourly	Contains all hourly report files exported in *csv.zip* format.
/exportrolling	Contains all rolling report files for these statistics: • Application server • Application server process • Link • Linkset Files are edited and formatted for export and stored as *.zip* files in CSV format. The MWTM rebuilds the files in this subdirectory every hour.

Changing the MWTM Reports Directory

On the server, you can change the directory in which the MWTM stores reports.

To change the MWTM report files directory, log in as the root user, as described in Starting the MWTM Client, page 4-cxi; or, as a superuser, as described in Specifying a Super User (Server Only), page 2-18, and enter:

```
# cd /opt/CSCOsgm/bin
# ./mwtm repdir directory
```

where *directory* is the new directory.

Note This command copies all files in the current directory to the new directory. If you log in as the superuser and you do not own the new directory, you might not be able to copy the files. In that case, you must specify a directory that you own or log in as the root user.

Customizing ITP Reports

The following sections include information about generating and modifying ITP reports:

Generating Custom ITP Statistics Reports Using the CLI

In the MWTM, you can use custom ITP CLI commands to create summary reports of custom ITP statistics and open them as an export file. To create a custom report:

Step 1 Log in as the root user, as described in Starting the MWTM Client, page 4-cxi, or as a superuser, as described in Specifying a Super User (Server Only), page 2-18.

Step 2 Enter:

```
# cd /opt/CSCOsgm/bin
```

Step 3 Based on the type of custom report you want to generate, enter one of these commands to enable the report:

Note For complete information about these commands, see Appendix B, "Command Reference."

Table 13-1 Custom Report Commands

Custom Report	Command
Application server and application server processes custom statistics	mwtm xuastats
GTT accounting statistics	mwtm gttstats
Link and linkset summary	mwtm linkstats
MLR statistics	mwtm mlrstats
MTP3 accounting statistics	mwtm accstats
MTP3 event summary	mwtm mtpevents
Q.752 statistics	mwtm q752stats

For example, if you entered the command:

```
# ./mwtm accstats mwtm-2600a.cisco.com test1
```

where *test1* is name tag added to the file name to make it easier to find the report.

The MWTM generates these reports:

```
mwtmAccStats.custom.test1.2004-02-13:15.csv.zip
mwtmAccStats.custom.test1.2004-02-13:15.csv.zip
```

To generate a report for all nodes, do not specify a node name as shown in the following example:

```
# ./mwtm accstats
```

Step 4 (Optional) To include or exclude specific nodes, signaling points or linksets in the report, see NoteThe MWTM processes the include files first, then the exclude files., page 13-183.

Step 5 (First-time users only) If this is your first time using the **mwtm accstats**, **mwtm gttstats**, **mwtm mlrstats**, **mwtm mtpevents**, **mwtm q752stats**, or **mwtm xuastats** command to generate a custom ITP report, you must enter the command one more time. The:

- First entry gets the first set of raw data.
- Second entry begins calculating useful accounting statistics and, if the data being collected appears valid, begins generating the report.

or

If this is your first time using the **mwtm linkstats** command to generate a custom ITP report, you must enter the command two more times. The:

- First entry gets the first set of raw data.
- Second entry begins calculating useful link and linkset statistics.
- Third entry continues to calculate statistics, calculates long-term averages, and, if the data being collected appears to be valid, begins generating the report.

Thereafter, you need only enter these commands once to generate the ITP custom report.

Step 6 (Optional) You can automate custom ITP report generation using crontab. For example, to run custom MTP3 accounting statistics every 30 minutes, enter:

```
00, 30 * * * *  /opt/CSCOsgm/bin/mwtm accstats quiet
```

or, to run custom link statistics every 15 minutes, enter:

```
00,15,30,45 * * * *  /opt/CSCOsgm/bin/mwtm linkstats quiet
```

Step 7 You can view custom ITP reports on the MWTM Web interface under **File Archive > Reports > Custom**. Click on the respective link in the View column to see the data in HTML, or click on a *.zip* file to see the data in .csv format.

Note You can only view Q752 reports in .csv format.

The MWTM also stores custom reports in the */custom* directory (for details, see Locating Stored Reports, page 13-179.)

Including or Excluding Specified Objects in ITP Reports

You can include or exclude specific nodes, signaling points, or linksets in ITP reports by creating user-defined files. The nodes, signaling points, and/or linksets that you specify in these files will be included or excluded from enabled MWTM statistics reports and in custom reports enabled with the **default** keyword (or no *node-list* keyword at all), which include:

Command	Filename[1]
mwtm linkstats	nodes.include.linkstats or nodes.include
	nodes.exclude.linkstats or nodes.exclude
	linksets.include.linkstats or linkstats.include
	linksets.exclude.linkstats or linkstats.exclude
mwtm q752stats	nodes.include.q752stats or nodes.include
	nodes.exclude.q752stats or nodes.exclude
	linksets.include.q752stats or linkstats.include
	linksets.exclude.q752stats or linkstats.exclude
mwtm accstats	nodes.include.accstats or nodes.include
	nodes.exclude.accstats or nodes.exclude
	linksets.include.accstats or linkstats.include
	linksets.exclude.accstats or linkstats.exclude
	filter.include.accstats or filter.include[2]
mwtm gttstats	nodes.include.gttstats or nodes.include
	nodes.exclude.gttstats or nodes.exclude
	linksets.include.gttstats or linkstats.include
	linksets.exclude.gttstats or linkstats.exclude
	filter.include.gttstats or filter.include[3]
mwtm mtpevents	nodes.include.mtpevents or nodes.include
	nodes.exclude.mtpevents or nodes.exclude
mwtm mlrstats	nodes.include.mlrstats or nodes.include
	nodes.exclude.mlrstats or nodes.exclude
mwtm xuastats	nodes.include.xuastats or nodes.include
	nodes.exclude.xuastats or nodes.exclude

1. Files on the command line override system files. For example, nodes.include.accstats overrides nodes.include.
2. Format is opc:dpc (originating point code and destination point code).
3. Format is gta:sel (global title address and selector).

Note The MWTM processes the include files first, then the exclude files.

When creating user-defined files, remember that if you installed the MWTM in:

- The default directory, */opt*, then the user-defined file resides in */opt/CSCOsgm/reports/etc/<user-defined file>*.

  A different directory, or if you moved the report files directory using the **mwtm repdir** command, then the */reports/etc/<user-defined file>* resides in that directory.

- Wildcard matching is not supported.

- If a node, signaling point, or linkset appears in both the *include* file and the *exclude* file, it is excluded. That is, excluding an object overrides including the same object.
- If you specify a special *include* file on the **mwtm accstats**, **mwtm gttstats**, **mwtm linkstats**, **mwtm mlrstats**, **mwtm mtpevents**, **mwtm q752stats**, or **mwtm xuastats** command, the MWTM ignores the *include* or *exclude* file.

When creating a *nodes.include* or *nodes.exclude* file:

Each line in the file must contain a single node name, or node name and signaling point name, separated by a colon (**:**) that matches exactly the real, fully qualified name of the node; for example:

```
mwtm-75-59a.cisco.com
mwtm-26-51a.cisco.com
```

To include a specific signaling point, specify the node name and signaling point:

```
mwtm-75-59a.cisco.com;net0
mwtm-26-51a.cisco.com;net0
```

When creating a *linksets.include* or *linksets.exclude* file:

Each line in the file must contain a single linkset name that matches exactly the real, fully qualified linkset name of the linkset, including the node name and signaling point name; for example:

```
mwtm-75-59a.cisco.com;net0:linkset2
mwtm-26-51a.cisco.com;net0:linkset1
```

When creating a *filter.include* file:

Each line in the file must contain a single originating point code and destination point code (for accounting statistics) that matches the current point code format; or a single phone number and selector name (for GTT statistics); for example:

```
1.2.3:5.6.7
8882214040:Selector_1
```