CHAPTER 6

Working with Nodes

MWTM enables you to view information about all discovered nodes, including their IP addresses, status, and other important information.

This section includes the following information:

Related Topics:

- Changing MWTM Client Preference Settings, page 11-2
- Resizing, Sorting, and Hiding Table Columns, page 3-30

Viewing Basic Information for Nodes

To view basic information for nodes, select **Nodes** in the left pane of the MWTM Main Window. MWTM displays the Node Window.

The Node Window provides information about all nodes that have been discovered by MWTM, including their IP addresses, status, and other important information.

The Node Window is composed of the following sections:

- Node Table, page 6-8

Related Topics:

- Editing Node Properties, page 6-43
- Editing a Node, page 6-42
- Viewing Detailed Information for a Node, page 6-10
- Resizing, Sorting, and Hiding Table Columns, page 3-30

- Using the MWTM Main Menu, page 3-7
- Viewing Notes for a Node, page 6-48

Right-Click Menu for All Nodes

To see the right-click menu for all nodes, select **Nodes** in the left pane and click the right mouse button. The nodes right-click menu provides the following options:

Menu Command	Description
Show In New Window	Opens the Node Window in a new window.
Sort Tree By Status	Sorts the entire tree in the left pane by the status of each object.
Sort Tree By Name	Sorts the entire tree in the left pane by the name of each object.
Back > ***List of Windows***	Navigates back to a window viewed in this session. MWTM maintains a list of up to 10 **Back** windows.
Forward > ***List of Windows***	Navigates forward to a window viewed in this session. MWTM maintains a list of up to 10 **Forward** windows.

Right-Click Menu for a Specific Node

The Node Window provides a subset of the MWTM Main Menu as a right-click menu. To see this menu, select a node and click the right mouse button. The node right-click menu provides the following options:

Menu Command	Description
Edit > Properties	Opens the Edit Properties Dialog for the selected node. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Power User (Level 2) and higher.
Edit > Notes	Opens the Edit Notes Dialog for the selected node. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Power User (Level 2) and higher.
Edit > SNMP IP Addresses	Opens the Edit SNMP IP Addresses Dialog for a Node for the selected node. This option is grayed-out if the selected node has no associated SNMP IP addresses. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Administrator (Level 4) and higher.
Clear Event Icon	Deletes the event icon (orange triangle) from MWTM displays for the selected node, for this MWTM client only. The actual events are not deleted from MWTM, only the event icon for the selected node for this MWTM client. This option is grayed-out if the selected node has no associated event icon.

Menu Command	Description
Delete	Deletes the currently selected node from the MWTM database. MWTM displays the Confirm Deletion dialog: • To delete the selected node, click **Yes**. The node is deleted from the MWTM database and the Confirm Deletion dialog is closed. • To retain the selected node, click **No**. The node is kept in the MWTM database and the Confirm Deletion dialog is closed. **Note** If you delete all linksets to an **Unmanaged** node, MWTM does not automatically delete the node. Instead, you must manually delete the node. See the "Deleting a Node" section on page 6-48 for more information. • To prevent MWTM from displaying the Confirm Deletion dialog, select the **Do not show this again** checkbox. **Note** If you select the **Do not show this again** checkbox, and you later decide you want MWTM to begin displaying the Confirm Deletion dialog again, you must select the **Confirm Deletions** checkbox in the General GUI settings in the Preferences window. For more information, see the description of the **Confirm Deletions** checkbox in the "Startup/Exit Settings" section on page 11-6. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Administrator (Level 4) and higher.
Back > *List of Windows*	Navigates back to a window viewed in this session. MWTM maintains a list of up to 10 **Back** windows.
Forward > *List of Windows*	Navigates forward to a window viewed in this session. MWTM maintains a list of up to 10 **Forward** windows.
View > Components	Displays the Components panel for the selected node.
View > Configuration Details	Displays the Configuration Details panel for the selected node.
View > Notes	Displays the Notes panel for the selected node. If there are no notes associated with the selected node, this option is grayed-out.
View > Events	Displays the Recent Events panel for the selected node and its associated network objects.
Event History > Status Change Messages	Displays the MWTM Network Status Log for Status Change Messages in a Web browser, with messages displayed for only the selected node.

Menu Command	Description
Event History > SNMP Trap Messages	Displays the MWTM Network Status Log for SNMP Trap Messages in a Web browser, with messages displayed for only the selected node.
Event History > Status and Trap Messages	Displays the MWTM Network Status Log for Status Change Messages and SNMP Trap Messages in a Web browser, with messages displayed for only the selected node.
Event History > Network Status Metrics	Displays the MWTM Network Status Log for Metrics in a Web browser, with messages displayed for only the selected node.
Ignore	Ignores the selected node at the next polling cycle. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Power User (Level 2) and higher.
Unignore	Stops ignoring the selected node at the next polling cycle. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Power User (Level 2) and higher.
Drill-Down > Show Syslog Messages	Opens the Node Details: Syslog table, which polls the selected node and displays all messages in its system log. This option is not available if the node is in **Unknown** or **Unmanaged** status.
Drill-Down > Show CPU Processes	Opens the Node Details: CPU Processes panel, which polls the selected node for information about its CPU processes. This option is not available if the node is in **Unknown** or **Unmanaged** status.
Drill-Down > Show Trap Configuration	Opens the Node Details: Trap Configuration panel, which displays all trap settings for the node, as well as all hosts and port numbers to which the node sends traps. If you have implemented MWTM User-Based Access, this option is available to users with authentication level System Administrator (Level 5). This option is not available if the node is in **Unknown** or **Unmanaged** status.
Router > Home Page	Displays the home page of the router in a new Web browser window. This option is grayed-out if the selected node is not a RAN-O node.
Router > Telnet To	Links to the router. This option is grayed-out if the selected node has no IP addresses. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Operator (Level 3) and higher.

Menu Command	Description
Poll Node > Normal Poll	Polls all selected nodes, retaining all currently known linksets. **Normal Poll** retains all linksets associated with polled nodes, even linksets that have been deleted and are therefore in **Unknown** status. This option is grayed-out if the selected node has no IP addresses. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Operator (Level 3) and higher.
Poll Node > Clean Poll	Polls all selected nodes and removes any **Unknown** network objects after the completion of the poll. **Clean Poll** removes all network objects from the node at the completion of the poll. This option is grayed-out if the selected node has no IP addresses. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Operator (Level 3) and higher.
Manage	Removes the **Unmanaged** status from the selected node. You cannot remove the **Unmanaged** status from a node with a **Device Type** of **Unknown**. If you select a node with a **Device Type** of **Unknown**, then this menu option is grayed-out and cannot be selected. This option is grayed-out if the selected node has no IP addresses. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Administrator (Level 4) and higher.
Unmanage	Labels the selected node **Unmanaged**. You cannot label a node **Unmanaged** if it has a **Device Type** of **Unknown**. If you select a node with a **Device Type** of **Unknown**, then this menu option is grayed-out and cannot be selected. This option is grayed-out if the selected node has no IP addresses. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Administrator (Level 4) and higher.
Exclude from View	Excludes the selected node from the current view. See the "Creating a New View" section on page 4-31 for more information about excluding nodes.

Node Table

The node table displays information about the nodes that have been discovered by MWTM.

To see mouse over help popup for each column in the table, place the cursor over a column header.

If a cell is too small to show all of its data, place the cursor over the cell to see the full data in a mouse over help popup.

You can resize each column, or sort the table based on the information in one of the columns. By default, this table is sorted by **Status**, and MWTM displays all of the columns in the node table except **Internal ID**, **Router Uptime**, **Reboot Reason**, **Notes**, and **Status Reason**.

- To display hidden columns, right-click in the table header and select the checkboxes for the columns you want to display.
- To hide columns, right-click in the table header and clear the checkboxes for the columns you want to hide.

See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-30 for more information about resizing, sorting, displaying, or hiding columns.

The node table contains the following columns:

Column	Description
Internal ID	Internal ID of the node. The internal ID is a unique ID for every object, assigned by MWTM for its own internal use. It can also be useful when the TAC is debugging problems.
Name	Name of the node.
Primary SNMP Address	IP address of the node, used by SNMP to poll the node. (There might be other IP addresses on the node that are not the primary SNMP address.)
Device	Device type of the node. Possible values are: • **CiscoMWR-1941-DC-A**—Cisco MWR-1941-DC-A series router • **RNC**—Radio Network Controller • **BSC**—Base Station Controller • **BTS**—Base Transceiver Station • **Node B**—The radio transmission/reception unit for communication between radio cells • **IPDevice**—IP device, other than those listed above. You can assign this icon to an unknown node if you know that it is an IP device. • **Unknown**—MWTM is unable to determine the device type.
IOS MIB Level	MIB conformance level used by the RAN-O device.
Router Uptime	Time the router has been up, in days, hours, minutes, and seconds.
Reboot Reason	Reason for the last reboot of the router.

Column	Description
Ignored	Indicates whether the node is to be included when aggregating and displaying MWTM status information: • Clear the checkbox to include the node. This is the default setting. • Select the checkbox to exclude the node. This field can be edited by users with authentication level Power User (Level 2) and higher.
Process Traps	Indicates whether MWTM is to process traps from this node: • Select the checkbox if you want MWTM to process traps from this node. This is the default setting. • Clear the checkbox if you do not want MWTM to process traps from this node. This field can be edited by users with authentication level Power User (Level 4) and higher.
Trap Polling Enabled	Indicates whether trap polling is enabled for this node. This checkbox is read-only. • If you want to enable trap polling for this node, set **ipran-mib snmp-access** to **inBand** on the device. • If you want to disable trap polling for this node, set **ipran-mib snmp-access** to **outOfBand** on the device.
Report Polling Enabled	Indicates whether report polling is enabled for this node. This checkbox is read-only. • If you want to enable report polling for this node, set **ipran-mib location** to **aggSite** on the device. • If you want to disable report polling for this node, set **ipran-mib location** to **cellSite** on the device.
Notes	Indicates whether there is a note associated with the node.
Events	Indicates whether there is a recent event associated with the node. (Even if the server purges all of the events associated with the node, MWTM continues to display the event icon in this field.) • To delete the event icon (orange triangle) from MWTM displays for a specific node, select the node and click the icon. • To delete the event icon from MWTM displays for all nodes, select **Edit > Clear All Events** from the MWTM Main Menu. **Note** During Discovery, MWTM might flag most nodes with an event icon. If the event icons are too distracting, use the **Edit > Clear All Events** menu option to remove them.
Last Status Change	Date and time that the status of the node last changed.

Column	Description
Status	Current status of the node. Possible values are: **Active** **Discovering** **Polling** **Unknown** **Unmanaged** **Waiting** **Warning** For detailed definitions of each status, see the "Status Definitions for Nodes" section on page A-4.
Status Reason	Reason for the current status of the node. For a full list of possible reasons, see the *stateReasons.html* file: • If you installed MWTM in the default directory, */opt*, then the file is located at */opt/CSCOsgm/apache/share/htdocs/eventHelp* directory. • If you installed MWTM in a different directory, then the help directory and file are located in that directory. If the cell is too small to show all of the status reason, place the cursor over the cell to see the full status reason in a mouse over help popup. The status reasons are listed in order of decreasing magnitude. If two or more reasons apply, the reason of greatest magnitude is displayed. If the status reason is **Unsupported Configuration**, correct the configuration and enter the **mwtm cleandiscover** command to delete all current network data and begin a clean discovery of the RAN-O network. If the status reason is still **Unsupported Configuration**, enter the **mwtm clean** command to restore the MWTM server to a "clean" state, such as would exist after a new installation of MWTM. For more information on the use of these commands, see the "MWTM Command Reference" section on page C-1.

Viewing Detailed Information for a Node

MWTM can display detailed information about a selected node, including its status and other information.

Updates for the node that are received from the MWTM server are reflected automatically in this window.

To display detailed information for a node, use one of the following procedures:

- Select **Nodes** in the left pane of the MWTM Main Window, right-click a node in the right pane, then select **View > Configuration Details** in the right-click menu.
- Select the turner beside **Nodes** in the left pane of the MWTM Main Window, then select a node.

MWTM displays the Node Details Window.

The Node Details Window is composed of the following sections:

Related Topics:

- Viewing Basic Information for Nodes, page 6-1

Node Details: Right-Click Menu

The Node Details Window provides a right-click menu. To see this menu for a node, select a node in the left pane and click the right mouse button. The node details right-click menu provides the following options:

Menu Command	Description
Show In New Window	Opens the Node Details Window for the selected node in a new window.
Edit > Properties	Opens the Edit Properties Dialog for the selected node. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Power User (Level 2) and higher.
Edit > Notes	Opens the Edit Notes Dialog for the selected node. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Power User (Level 2) and higher.
Edit > SNMP IP Addresses	Opens the Edit SNMP IP Addresses Dialog for a Node for the selected node. This option is grayed-out if the selected node has no associated SNMP IP addresses. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Administrator (Level 4) and higher.

Menu Command	Description
Clear Event Icon	Deletes the event icon (orange triangle) from MWTM displays for the selected node, for this MWTM client only. The actual events are not deleted from MWTM, only the event icon for the selected node for this MWTM client. This option is grayed-out if the selected node has no associated event icon.
Delete	Deletes the currently selected node from the MWTM database. MWTM displays the Confirm Deletion dialog: • To delete the selected node, click **Yes**. The node is deleted from the MWTM database and the Confirm Deletion dialog is closed. • To retain the selected node, click **No**. The node is kept in the MWTM database and the Confirm Deletion dialog is closed. **Note** If the node has an associated peer, you will be prompted that the node cannot be deleted. • To prevent MWTM from displaying the Confirm Deletion dialog, select the **Do not show this again** checkbox. **Note** If you select the **Do not show this again** checkbox, and you later decide you want MWTM to begin displaying the Confirm Deletion dialog again, you must select the **Confirm Deletions** checkbox in the General GUI settings in the Preferences window. For more information, see the description of the **Confirm Deletions** checkbox in the "Startup/Exit Settings" section on page 11-6. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Administrator (Level 4) and higher.
Back > List of Windows	Navigates back to a window viewed in this session. MWTM maintains a list of up to 10 **Back** windows.
Forward > List of Windows	Navigates forward to a window viewed in this session. MWTM maintains a list of up to 10 **Forward** windows.
View > Components	Displays the Components panel for the selected node.
View > Configuration Details	Displays the Configuration Data panel for the selected node.
View > Notes	Displays the Notes panel for the selected node. If there are no notes associated with the selected node, this option is grayed-out.
View > Events	Displays the Recent Events panel for the selected node and its associated network objects.

Menu Command	Description
Event History > Status Change Messages	Displays the MWTM Network Status Log for Status Change Messages in a Web browser, with messages displayed for only the selected node.
Event History > SNMP Trap Messages	Displays the MWTM Network Status Log for SNMP Trap Messages in a Web browser, with messages displayed for only the selected node.
Event History > Status and Trap Messages	Displays the MWTM Network Status Log for Status Change Messages and SNMP Trap Messages in a Web browser, with messages displayed for only the selected node.
Event History > Network Status Metrics	Displays the MWTM Network Status Log for Metrics in a Web browser, with messages displayed for only the selected node.
Ignore	Ignores the selected node at the next polling cycle. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Power User (Level 2) and higher.
Unignore	Stops ignoring the selected node at the next polling cycle. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Power User (Level 2) and higher.
Drill-Down > Show Syslog Messages	Opens the Node Details: Syslog table, which polls the selected node and displays all messages in its system log. This option is not available if the node is in **Unknown** or **Unmanaged** status.
Drill-Down > Show CPU Processes	Opens the Node Details: CPU Processes panel, which polls the selected node for information about its CPU processes. This option is not available if the node is in **Unknown** or **Unmanaged** status.
Drill-Down > Show Trap Config	Opens the Node Details: Trap Configuration panel, which displays all trap settings for the node, as well as all hosts and port numbers to which the node sends traps. If you have implemented MWTM User-Based Access, this option is available to users with authentication level System Administrator (Level 5). This option is not available if the node is in **Unknown** or **Unmanaged** status.
Latest Reports > RAN Capacity Planning	Displays the RAN Capacity Planning Report for the node, in a Web browser. This option is not available if the node is in **Unknown** or **Unmanaged** status.

Menu Command	Description
Latest Reports > RAN Statistics	Displays the RAN Backhaul 15 Minutes Statistics report associated with the node, in a Web browser. This option is not available if the node is in **Unknown** or **Unmanaged** status.
Router > Home Page	Displays the home page of the router in a new Web browser window. This option is grayed-out if the selected node is not a RAN-O node.
Router > Telnet To	Links to the router. This option is grayed-out if the selected node has no IP addresses. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Operator (Level 3) and higher.
Poll Node > Normal Poll	Polls all selected nodes, retaining all currently known linksets. **Normal Poll** retains all linksets associated with polled nodes, even linksets that have been deleted and are therefore in **Unknown** status. This option is grayed-out if the selected node has no IP addresses. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Operator (Level 3) and higher.
Poll Node > Clean Poll	Polls all selected nodes and removes any **Unknown** network objects after the completion of the poll. **Clean Poll** removes all network objects from the node at the completion of the poll. This option is grayed-out if the selected node has no IP addresses. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Operator (Level 3) and higher.
Manage	Removes the **Unmanaged** status from the selected node. You cannot remove the **Unmanaged** status from a node with a **Device Type** of **Unknown**. If you select a node with a **Device Type** of **Unknown**, then this menu option is grayed-out and cannot be selected. This option is grayed-out if the selected node has no IP addresses. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Administrator (Level 4) and higher.

Menu Command	Description
Unmanage	Labels the selected node **Unmanaged**. You cannot label a node **Unmanaged** if it has a **Device Type** of **Unknown**. If you select a node with a **Device Type** of **Unknown**, then this menu option is grayed-out and cannot be selected. This option is grayed-out if the selected node has no IP addresses. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Administrator (Level 4) and higher.
Exclude from View	Excludes the selected node from the current view. See the "Creating a New View" section on page 4-31 for more information about excluding nodes.

Node Details: CPU Processes

The Node Details: CPU Processes panel is not available if the node is in **Discovery**, **Polling**, **Unknown**, or **Unmanaged** status.

The Node Details: CPU Processes panel displays one CPU Utilization Percentage table for each active Route Switch Processor (RSP) CPU.

Note This window polls your network periodically. To prevent unnecessary traffic on your network, close this window when you no longer need to refer to it.

The CPU Utilization Percentage table contains the following fields and buttons:

Field or Button	Description
Poll Interval	Poll interval used to collect data for the table.
Last Poll	Time the last poll was run. This field initially displays the phrase **Polling device**. After the first polling cycle, MWTM populates this field with the actual time of the last poll.
PID	Process identifier.
Name	Name of the process.
Time Created	Total time since the process was created.
Total Runtime	CPU time the process has used.
Times Invoked	Number of times the process has been invoked.
Average Runtime	Average CPU time for each process invocation.
5 Sec %	Average CPU utilization percentage for the node over the last 5 seconds.
1 Min %	Average CPU utilization percentage for the node over the last minute.
5 Min %	Average CPU utilization percentage for the node over the last 5 minutes.
Priority	Process queue priority. Possible values are: • **Low** • **Normal** • **High** • **Critical**

Node Details: Trap Configuration

The Node Details: Trap Configuration table displays all trap settings for the selected node, as well as all hosts and port numbers to which the node sends traps.

If you have implemented MWTM User-Based Access, this option is available to users with authentication level System Administrator (Level 5).

Note This window polls your network periodically. To prevent unnecessary traffic on your network, close this window when you no longer need to refer to it.

The Node Details: Trap Configuration table displays the following information for the selected node:

Column	Description
Poll Interval	Poll interval used to collect data for the table.
Last Poll	Time the last poll was run. This field initially displays the phrase **Polling device**. After the first polling cycle, MWTM populates this field with the actual time of the last poll.
RAN Trap Settings	Indicates whether the following GSM RAN trap settings are enabled: • **GSM State Change** • **UMTS State Change** • **Utilization Threshold Change**
IP Address	IP address of a host to which the node sends traps.
Port	Port to which the node sends traps.
Trap Version	Trap version sent to this IP address and port.
Community String	SNMP community name used by the node for read access to the information maintained by the SNMP agent on the device.

Node Details: Shorthaul Performance

Real-time statistics are displayed through the **Shorthaul Performance** tab of the Node Details window.

Note This window polls your network periodically. To prevent unnecessary traffic on your network, close this window when you no longer need to refer to it.

MWTM enables you to view the following shorthaul real-time statistics:

- Change Poller, page 6-18
- Shorthaul Performance: Bytes, page 6-18
- Shorthaul Performance: Packets, page 6-20
- Shorthaul Performance: Sent Utilization, page 6-21
- Shorthaul Performance: Received Utilization, page 6-22
- Shorthaul Performance: Errors, page 6-24

Change Poller

To change the poll interval, click the **Change Poller** button in any Shorthaul Performance or Backhaul Performance window. MWTM displays the Poller Settings Window.

The Poller Settings window displays the following information for the selected node:

Column/Button	Description
Poll Interval (secs)	The poll interval, in seconds, for the selected node. To set a new poll interval, click in the Poll Interval (secs) text box and enter a new value. The default value is 15 seconds. Valid values are between 15 and 60.
Current Poll Interval	Value of the poll interval currently in use.
Number of Polls Received	Number of polls received by the selected node.
Running Time	Time in hours, minutes, and seconds that the poller has been running.
Change	Changes the poll interval from the current setting to the value you have entered in the Poll Interval (secs) text box.
Close	Closes the Poller Settings window.
Help	Displays online help for the current window.

Shorthaul Performance: Bytes

To display real-time statistics for shorthaul bytes sent and received over time, click the **Shorthaul Performance** tab in the Node Details window, then click the **Bytes** tab.

The Shorthaul Performance: Bytes window displays the following information for the selected node:

Column	Description
Change Poller	Opens the Poller Settings dialog to allow you to change the poll interval. For more information, see Change Poller, page 6-18.
Poll Interval (secs)	The poll interval, in seconds, for the selected node. To set a new poll interval, click the Change Poller button. The default value is 15 seconds.
Last Poll	Date and time of the last poll of the node.
Interface	Names of the RAN interfaces for which real-time statistics are collected: Cumulative values for all the interfaces are shown in the Totals row. Averages of all the intefaces are displayed in the Averages row.
Received	Number of bytes received on the interface.
Received Per Second	Rate at which bytes are received (per second).
Sent	Number of bytes sent on the interface.
Sent Per Second	Rate at which bytes are sent (per second).
Utilization Chart	Displays the number of bytes sent and received for the node's interface as a function of time. To see the exact time and data coordinates for a data point, left-click the data point. The coordinates are displayed in the format (*hh*:*mm*:*ss*, *dd*.*dd*), where: • *hh*:*mm*:*ss* is the time for that data point in hours, minutes, and seconds. • *dd*.*dd* is the utilization percentage for that data point. New data points are added to the right side of the chart. When the chart reaches the end of the time window, new data points continue to be added to the right side of the chart, while old data points "drop off" the left side of the chart. If a poll is missed (for example, as a result of an SNMP timeout), MWTM ignores the missing data point, stops drawing the line, and waits for the next valid data point to begin drawing the line again. To zoom in on a section of the chart, drag the cursor while holding down **Shift** and the left mouse button. To reset the chart to the default view and scaling, click **Reset**.
Time Average	Displays color-coded icons, one for each of the following statistics: • Total Sent Rate—Combined send rate for all the interfaces. • Total Received Rate—Combined receive rate for all the interfaces. • *interface_name* Sent—Send rate for the specified interface. • *interface_name* Rcvd—Receive rate for the specified interface. To remove the data for a given average from the chart, click the icon in this field. To return the data to the chart, click the icon again.
Reset	If you scrolled or zoomed the chart, resets the chart to the default view and scaling.
Grid On	Superimposes a graphic grid on the chart. The grid can make the data easier to read.

Column	Description
Grid Off	Removes the graphic grid from the chart.
Help	Displays online help for the current window.

Shorthaul Performance: Packets

To display real-time statistics for shorthaul packets that are sent and received by the specified node over time, click the **Shorthaul Performance** tab in the Node Details window, then click the **Packets** tab.

The Shorthaul Performance: Packets window displays the following information for the selected node:

Column/Button	Description
Change Poller	Opens the Poller Settings dialog to allow you to change the poll interval. For more information, see Change Poller, page 6-18.
Poll Interval (secs)	The poll interval, in seconds, for the selected node. To set a new poll interval, click the Change Poller button. The default value is 15 seconds.
Last Poll	Date and time of the last poll of the node.
Interface	Names of the RAN interfaces for which real-time statistics are collected: Cumulative values for all the interfaces are shown in the Totals row. Averages of all the intefaces are displayed in the Averages row.
Received	For GSM Abis interfaces, the number of samples received on the interface. For UMTS Iub interfaces, the number of packets received on the interface.
Received Per Second	Rate at which packets or samples are received (per second).
Sent	For GSM Abis interfaces, the number of samples sent on the interface. For UMTS Iub interfaces, the number of packets sent on the interface.
Sent Per Second	Rate at which packets or samples are sent (per second).
Utilization Chart	Displays the number of packets sent and received for the node's interface as a function of time. To see the exact time and data coordinates for a data point, left-click the data point. The coordinates are displayed in the format (*hh*:*mm*:*ss*, *dd*.*dd*), where: • *hh*:*mm*:*ss* is the time for that data point in hours, minutes, and seconds. • *dd*.*dd* is the utilization percentage for that data point. New data points are added to the right side of the chart. When the chart reaches the end of the time window, new data points continue to be added to the right side of the chart, while old data points "drop off" the left side of the chart. If a poll is missed (for example, as a result of an SNMP timeout), MWTM ignores the missing data point, stops drawing the line, and waits for the next valid data point to begin drawing the line again. To zoom in on a section of the chart, drag the cursor while holding down **Shift** and the left mouse button. To reset the chart to the default view and scaling, click **Reset**.

Column/Button	Description
Time Average	Displays color-coded icons, one for each of the following statistics: • Total Sent Rate—Combined send rate for all the interfaces. • Total Received Rate—Combined receive rate for all the interfaces. • *interface_name* Sent—Send rate for the specified interface. • *interface_name* Rcvd—Receive rate for the specified interface. To remove the data for a given average from the chart, click the icon in this field. To return the data to the chart, click the icon again.
Reset	If you scrolled or zoomed the chart, resets the chart to the default view and scaling.
Grid On	Superimposes a graphic grid on the chart. The grid can make the data easier to read.
Grid Off	Removes the graphic grid from the chart.
Help	Displays online help for the current window.

Shorthaul Performance: Sent Utilization

To display real-time statistics for shorthaul sent utilization percentage over time, click the **Shorthaul Performance** tab in the Node Details window, then click the **Sent Utilization** tab. The real-time data shows the contribution of shorthaul interfaces toward the backhaul utilization as a percentage.

The Shorthaul Performance: Sent Utilization window displays the following information for the selected node:

Column	Description
Change Poller	Opens the Poller Settings dialog to allow you to change the poll interval. For more information, see Change Poller, page 6-18.
Poll Interval (secs)	The poll interval, in seconds, for the selected node. To set a new poll interval, click the Change Poller button. The default value is 15 seconds.
Last Poll	Date and time of the last poll of the node.

Column	Description
Utilization Chart	Displays the number of packets sent and received for the node's interface as a function of time. To see the exact time and data coordinates for a data point, left-click the data point. The coordinates are displayed in the format (*hh*:*mm*:*ss*, *dd*.*dd*), where: • *hh*:*mm*:*ss* is the time for that data point in hours, minutes, and seconds. • *dd*.*dd* is the utilization percentage for that data point. New data points are added to the right side of the chart. When the chart reaches the end of the time window, new data points continue to be added to the right side of the chart, while old data points "drop off" the left side of the chart. If a poll is missed (for example, as a result of an SNMP timeout), MWTM ignores the missing data point, stops drawing the line, and waits for the next valid data point to begin drawing the line again. To zoom in on a section of the chart, drag the cursor while holding down **Shift** and the left mouse button. To reset the chart to the default view and scaling, click **Reset**.
Time Average	Displays color-coded icons, one for each of the following statistics: • *interface_name*—Displays the contribution of the specified shorthaul interface toward the backhaul utilization as a percentage. • Total Utilization—Displays the contribution of the all the shorthaul interfaces toward the backhaul utilization as a percentage. To remove the data for a given average from the chart, click the icon in this field. To return the data to the chart, click the icon again.
Reset	If you scrolled or zoomed the chart, resets the chart to the default view and scaling.
Grid On	Superimposes a graphic grid on the chart. The grid can make the data easier to read.
Grid Off	Removes the graphic grid from the chart.
Help	Displays online help for the current window.

Shorthaul Performance: Received Utilization

To display real-time statistics for shorthaul received utilization percentage over time, click the **Shorthaul Performance** tab in the Node Details window, then click the **Received Utilization** tab. The real-time data shows the contribution of shorthaul interfaces toward the backhaul utilization as a percentage.

The Shorthaul Performance: Received Utilization window displays the following information for the selected node:

Column	Description
Change Poller	Opens the Poller Settings dialog to allow you to change the poll interval. For more information, see Change Poller, page 6-18.
Poll Interval (secs)	The poll interval, in seconds, for the selected node. To set a new poll interval, click the Change Poller button. The default value is 15 seconds.

Column	Description
Last Poll	Date and time of the last poll of the node.
Utilization Chart	Displays the number of packets sent and received for the node's interface as a function of time. To see the exact time and data coordinates for a data point, left-click the data point. The coordinates are displayed in the format **(***hh***:***mm***:***ss***,** *dd***.***dd***)**, where: • *hh***:***mm***:***ss* is the time for that data point in hours, minutes, and seconds. • *dd***.***dd* is the utilization percentage for that data point. New data points are added to the right side of the chart. When the chart reaches the end of the time window, new data points continue to be added to the right side of the chart, while old data points "drop off" the left side of the chart. If a poll is missed (for example, as a result of an SNMP timeout), MWTM ignores the missing data point, stops drawing the line, and waits for the next valid data point to begin drawing the line again. To zoom in on a section of the chart, drag the cursor while holding down **Shift** and the left mouse button. To reset the chart to the default view and scaling, click **Reset**.
Time Average	Displays color-coded icons, one for each of the following statistics: • *interface_name*—Displays the contribution of the specified shorthaul interface toward the backhaul utilization as a percentage. • Total Utilization—Displays the contribution of the all the shorthaul interfaces toward the backhaul utilization as a percentage. To remove the data for a given average from the chart, click the icon in this field. To return the data to the chart, click the icon again.
Reset	If you scrolled or zoomed the chart, resets the chart to the default view and scaling.
Grid On	Superimposes a graphic grid on the chart. The grid can make the data easier to read.
Grid Off	Removes the graphic grid from the chart.
Help	Displays online help for the current window.

Shorthaul Performance: Errors

To display errors for shorthaul statistics, click the **Shorthaul Performance** tab in the Node Details window, then click the **Errors** tab.

The Shorthaul Performance: Errors window displays the following information for the selected node:

Column	Description
Change Poller	Opens the Poller Settings dialog to allow you to change the poll interval. For more information, see Change Poller, page 6-18.
Poll Interval (secs)	The poll interval, in seconds, for the selected node. To set a new poll interval, click the Change Poller button. The default value is 15 seconds.
Last Poll	Date and time of the last poll of the node.
Interface	Names of the RAN interfaces for which error statistics are collected:
Total Decompression Failures	The total number of decompression failures that occurred on the shorthaul interface in the receive direction.
Total Compression Failures	The total number of compression failures that occurred on the shorthaul interface in the send direction.
No Packet Compression Failures	The number of No Packet errors.
No Interface Compression Failures	The number of No Interface errors.
Interface Down Compression Failures	The number of Interface Down errors.
Encapsulation Errors	The number of Encapsulation Errors.
QoS Drops	The number of drops incurred because of QoS rules.
Help	Displays online help for the current window.

Node Details: Backhaul Performance

Real-time statistics are displayed through the **Backhaul Performance** tab of the Node Details window. Changes you make in this window might not be reflected throughout MWTM until the next poll (by default, every 15 seconds).

Note This window polls your network periodically. To prevent unnecessary traffic on your network, close this window when you no longer need to refer to it.

MWTM enables you to view the following backhaul real-time statistics:

Change Poller

To change the poll interval, click the Change Poller button in any Shorthaul Performance or Backhaul Performance window. For more information on poller settings and how to change them, see Change Poller, page 6-18.

Backhaul Performance: Sent Utilization

To display real-time statistics for backhaul sent utilization percentage over time, click the **Backhaul Performance** tab in the Node Details window, then click the **Sent Utilization** tab.

The Backhaul Performance: Sent Utilization window displays the following information for the selected node:

Column	Description
Change Poller	Opens the Poller Settings dialog to allow you to change the poll interval. For more information, see Change Poller, page 6-18.
Poll Interval (secs)	The poll interval, in seconds, for the selected node. To set a new poll interval, click the Change Poller button. The default value is 15 seconds.
Last Poll	Date and time of the last poll of the node.
Utilization Chart	Displays the utilization percentage for the node as a function of time. To see the exact time and data coordinates for a data point, left-click the data point. The coordinates are displayed in the format (*hh*:*mm*:*ss*, *dd*.*dd*), where: • *hh*:*mm*:*ss* is the time for that data point in hours, minutes, and seconds. • *dd*.*dd* is the utilization percentage for that data point. New data points are added to the right side of the chart. When the chart reaches the end of the time window, new data points continue to be added to the right side of the chart, while old data points "drop off" the left side of the chart. If a poll is missed (for example, as a result of an SNMP timeout), MWTM ignores the missing data point, stops drawing the line, and waits for the next valid data point to begin drawing the line again. To zoom in on a section of the chart, drag the cursor while holding down **Shift** and the left mouse button. To reset the chart to the default view and scaling, click **Reset**.

Column	Description
Time Average	Displays color-coded icons, one for each of the following statistics: • Acceptable Threshold—Line that shows the threshold below which the backhaul utilization is considered acceptable. • Warning Threshold—Line that shows the threshold beyond which the backhaul utilization issues a warning. Subsequent warnings are issued only if the utilization goes below the Acceptable Threshold. • Overloaded Threshold—Line that shows the threshold beyond which the backhaul utilization is considered overloaded. Subsequent overload messages are issued only if the utilization goes below the Acceptable Threshold. • Total Utilization—Backhaul utilization percentage for all traffic types. • Abis Utilization—Backhaul utilization percentage for GSM Abis traffic. • UMTS Utilization—Backhaul utilization percentage for UMTS Iub traffic. • Other Utilization—Backhaul utilization percentage for traffic that is neither GSM nor UMTS traffic. To remove the data for a given average from the chart, click the icon in this field. To return the data to the chart, click the icon again.
Reset	If you scrolled or zoomed the chart, resets the chart to the default view and scaling.
Grid On	Superimposes a graphic grid on the chart. The grid can make the data easier to read.
Grid Off	Removes the graphic grid from the chart.
Help	Displays online help for the current window.

Backhaul Performance: Received Utilization

To display real-time statistics for backhaul received utilization percentage over time, click the **Backhaul Performance** tab in the Node Details window, then click the **Received Utilization** tab.

The Backhaul Performance: Received Utilization window displays the following information for the selected node:

Column	Description
Change Poller	Opens the Poller Settings dialog to allow you to change the poll interval. For more information, see Change Poller, page 6-18.
Poll Interval (secs)	The poll interval, in seconds, for the selected node. To set a new poll interval, click the Change Poller button. The default value is 15 seconds.
Last Poll	Date and time of the last poll of the node.

Column	Description
Utilization Chart	Displays the utilization percentage for the node as a function of time. To see the exact time and data coordinates for a data point, left-click the data point. The coordinates are displayed in the format (*hh*:*mm*:*ss*, *dd*.*dd*), where: • *hh*:*mm*:*ss* is the time for that data point in hours, minutes, and seconds. • *dd*.*dd* is the utilization percentage for that data point. New data points are added to the right side of the chart. When the chart reaches the end of the time window, new data points continue to be added to the right side of the chart, while old data points "drop off" the left side of the chart. If a poll is missed (for example, as a result of an SNMP timeout), MWTM ignores the missing data point, stops drawing the line, and waits for the next valid data point to begin drawing the line again. To zoom in on a section of the chart, drag the cursor while holding down **Shift** and the left mouse button. To reset the chart to the default view and scaling, click **Reset**.
Time Average	Displays color-coded icons, one for each of the following statistics: • Acceptable Threshold—Line that shows the threshold below which the backhaul utilization is considered acceptable. • Warning Threshold—Line that shows the threshold beyond which the backhaul utilization issues a warning. Subsequent warnings are issued only if the utilization goes below the Acceptable Threshold. • Overloaded Threshold—Line that shows the threshold beyond which the backhaul utilization is considered overloaded. Subsequent overload messages are issued only if the utilization goes below the Acceptable Threshold. • Total Utilization—Backhaul utilization percentage for all traffic types. • Abis Utilization—Backhaul utilization percentage for GSM Abis traffic. • UMTS Utilization—Backhaul utilization percentage for UMTS Iub traffic. • Other Utilization—Backhaul utilization percentage for traffic that is neither GSM nor UMTS traffic. To remove the data for a given average from the chart, click the icon in this field. To return the data to the chart, click the icon again.
Reset	If you scrolled or zoomed the chart, resets the chart to the default view and scaling.
Grid On	Superimposes a graphic grid on the chart. The grid can make the data easier to read.
Grid Off	Removes the graphic grid from the chart.
Help	Displays online help for the current window.

Backhaul Performance: Errors

To display errors for backhaul statistics, click the **Backhaul Performance** tab in the Node Details window, then click the **Errors** tab.

The Backhaul Performance: Errors window displays the following information for the selected node:

Column	Description
Change Poller	Opens the Poller Settings dialog to allow you to change the poll interval. For more information, see Change Poller, page 6-18.
Poll Interval (secs)	The poll interval, in seconds, for the selected node. To set a new poll interval, click the Change Poller button. The default value is 15 seconds.
Last Poll	Date and time of the last poll of the node.
Interface	Names of the RAN interfaces for which error statistics are collected:
Peer Not Ready Drops	Number of Peer Not Ready Drop errors. This error occurs when the backhaul peer is not ready for input.
Peer Not Active Drops	Number of Peer Not Active Drop errors. This error occurs when the backhaul peer is not active.
Invalid Packets	Number of invalid backhaul packets received.
Lost Received Packets	Number of lost backhaul packets received.
Lost Sent Packets	Number of lost backhaul packets sent.
Total Missed Packets	Total number of backhaul packets missed or dropped.
Missed Late	Number of backhaul packets missed because they arrived late.
Missed Lost	Number of backhaul packets missed because they were lost.
Missed No Memory	Number of backhaul packets missed because no particles were available (for example, getparticle () failure).
Missed Reset	Number of backhaul packets missed because of xBufferRing reset.
Help	Displays online help for the current window.

Node Details: Components

The Node Details: Components section displays information about the interfaces that are associated with the selected node.

To see mouse over help popup for each column in the table, place the cursor over a column header.

If a cell is too small to show all of its data, place the cursor over the cell to see the full data in a mouse over help popup.

You can resize each column, or sort the table based on the information in one of the columns. By default, MWTM displays all of the columns except **Internal ID**.

- To display hidden columns, right-click in the table header and select the checkboxes for the columns you want to display.
- To hide columns, right-click in the table header and clear the checkboxes for the columns you want to hide.

See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-30 for more information about resizing, sorting, displaying, or hiding columns.

The Signaling Point Table contains the following columns:

Column	Description
Internal ID	Internal ID of the router interface. The internal ID is a unique ID for every object, assigned by MWTM for its own internal use. It can also be useful when the TAC is debugging problems.
Name	Name of the router interface.
Object Type	Type of router interface associated with this node.
Ignored	Indicates whether the router interface is to be included when aggregating and displaying MWTM status information: • Clear the checkbox to include the router interface. This is the default setting. • Select the checkbox to exclude the router interface. This field can be edited by users with authentication level Power User (Level 2) and higher.
Notes	Indicates whether there is a note associated with the router interface.
Events	Indicates whether there is a recent event associated with the router interface. (Even if the server purges all of the events associated with the router interface, MWTM continues to display the event icon in this field.)
Last Status Change	Date and time that the status of the router interface last changed.

Column	Description
Status	Current status of the router interface. Possible values are: **Active** **Unknown** **Unmanaged** **Warning** For detailed definitions of each status, see the "Status Definitions for Nodes" section on page A-4.
Status Reason	Reason for the current status of the router interface. For a full list of possible reasons, see the *stateReasons.html* file: • If you installed MWTM in the default directory, */opt*, then the file is located at */opt/CSCOsgm/apache/share/htdocs/eventHelp* directory. • If you installed MWTM in a different directory, then the help directory and file are located in that directory. If the cell is too small to show all of the status reason, place the cursor over the cell to see the full status reason in a mouse over help popup. The status reasons are listed in order of decreasing magnitude. If two or more reasons apply, the reason of greatest magnitude is displayed. If the status reason is **Unsupported Configuration**, correct the configuration and enter the **mwtm cleandiscover** command to delete all current network data and begin a clean discovery of the RAN-O network. If the status reason is still **Unsupported Configuration**, enter the **mwtm clean** command to restore the MWTM server to a "clean" state, such as would exist after a new installation of MWTM. For more information on the use of these commands, see the "MWTM Command Reference" section on page C-1.

Node Details: Configuration Data

The Node Details: Configuration Details section is composed of the following sub-sections:

Naming Information

The Naming Information sub-section contains the following fields:

Field	Description
Display Name	Name of the node.
IP Address or DNS Hostname	IP address or DNS name of the node, as discovered by MWTM. However, if you modified your preferences to identify nodes by their IP addresses, then that is how the node is identified in this field. For more information, see the "Node Name Settings" section on page 11-8.
Device Type	Device type of the node. Possible values are: • **CiscoMWR-1941-DC-A**—Cisco MWR-1941-DC-A series router • **RNC**—Radio Network Controller • **BSC**—Base Station Controller • **BTS**—Base Transceiver Station • **Node B**—The radio transmission/reception unit for communication between radio cells • **IPDevice**—IP device, other than those listed above. You can assign this icon to an unknown node if you know that it is an IP device. • **Unknown**—MWTM is unable to determine the device type.
Serial Number	Serial number of the node.
SNMP Access	Whether the SNMP access is in-band (across the backhaul), out of band, or undefined.
Location	The location of the SNMP settings, whether at the BSC or the BTS site.

Descriptive Information

The Descriptive Information sub-section contains the following fields:

Field	Description
MIB Level	MIB conformance level used by the router, such as **IP-RAN R0**. **Note** **Router IOS Version** and **MIB Level** might not have a one-to-one correspondence, because multiple router IOS versions can use the same MIB level if there are no changes to the MIBs between versions.
Router IOS Version	Version of IOS that is installed on the router.

Status Information

The Status Information sub-section contains the following fields:

Field	Description
Is Ignored	Indicates whether the node is **Ignored** (that is, whether the node is to be included when aggregating and displaying MWTM status information).
Process Traps	Indicates whether MWTM is to process traps from this node.
Last Status Change	Date and time that the status of the node last changed.

Field	Description
Status	Current status of the node. Possible values are: **Active** **Discovering** **Polling** **Unknown** **Unmanaged** **Waiting** **Warning** For detailed definitions of each status, see the "Status Definitions for Nodes" section on page A-4.
Status Reason	Reason for the current status of the signaling gateway mated pair. For a full list of possible reasons, see the *stateReasons.html* file: • If you installed MWTM in the default directory, */opt*, then the file is located at */opt/CSCOsgm/apache/share/htdocs/eventHelp* directory. • If you installed MWTM in a different directory, then the help directory and file are located in that directory. If the cell is too small to show all of the status reason, place the cursor over the cell to see the full status reason in a mouse over help popup. The status reasons are listed in order of decreasing magnitude. If two or more reasons apply, the reason of greatest magnitude is displayed. If the status reason is **Unsupported Configuration**, correct the configuration and enter the **mwtm cleandiscover** command to delete all current network data and begin a clean discovery of the RAN-O network. If the status reason is still **Unsupported Configuration**, enter the **mwtm clean** command to restore the MWTM server to a "clean" state, such as would exist after a new installation of MWTM. For more information on the use of these commands, see the "MWTM Command Reference" section on page C-1.

Router Uptime Information

The Router Uptime Information sub-section contains the following fields:

Field	Description
Router Uptime	Time the router has been up, in days, hours, minutes, and seconds.
Reboot Reason	Reason for the last reboot of the router.

Polling Information

The Polling Information sub-section contains the following fields:

Field	Description
Process Traps	Indicates whether traps are processed or not. To change this setting, select or clear the checkbox in the Process Traps column of the Nodes table.
Trap Polling Enabled	Indicates whether trap polling is enabled or not. This checkbox is read-only. • If you want to enable trap polling for this node, set **ipran-mib snmp-access** to **inBand** on the device. • If you want to disable trap polling for this node, set **ipran-mib snmp-access** to **outOfBand** on the device.
Report Polling Enabled	Indicates whether report polling is enabled or not. This checkbox is read-only. • If you want to enable report polling for this node, set **ipran-mib location** to **aggSite** on the device. • If you want to disable report polling for this node, set **ipran-mib location** to **cellSite** on the device.
First Discovered	Date and time that the node was first discovered by MWTM.
Last Poll IP Address	Last IP address that was polled for this node. For a node that is not a RAN-O node, this field is left blank.
Last Full Poll Time	Date and time of the last full poll of the node for device-related MIBs (as opposed to a demand poll for just one linkset's worth of data). For a node that is not a RAN-O node, this field is left blank.
Last MWTM Poll Response (secs)	Time, in seconds, taken by this node to respond to the last MWTM poll request. For a node that is not a RAN-O node, this field is left blank.
Avg. MWTM Poll Response (secs)	Average time, in seconds, taken by this node to respond to MWTM poll requests. For a node that is not a RAN-O node, this field is left blank.

Threshold % Information

The Threshold % Information sub-section contains the following fields:

Field	Description
Acceptable	The percentage threshold setting below which the backhaul utilization is considered acceptable.
Warning	The percentage threshold setting beyond which the backhaul utilization issues a warning. Subsequent warnings are issued only if the utilization goes below the Acceptable Threshold.
Overloaded	The percentage threshold setting beyond which the backhaul utilization is considered overloaded. Subsequent overload messages are issued only if the utilization goes below the Acceptable Threshold.

IP Addresses for SNMP

The IP Addresses for SNMP sub-section contains the following fields:

Field	Description
IP Address	IP addresses associated with this node, including the primary SNMP address and all backup IP addresses, that are intended for SNMP.
Last Regular Poll Time	Date and time of the last full poll of the node for router-related MIBs. If the IP address has never been polled, MWTM displays the phrase **Never Polled**.
SNMP Pollable	Whether or not the node can be polled using SNMP.

If there are no IP addresses defined for the node that are intended for SNMP, this field displays the phrase **There are no other IP addresses defined for this node**.

Node Details: Notes

The Node Details: Notes section displays:

- Notes associated with the node.
- The date and time the notes associated with the node were last updated, or the phrase **Not Set** if there are no notes associated with the node.
- The phrase **No Notes** if there are no notes associated with the node.

Node Details: Recent Events

The Node Details: Recent Events table displays all recent events associated with the node, and enables you to perform event-related tasks, such as setting filters and acknowledging events.

To see mouse over help popup for each column in the table, place the cursor over a column header.

If a cell is too small to show all of its data, place the cursor over the cell to see the full data in a mouse over help popup.

You can resize each column, or sort the table based on the information in one of the columns. By default, MWTM displays all of the columns in the table except **Internal ID**, **Note**, **Message Name**, **Ack By**, **Ack Time**, **Node**, **Router Interface**.

- To display hidden columns, right-click in the table header and select the checkboxes for the columns you want to display.
- To hide columns, right-click in the table header and clear the checkboxes for the columns you want to hide.

See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-30 for more information about resizing, sorting, displaying, or hiding columns.

The Node Details: Recent Events table contains the following toolbar buttons and columns:

Toolbar Button or Column	Description
Set Filter	Opens the Event Filter dialog.
Apply Filter or **Remove Filter**	Activates and deactivates the event filter specified in the Event Filter dialog: • If the filter is activated, MWTM displays only those events that pass the filter. • If the filter is deactivated, MWTM displays all events. • If you activate a filter in an object's Recent Events table in the MWTM Main Window, the filter is activated in all Recent Events tables in the MWTM Main Window for all other network objects. The filter is not activated in Recent Events tables in Show In New Window windows or Real-Time Data and Charts windows.
Pause or **Resume**	Pauses or resumes the table. While the table is paused, MWTM does not display new events in the table (unless you apply an event filter or edit your event preferences). When the table is resumed, all new events since the table was paused are added to the display. If events are deleted while the table is paused, they are not removed from the table. Instead, they are grayed-out and cannot be acknowledged or edited. Deleted events are removed from the table when you resume the table.
Acknowledge	Makes the selected event or events acknowledged.
Unacknowledge	Makes the selected event or events unacknowledged.
Event Properties	Opens the Event Properties window.
Edit Notes	Opens the Edit Event Dialog.
Time Difference	Displays the difference in days, minutes, hours, and seconds between two events.
Find	Finds specific text in the event table.
Create Sound Filter	Opens the Event Sound Filters dialog and the Event Sound Filters List dialog, with fields populated based on the selected event.
Adjust Row Height	Adjusts the table row height and wraps the message text as follows: • Click once to double the row height and wrap the message text. • Click again to triple the row height and wrap the message text. • Click again for single row height and no message text wrapping. This is the default setting. This setting is saved automatically with your preferences.
Help for Event	Displays context-sensitive help for the selected event in a separate Web browser.

Toolbar Button or Column	Description
Internal ID	Internal ID of the event. The internal ID is a unique ID for every object, assigned by MWTM for its own internal use. It can also be useful when the TAC is debugging problems.
Ack	Indicates whether the event has been acknowledged: • To acknowledge an unacknowledged event, use the **Acknowledge** toolbar button. • To make a previously acknowledged event unacknowledged, use the **Unacknowledge** toolbar button.
Category	Type of the event. Default values are: • **Create**—Creation event, such as the creation of a seed file. • **Delete**—Deletion event, such as the deletion of an object or file. • **Discover**—Discovery event, such as Discovery beginning. • **Edit**—Edit event. A user has edited an object. • **Ignore**—Ignore event. A user has **Ignored** a link or linkset. • **Login**—Login event. A user has logged in to MWTM. • **LoginDisable**—LoginDisable event. MWTM has disabled a user's User-Based Access authentication as a result of too many failed attempts to log in to MWTM. • **LoginFail**—LoginFail event. An attempt by a user to log in to MWTM has failed. • **Logout**—Logout event. A user has logged out of MWTM. • **OverWrite**—OverWrite event. An existing file, such as a seed file or route file, has been overwritten. • **Poll**—Poll event, such as an SNMP poll. • **Purge**—Purge event. A user has requested Discovery with **Delete Existing Data** selected, and MWTM has deleted the existing MWTM database. • **Status**—Status change message generated. • **Trap**—SNMP trap message generated. You can customize this field. See the "Changing Event Categories" section on page 5-23 for more information.

Toolbar Button or Column	Description
Severity	Severity of the event. Default values are: • **Critical**—The default color is red. • **Indeterminate**—The default color is aqua. • **Informational**—The default color is white. • **Major**—The default color is orange. • **Minor**—The default color is yellow. • **Normal**—The default color is green. • **Warning**—The default color is blue. You can customize this field. See the "Changing Event Severities and Colors" section on page 5-24 for more information.
Note	Indicates whether there is a note associated with the event.
Message Name	User-specified message name for the event, used by MWTM for trap forwarding. The default message name is **MWTM**. For more information about user-specified message names and trap forwarding, see the "Forwarding Events as Traps to Other Hosts" section on page 5-35.
Time	Date and time the event was logged.
Ack By	If you have not implemented MWTM User-Based Access, name of the device that last acknowledged the event. If you have implemented MWTM User-Based Access, name of the user who last acknowledged the event. If no one has acknowledged the event, this field is blank.
Ack Time	Date and time the event was last acknowledged or unacknowledged.
Node	Name of the node associated with the event. If there is no node associated with the event, **None** is displayed.
Message	Text of the message. You can customize this field. See the "Changing the Way MWTM Processes Events" section on page 5-17 for more information.

Node Details: Syslog

The Node Details: Syslog table displays all messages in the system log for the selected node.

Note This window polls your network periodically. To prevent unnecessary traffic on your network, close this window when you no longer need to refer to it.

The Node Details: Syslog table displays the following information for the selected node:

Column	Description
Poll Interval	Poll interval used to collect data for the table.
Last Poll	Time the last poll was run. This field initially displays the phrase **Polling device**. After the first polling cycle, MWTM populates this field with the actual time of the last poll.
Timestamp	Date and time of the syslog message from the device.
Severity	Severity of the syslog message. Possible values are: • **Alert**—Messages that require immediate action. • **Critical**—Critical conditions. • **Debug**—Debug messages, log FTP commands, and WWW URLs. • **Emergency**—System unusable messages. • **Error**—Error messages. • **Info**—Information messages. • **Notice**—Normal but significant conditions. • **Warning**—Warning messages.
Facility	Name of the facility that generated the syslog message, such as SYS or SNMP.
Name	Short text identifier for the message type. A facility name in conjunction with a message name uniquely identifies a syslog message type.
Message	Text of the syslog message.

Editing a Node

MWTM enables you to edit the following aspects of a node:

- Editing Node Properties, page 6-43
- Attaching a Note to a Node, page 6-46
- Editing SNMP IP Addresses for a Node, page 6-46
- Viewing Notes for a Node, page 6-48

Related Topics:

- Viewing Basic Information for Nodes, page 6-1
- Viewing Detailed Information for a Node, page 6-10
- Viewing Notes for a Node, page 6-48
- Viewing the Topology of the Network, page 8-1

Editing Node Properties

The Edit Properties Dialog enables you to change the name, icon name, and Telnet address associated with a node.

To edit a node's properties, right-click the node in a window, select **Edit > Properties** in the right-click menu. MWTM displays the Edit Properties Dialog for a Node.

The Edit Properties Dialog contains the following fields and buttons:

Field or Button	Description
Name	Name of the node. By default, this field displays the node's DNS name, as discovered by MWTM. However, if you modified your preferences to identify nodes by their IP addresses, then that is how the node is identified in this field. For more information, see the "Node Name Settings" section on page 11-8. You can also use this field to specify a new, more meaningful name for the node or signaling point, keeping in mind the following considerations: • You can change a RAN-O node name to a new name or IP address. • A new name can be from 1 to 30 characters, and can contain any letters (upper- or lowercase) and any numbers, as well as blank spaces ( ), dashes (-), and underscores (_), **but no periods (.)**. If you enter a name that is longer than 30 characters, or if you enter any other special characters or periods, MWTM beeps and retains the current name. • If you enter a name that includes a period, MWTM assumes that you are entering a new IP address. A new IP address must use the *x.x.x.x* format, where *x* is between 0 and 255, and must contain only numbers and periods, **but no letters or special characters**. If you enter an IP address that contains any letters or special characters, MWTM beeps and retains the current IP address. • If you edit a node whose current name already contains invalid characters, MWTM beeps and replaces the name with blanks. Enter a new name that uses only valid characters, or click **Cancel** to keep the existing name. If you click **Cancel**, MWTM exits the Edit Properties Dialog without saving any changes to the **Name**, **Telnet Address**, or **Icon Name** field.
Name (continued)	• If you leave the **Name** field blank, MWTM reverts to the node's default name (the DNS name for a RAN-O node). • The new node name *is* used when launching context-based applications, such as CiscoWorks. Therefore, if the new name you enter is not the node's DNS name, and the application knows the node by its DNS name, context links into the application for that node might not work. When you click **Save**, all MWTM windows are updated automatically to reflect the new name.
Telnet Address	Telnet IP address and optional port number, to pass to the Telnet command. A new Telnet IP address must use the *x.x.x.x* format, where *x* is between 0 and 255, and must contain only numbers and periods, **but no letters or special characters**. If you enter a Telnet IP address that contains any letters or special characters, MWTM beeps and retains the current Telnet IP address. If you specify a port number, separate the IP address from the port number with a space, such as: **mwtm-sun8.cisco.com 2048**.

Field or Button	Description
Icon Name	Name of the graphic icon to assign to this node in topology maps. MWTM automatically assigns an appropriate icon to each discovered Cisco RAN-O node, and to **Unknown** nodes, but you can use this field to assign a different icon (for example, if you know that a given **Unknown** node is a mobile switching center). When MWTM discovers a single-instance node, it assigns the icon that corresponds to the node. When MWTM discovers a multi-instance node, it assigns a separate icon for each unique instance. Valid values are: • **BSC**—Base Station Controller • **BTS**—Base Transceiver Station • **Building**—Icon representing a collection of network objects within a building • **City**—Icon representing a collection of network objects within a city
Icon Name (continued)	• **Cloud**—Collection of network objects, called a submap. A submap can also contain other submaps. • **Database**—Icon representing a database object • **IPDevice**—IP device, other than those listed above • **MSC**—Mobile switching center • **Node B**—The radio transmission/reception unit for communication between radio cells • **RNC**—Radio Network Controller • **Tower**—Icon representing a PC tower • **TrafficGenerator**—Icon representing a device or emulator used to generate traffic, usually in a test environment • **Unknown**—MWTM is unable to determine the node type. • **Workstation**—Icon representing a workstation • **Workstation2**—Icon representing a different workstation When you click **Save**, the Topology Window is updated automatically to reflect the new icon.
Save	Saves changes you have made to the node information, updates all windows to reflect your changes, and exits the dialog.
Cancel	Exits the dialog without saving any changes.
Help	Displays online help for the dialog.

Attaching a Note to a Node

MWTM enables you to annotate a node, attaching a descriptive string to it.

To attach a note to a node, right-click the node in a window, then select **Edit > Notes** in the right-click menu. MWTM displays the Edit Notes Dialog for a Node.

The Edit Notes Dialog for a Node contains the following fields and buttons:

Field or Button	Description
Name	Name of the node. You cannot edit this field.
Note Last Updated	Date and time the **Notes** field for this node was last updated. If there is no note currently associated with this node, this field displays the value **Not Set**. You cannot edit this field.
Notes	Notes to associate with this node. In this field, you can enter any important information about the node, such as a detailed description, its location, its service history, and so on.
Save	Saves changes you have made to the node's notes, updates all MWTM windows to reflect your changes, and exits the dialog. When you annotate a node, MWTM displays a note icon in the **Notes** column of all node tables for the annotated node, and the topology map in the Topology Window displays a note icon in the upper left corner of the node element.
Cancel	Exits the dialog without saving any changes.
Help	Displays online help for the dialog.

Editing SNMP IP Addresses for a Node

MWTM enables you to determine which IP addresses are to be used for SNMP polling.

To edit a node's SNMP IP addresses, right-click a node in a window, select **Edit > SNMP IP Addresses** in the right-click menu. MWTM displays the Edit SNMP IP Addresses Dialog.

The Edit SNMP IP Addresses Dialog contains the following fields and buttons:

Field or Button	Description
Available Router IP Addresses	List of all IP addresses associated with this RAN-O node that users do not want MWTM to use for SNMP polling. MWTM does not send SNMP queries to IP addresses in this list. This option is displayed only for RAN-O nodes.
IP Addresses for SNMP	List of all IP addresses associated with this RAN-O node that MWTM can use for SNMP polling: • By default, MWTM places *all* discovered IP addresses in this list, in the order in which they are discovered. MWTM uses the IP address at the top of the list as the primary SNMP address for the node. During SNMP polling of the node (both status polling and demand polling), MWTM first tries the primary SNMP address. If the primary is unavailable, MWTM tries the other IP addresses, one-by-one, in descending order. • To assign a new primary SNMP address, or to change the order of the secondary IP addresses, use the **Raise Priority** and **Lower Priority** buttons to move the IP addresses up and down in the list.
IP Addresses for SNMP (continued)	• You can also select IP addresses that you do not want MWTM to use for SNMP polling. This is useful, for example, to separate management traffic from SMS traffic. To remove an IP address from the list, click **Remove**. The IP address is removed from the **IP Addresses for SNMP** list and appears in the **Available Router IP Addresses** list, and is no longer used by MWTM for SNMP polling. To enable an IP address for SNMP polling again, select the address in the **Available Router IP Addresses** list and click **Add**. The IP address moves back into the **IP Addresses for SNMP** list and is again available for SNMP polling. If you remove all IP addresses from the **IP Addresses for SNMP** list, the node is effectively removed from the network, and MWTM automatically labels the node **Unmanaged** in all windows. When you click **Save**, all MWTM windows are updated automatically to reflect the changes. This option is displayed only for RAN-O nodes.
Add	Enables one or more selected IP addresses for SNMP polling. All selected IP addresses in the **Available Router IP Addresses** list are moved to the **IP Addresses for SNMP** list, and are again used by MWTM for SNMP polling.
Remove	Disables one or more selected IP addresses for SNMP polling. All selected IP addresses in the **IP Addresses for SNMP** list are moved to the **Available Router IP Addresses** list, and are no longer used by MWTM for SNMP polling.
Raise Priority	Moves the selected IP addresses up in the **IP Addresses for SNMP** list. If you move an IP address to the top of the list, MWTM uses that IP address as the new primary SNMP address for the node.
Lower Priority	Moves the selected IP addresses down in the **IP Addresses for SNMP** list. If you remove an IP address from the top of the list, MWTM no longer uses that IP address as the primary SNMP address for the node.

Field or Button	Description
Save	Saves changes you have made to the node information and exits the dialog. When you are satisfied with your changes, click **Save**. MWTM saves your changes and updates all MWTM windows to reflect your changes.
Cancel	Exits the dialog without saving any changes. At any time, you can click **Cancel** to exit the dialog without saving any changes.
Help	Displays online help for the dialog.

Viewing Notes for a Node

MWTM enables you to view any notes that have been associated with a node.

To view a note for a node, right-click a node in a window, then select **View > Notes** in the right-click menu. (The **Notes** option is grayed-out if there is no note associated with the selected node.)

MWTM displays the Notes panel for the selected node, which displays:

- Notes associated with the node.
- The date and time the notes associated with the node were last updated, or the phrase **Not Set** if there are no notes associated with the node.
- The phrase **No Notes** if there are no notes associated with the node.

Related Topics:

- Attaching a Note to a Node, page 6-46

Deleting a Node

After Discovery, the nodes in your network are known to MWTM and added to the MWTM database. Physically deleting nodes from your network is not the same as deleting them from the MWTM database. The following sections describe the differences between deleting nodes from your network, from the MWTM database, and from the MWTM Discovery database, and the procedures for doing so:

- Deleting a Node from Your Network, page 6-49
- Deleting a Node from the MWTM Database, page 6-49
- Deleting a Node from the MWTM Discovery Database, page 6-51

Deleting a Node from Your Network

If you physically delete a known node from your network (for example, by powering down a router), it remains in the MWTM database, MWTM labels it **Unknown**, and it is the system administrator's responsibility to delete it from the MWTM database, if you choose to do so. MWTM also labels all associated network objects **Unknown** because MWTM attempts to poll the node and gets no response.

Deleting a Node from the MWTM Database

Typically, you delete a node from the MWTM database for one of the following reasons:

- You have physically deleted the node from your network. This is the most common reason for deleting a node from the MWTM database.
- The node is **Unknown** or **Unmanaged**, you are aware of the reason, and you no longer want to see it in MWTM displays. For example, the node might be a test lab device.

If you have physically deleted a known node from your network, and you then delete it from MWTM, it is no longer in the MWTM database, it does not appear in MWTM windows, and it is not discovered when you run Discovery.

Be aware of the following special situations:

- If you have *not* physically deleted a known node from your network, and you delete it from MWTM, MWTM removes the node from the poll list, and at the next poll MWTM returns the node to the DEFAULT view, and labels the node as a new node if you are using a custom view.
- If a node is connected to a peer node, you cannot delete the node. If you try to do so, MWTM cancels the deletion.

If either of these situations occurs, do not delete the node again. Instead, perform one of the following actions:

- Label the node **Unmanaged**. See the "Unmanaging and Managing a Node" section on page 6-51 for more details.
- Remove the node from your view. See the "Working with Views" section on page 4-1 for more details.

Note If you delete a node from the MWTM database, the node is deleted for *all* MWTM clients and views connected to that MWTM server.

To delete a node from the MWTM database, use one of the following procedures:

- Select one or more nodes in a window, then select **Edit > Delete** from the MWTM Main Menu.
- Right-click a node in a window, then select **Delete** in the right-click menu. (You cannot delete more than one node at a time from the right-click menu.)

MWTM asks you to confirm the deletion:

- Select **Yes** to delete the selected nodes. MWTM deletes the nodes from the MWTM database.
- Select **No** to return to the window without deleting any nodes from the MWTM database.

You can also use the **mwtm delete node** command to delete one or more nodes from the MWTM database. See the "mwtm delete" section on page C-17 for more information on the use of this command.

Note If you delete a node, MWTM removes it from the left pane of the View Editor Window. If MWTM then rediscovers the node, MWTM places it in the New on the Network panel of the View Editor Window. To restore the node to your current view, you must move it into the left pane using **Edit > Include In View** from the MWTM Main Menu. For more information, see the "Creating a New View" section on page 4-31.

Deleting a Node from the MWTM Discovery Database

If you want to completely eliminate a given node from the MWTM database, you can delete it from the MWTM Discovery database, ensuring that it is never even discovered by MWTM.

Note If you delete a node from the MWTM Discovery database, the node is deleted for *all* MWTM clients and views connected to that MWTM server.

To delete a node from the MWTM Discovery database:

Step 1 Select **Network > Network Discovery** from the MWTM Main Menu. MWTM displays the Discovery Dialog.

Step 2 Select the **Discovery** tab. MWTM displays the Discovery panel.

Step 3 In the Discovered Nodes table, select the node or nodes you want to delete.

Step 4 Click **Delete**. MWTM deletes the nodes from the Discovery database, without asking for confirmation. The nodes will no longer be discovered by MWTM.

Unmanaging and Managing a Node

MWTM enables you to label a node **Unmanaged**, and to remove the **Unmanaged** status from a node.

In some situations, you might not want to see a given node or nodes in MWTM displays, but you might be unable to delete it from the MWTM database. For example:

- If you have *not* physically deleted a known node from your network, and you delete it from MWTM, MWTM removes the node from the poll list, and at the next poll MWTM returns the node to the DEFAULT view, and labels the node as a new node if you are using a custom view.
- If a node is connected to a peer node, you cannot delete the node. If you try to do so, MWTM cancels the deletion.

If these situations, you can label the node **Unmanaged**. When you label a node **Unmanaged**, MWTM removes the node from the poll list.

Note If you label a node **Unmanaged**, the node is **Unmanaged** for *all* MWTM clients and views connected to that MWTM server.

To label a node **Unmanaged**:

Step 1 Select a node in a window.

You cannot label a node **Unmanaged** if it has a **Device Type** of **Unknown**:

- If you select a node with a **Device Type** of **Unknown**, then this menu option is grayed-out and cannot be selected.
- If you select more than one node, and at least one of them has a **Device Type** of **Unknown**, then this menu option is grayed-out and cannot be selected.

Step 2 Select **Unmanage** from the right-click menu. MWTM labels the selected node **Unmanaged** and removes it from the poll list.

You can also remove the **Unmanaged** status from a node, when you are ready to return the node to the MWTM poll list. To remove the **Unmanaged** status from a node:

Step 1 Select a node in a window.

You cannot remove the **Unmanaged** status from a node with a **Device Type** of **Unknown**:

- If you select a node with a **Device Type** of **Unknown**, then this menu option is grayed-out and cannot be selected.
- If you select more than one node, and at least one of them has a **Device Type** of **Unknown**, then this menu option is grayed-out and cannot be selected.

Step 2 Select **Manage** from the right-click menu. MWTM removes the **Unmanaged** status from the selected node, returns it to the poll list, and polls it immediately.

Polling a Node

MWTM automatically polls nodes at specified intervals. However, you can also request an immediate poll for a node.

To poll a node from the Discovery Dialog, use the following procedure:

Step 1 Select **Network > Network Discovery** from the MWTM Main Menu. MWTM displays the Discovery Dialog.

Step 2 Select the **Discovery** tab. MWTM displays the Discovery panel. The Discovered Nodes section of the Discovery panel lists all discovered nodes (all nodes, including new and excluded nodes, not just the nodes in the current view).

Step 3 Select one or more nodes. You cannot poll a node with a **Primary SNMP Address** of **N/A**:

- If you select a node with a **Primary SNMP Address** of **N/A**, then the **Poll Node** button is grayed-out and cannot be selected.
- If you select more than one node, and even one of them has a **Primary SNMP Address** of **N/A**, then the **Poll Node** button is grayed-out and cannot be selected.

Step 4 Click **Poll Node**. MWTM begins a poll of the selected nodes. During polling, the **Poll Node** button is grayed-out, the "Selected nodes are being polled" message is displayed at the bottom of the Discovery Dialog, and individual nodes might display the **Polling** status.

- If the node has only one IP address for MWTM to poll, and the poll fails or times out, MWTM issues an error message.
- If the node has more than one IP address for MWTM to poll, and the polls of one or more IP addresses fail or time out, MWTM issues warning messages. If all polls fail or time out, MWTM issues an error message.

Step 5 When the "Selected nodes are being polled" message disappears and no nodes are in **Polling** status, polling is complete. The MWTM database immediately reflects any new or changed data for the selected nodes.

To poll one or more nodes, retaining all associated components, use one of the following procedures:

- Select one or more nodes in a window, then select **Network > Poll Nodes > Normal Poll** in the MWTM Main Menu. MWTM polls all selected nodes.
- Select a RAN-O node or adjacent node in the Details Window, then select **Network > Poll Nodes > Normal Poll** in the MWTM Main Menu. MWTM polls that node.
- Right-click a node in a window, then select **Poll Node > Normal Poll** in the right-click menu. MWTM polls the node.

To poll one or more nodes, removing and then rediscovering all associated components, use one of the following procedures:

- Select one or more nodes in a window, then select **Network > Poll Nodes > Clean Poll** in the MWTM Main Menu. MWTM polls all selected RAN-O nodes.
- Right-click an RAN-O node in a window, then select **Poll Node > Clean Poll** in the right-click menu. MWTM polls the node.

Clean Poll removes all known network objects from the node at the completion of the poll.

Allowing and Disallowing Trap Processing for a Node

By default, MWTM processes traps from all discovered nodes. However, you can prevent MWTM from processing traps from one or more nodes. For example, if a node is experiencing many link changes and generating too many traps, you can disallow traps from that node until the situation stabilizes.

Note If you prevent MWTM from processing traps from a node, *all* MWTM clients and views connected to that MWTM server are prevented from processing traps from that node.

Also, if you prevent MWTM from processing traps from a node, make a note of the change, and do not forget to reset the node when the problem is corrected or the maintenance is complete.

To prevent MWTM from processing traps from a node, clear the **Process Traps** checkbox for the node in a node table. If the **Process Traps** column is hidden, right-click in the table header and select the **Process Traps** checkbox.

To allow MWTM to process traps from a node, select the **Process Traps** checkbox for the node in a node table.

Excluding a Node from a View

To exclude a node from the current view, right-click the node in a window, then select **Exclude from View** in the right-click menu. MWTM excludes the node from the current view. See the "Creating a New View" section on page 4-31 for more information about excluding nodes from views.

Ignoring a Node

You can instruct MWTM to ignore a node when it aggregates and displays network data. Setting nodes to **Ignored** prevents known node problems from affecting MWTM displays for associated network objects. In effect, you are preventing a known problem from distracting you from other, more urgent network problems.

For example, you can set a node to **Ignored** before shutting down the node for maintenance.

Note If you set a node to **Ignored**, the node is ignored for *all* MWTM clients and views connected to that MWTM server.

Also, if you set a node to **Ignored**, make a note of the change, and do not forget to reset the node when the problem is corrected or the maintenance is complete.

To set a node to **Ignored**, right-click the node in the Node Details window, then select **Ignore** from the right-click menu.

Viewing Ignored Nodes

To display all nodes that are **Ignored**, display the Node Window and click the **Ignored** column header. MWTM displays all ignored nodes at the top of the table.

Viewing Node Information Using a Web Browser

MWTM enables you to use a Web browser to view the following information about nodes:

- Viewing the Network Status Node Dashboard, page 6-55
- Viewing MWTM Node Status, page 6-56
- Viewing MWTM Node Details, page 6-58
- Viewing Node IOS Versions, page 6-62
- Viewing Node Information: CPU Processes, page 6-63
- Viewing Node Information: Syslog Messages, page 6-63

Viewing the Network Status Node Dashboard

The MWTM Node Dashboard page lists all discovered nodes, and provides links to messages and metrics for each node.

To access the MWTM Node Dashboard page, select **Network Status Dashboard** from the MWTM Server Home Page.

The Node Dashboard table contains the following columns:

Column	Description
Server Name (in header)	Name of the MWTM server associated with the node.
Update Interval (in header)	Time between automatic updates for the page. **None** means the page is not automatically updated.
Last Update (in header)	Date and time the information on the page was last updated by MWTM.
Row	Numerical index for the objects in the list.
Nodes	Nodes discovered by MWTM. You can sort the table based on the information in the **Nodes** column. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-30 for more details.
Drill-Down Links: Messages	Opens the Network Status: Last X Status Change and Trap Messages Web page for the node.
Drill-Down Links: Metrics	Opens the Network Status Messages: Metrics Web page for the node.
Drill-Down Links: Syslog	Opens the MWTM Router Syslog Web page for the node.
Drill-Down Links: CPU Process	Opens the MWTM CPU Processes Web page for the node, in a Web browser.
Drill-Down Links: RAN Trap Configuration	Opens the RAN Trap Configuration Web page for the node, in a Web browser.
Latest Reports	Displays the latest reports, in a Web browser.

Viewing MWTM Node Status

The MWTM Node Status page displays information about all discovered nodes, including their names, events, status, and other important information.

To access the MWTM Node Status page, select **Node Status** from the MWTM Server Home Page. MWTM displays the MWTM Node Status page.

You can sort the MWTM Node Status table based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-30 for more details.

The MWTM Node Status page displays the following information for each node:

Column	Description
Server Name (in header)	Name of the MWTM server associated with the node.
Update Interval (in header)	Time between automatic updates for the page.
Last Update (in header)	Date and time the information on the page was last updated by MWTM.

Column	Description
Name	DNS name of the node, as discovered by MWTM, or the new name that you specified for the node. For more information, see the "Editing a Node" section on page 6-42. To see detailed information for the node, click the node name.
Status	Current status of the node, with a color-coded background. Possible values are: **Active** **Discovering** **Polling** **Unknown** **Unmanaged** **Waiting** **Warning** For detailed definitions of each status, see the "Status Definitions for Nodes" section on page A-4.
Status Reason	Reason for the current status of the node. For a full list of possible reasons, see the *stateReasons.html* file: • If you installed MWTM in the default directory, */opt*, then the file is located at */opt/CSCOsgm/apache/share/htdocs/eventHelp* directory. • If you installed MWTM in a different directory, then the help directory and file are located in that directory. If the cell is too small to show all of the status reason, place the cursor over the cell to see the full status reason in a mouse over help popup. The status reasons are listed in order of decreasing magnitude. If two or more reasons apply, the reason of greatest magnitude is displayed. If the status reason is **Unsupported Configuration**, correct the configuration and enter the **mwtm cleandiscover** command to delete all current network data and begin a clean discovery of the RAN-O network. If the status reason is still **Unsupported Configuration**, enter the **mwtm clean** command to restore the MWTM server to a "clean" state, such as would exist after a new installation of MWTM. For more information on the use of these commands, see the "MWTM Command Reference" section on page C-1.
Device	Device type of the node. Possible values are: • **CiscoMWR-1941-DC-A**—Cisco MWR-1941-DC-A series router • **RNC**—Radio Network Controller • **BSC**—Base Station Controller • **BTS**—Base Transceiver Station • **Node B**—The radio transmission/reception unit for communication between radio cells • **IPDevice**—IP device, other than those listed above. You can assign this icon to an unknown node if you know that it is an IP device. • **Unknown**—MWTM is unable to determine the device type.

Viewing MWTM Node Details

The MWTM Node Details page displays detailed information about each discovered node, including its status and other information.

To access the MWTM Node Details page, click a node name in a Web page. MWTM displays the MWTM Node Details page.

The MWTM Node Details page displays the following information for the selected node:

Field	Description
Node Name (in header)	DNS name of the node, as discovered by MWTM.
Server Name (in header)	Name of the MWTM server associated with the node.
Update Interval (in header)	Time between automatic updates for the page.
Last Update (in header)	Date and time the information on the page was last updated by MWTM.
IP Address or DNS Hostname	DNS name of the node, as discovered by MWTM.
Drill-Down Links: Messages	Opens the Network Status: Last X Status Change and Trap Messages Web page for the node.
Drill-Down Links: Metrics	Opens the Network Status Messages: Metrics Web page for the node.
Drill-Down Links: Syslog	Opens the MWTM Router Syslog Web page for the node.
Drill-Down Links: CPU Process	Opens the MWTM CPU Processes Web page for the node.
Drill-Down Links: RAN Trap Configuration	Opens the RAN Trap Configuration Web page for the node, in a Web browser.
Status	Current status of the node, with a color-coded background. Possible values are: **Active** **Discovering** **Polling** **Unknown** **Unmanaged** **Waiting** **Warning** For detailed definitions of each status, see the "Status Definitions for Nodes" section on page A-4.
Last Status Change	Date and time that the status of the link last changed.

Field	Description
Status Reason	Reason for the current status of the node. For a full list of possible reasons, see the *stateReasons.html* file: • If you installed MWTM in the default directory, */opt*, then the file is located at */opt/CSCOsgm/apache/share/htdocs/eventHelp* directory. • If you installed MWTM in a different directory, then the help directory and file are located in that directory. If the cell is too small to show all of the status reason, place the cursor over the cell to see the full status reason in a mouse over help popup. The status reasons are listed in order of decreasing magnitude. If two or more reasons apply, the reason of greatest magnitude is displayed. If the status reason is **Unsupported Configuration**, correct the configuration and enter the **mwtm cleandiscover** command to delete all current network data and begin a clean discovery of the RAN-O network. If the status reason is still **Unsupported Configuration**, enter the **mwtm clean** command to restore the MWTM server to a "clean" state, such as would exist after a new installation of MWTM. For more information on the use of these commands, see the "MWTM Command Reference" section on page C-1.
Process Traps	Indicates whether MWTM is to process traps from this node.
Display Name	New name that you specified for the node. If the node has no display name, this field is blank. For more information, see the "Editing a Node" section on page 6-42.
First Discovered	Date and time that the node was first discovered by MWTM.
Device Type	Device type of the node. Possible values are: • **CiscoMWR-1941-DC-A**—Cisco MWR-1941-DC-A series router • **RNC**—Radio Network Controller • **BSC**—Base Station Controller • **BTS**—Base Transceiver Station • **Node B**—The radio transmission/reception unit for communication between radio cells • **IPDevice**—IP device, other than those listed above. You can assign this icon to an unknown node if you know that it is an IP device. • **Unknown**—MWTM is unable to determine the device type.

Field	Description
MIB Level	MIB conformance level used by the node, such as **IP-RAN R0**. **Note** **Router IOS Version** and **MIB Level** might not have a one-to-one correspondence, because multiple IOS versions can use the same MIB level if there are no changes to the MIBs between versions.
Router Uptime	Time the node has been up, in days, hours, minutes, and seconds.
Reboot Reason	Reason for the last reboot of the node.
IOS Version String	Version of IOS that is installed on the router.
Primary SNMP Address	IP address of the node, used by SNMP to poll the node. (There might be other IP addresses on the node that are not the primary SNMP address.)
Last Polled Address	Last IP address that was polled for this node.
IP Address List	List of all IP addresses associated with this node, including the primary SNMP address and all backup IP addresses.
Avg. Poll Response (secs)	Average time, in seconds, taken by this node to respond to MWTM poll requests. For a node that is not a RAN-O node, this field is left blank.
Last Poll Response (secs)	Time, in seconds, taken by this node to respond to the last MWTM poll request. For a node that is not a RAN-O node, this field is left blank.
Last Full Poll	Date and time of the last full poll of the node for RAN-O related MIBs. For a node that is not a RAN-O node, this field is left blank.
Note Timestamp	Date and time the note associated with this node was last updated. If there is no note associated with this node, this field is blank.
Note	Note associated with this node. If there is no note associated with this node, this field is blank.
Internal ID	Internal ID of the node. The internal ID is a unique ID for every object, assigned by MWTM for its own internal use. It can also be useful when the Cisco TAC is debugging problems.

Viewing Node IOS Versions

The MWTM Node IOS Versions page displays the version of IOS installed on each router node.

To access the MWTM Node IOS Versions page, use one of the following procedures:

- Select **Reports > Router Node IOS Versions** from the MWTM Main Menu.
- Select **Node IOS Versions** from the MWTM Server Home Page.

You can sort the MWTM Node IOS Versions table based on the information in one of the columns. See the "Resizing, Sorting, and Hiding Table Columns" section on page 3-30 for more details.

The MWTM Node IOS Versions page displays the following information for each RAN-O node:

Column	Description
Server Name (in header)	Name of the MWTM server associated with the node.
Update Interval (in header)	Time between automatic updates for the page. **None** means the page is not automatically updated.
Last Update (in header)	Date and time the information on the page was last updated by MWTM.
Name	DNS name of the node, as discovered by MWTM, or the new name that you specified for the node. For more information, see the "Editing a Node" section on page 6-42.
IOS Version String	Version of IOS installed on the node.
IOS MIB Level	MIB conformance level used by the router. **Note** **IOS Version String** and **IOS MIB Level** might not have a one-to-one correspondence, because multiple router versions can use the same MIB level if there are no changes to the MIBs between versions.
Device Type	Device type of the node. Possible values are: • **CiscoMWR-1941-DC-A**—Cisco MWR-1941-DC-A series router

Viewing Node Information: CPU Processes

The MWTM CPU Processes page displays detailed information about all CPU processes associated with the selected node.

To access the MWTM CPU Processes page:

From the MWTM Node Details page, select **CPU Process** from the **Drill-Down Links** drop-down menu and click **Go!** (this option is not available if the node is in **Unknown** or **Unmanaged** status.)

The MWTM CPU Processes table displays the following information for the selected node:

Column	Description
Node Name (in header)	Name of the node for which CPU processes are being displayed.
Server Name (in header)	Name of the MWTM server associated with the node.
Update Interval (in header)	Time between automatic updates for the page.
Last Update (in header)	Date and time the information on the page was last updated by MWTM.
Node	Name of the node for which CPU processes are being displayed. To see detailed information for the node, click the node name.
CPU	Number of the CPU for which processes are being displayed.
PID	Process identifier.
Name	Name of the process.
Time Created	Total time since the process was created.
Total Runtime	CPU time the process has used.
Times Invoked	Number of times the process has been invoked.
Average Runtime	Average CPU time for each process invocation.
5 Sec %	Average CPU utilization percentage for the node over the last 5 seconds.
1 Min %	Average CPU utilization percentage for the node over the last minute.
5 Min %	Average CPU utilization percentage for the node over the last 5 minutes.
Priority	Process queue priority. Possible values are: • **Low** • **Normal** • **High** • **Critical**

Viewing Node Information: Syslog Messages

From the MWTM Router Syslog page, you can view all messages in the system log for the selected node.

To access the MWTM Router Syslog page:

From the MWTM Node Details page, select **Syslog** from the **Drill-Down Links** drop-down menu and click **Go!** (this option is not available if the node is in **Unknown** or **Unmanaged** status.) MWTM displays the MWTM Router Syslog page, populated with the most recent syslog messages for the selected node.

The MWTM Router Syslog table displays the following information for the selected node:

Column	Description
Node Name (in header)	Name of the node for which syslog messages are being displayed.
Server Name (in header)	Name of the MWTM server associated with the node.
Update Interval (in header)	Time between automatic updates for the page. **None** means the page is not automatically updated.
Last Update (in header)	Date and time the information on the page was last updated by MWTM.
Node	Name of the node for which syslog messages are being displayed. To see detailed information for the node, click the node name.
Timestamp	Time since router reboot of the syslog message.
Severity	Severity of the syslog message. Possible values are: • **Alert**—Messages that require immediate action. • **Critical**—Critical conditions. • **Debug**—Debug messages, log FTP commands, and WWW URLs. • **Emergency**—System unusable messages. • **Error**—Error messages. • **Info**—Information messages. • **Notice**—Normal but significant conditions. • **Warning**—Warning messages.
Facility	Name of the facility that generated the syslog message, such as SYS or SNMP.
Name	Short text identifier for the message type. A facility name in conjunction with a message name uniquely identifies a syslog message type.
Message	Text of the syslog message.

Viewing Node Information: RAN Trap Configuration

From the MWTM Router Syslog page, you can view all messages in the system log for the selected node.

To access the MWTM Router Syslog page:

From the MWTM Node Details page, select **RAN Trap Configuration** from the **Drill-Down Links** drop-down menu and click **Go!** (this option is not available if the node is in **Unknown** or **Unmanaged** status.) MWTM displays the MWTM Router Syslog page, populated with the most recent syslog messages for the selected node.

The MWTM Router Syslog table displays the following information for the selected node:

Column	Description
Node Name (in header)	Name of the node for which RAN trap configuration is being displayed.
Server Name (in header)	Name of the MWTM server associated with the node.
Update Interval (in header)	Time between automatic updates for the page. **None** means the page is not automatically updated.
Last Update (in header)	Date and time the information on the page was last updated by MWTM.
Node	Name of the node for which RAN trap configuration is being displayed. To see detailed information for the node, click the node name.
RAN Trap Settings	Trap settings for the node. These settings include: • **GSM State Change** • **UMTS State Change** • **Utilization Threshold Change**
IP Address	IP address of a host to which the node sends traps.
Port	Port to which the node sends traps.
Trap Version	Trap version sent to this IP address and port.
Community String	SNMP community name used by the node for read access to the information maintained by the SNMP agent on the device.