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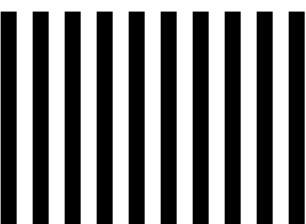
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GLOSSARY



About This Guide

This preface describes the objectives, audience, organization, and conventions of the *Cisco Mobile Wireless Transport Manager User Guide 5.0*. It refers you to related publications and describes online sources of technical information.

The Cisco Mobile Wireless Transport Manager (MWTM) is a network management software product that enables network administrators to discover, manage, and troubleshoot networks that include Cisco RAN-O devices. See the “[MWTM Overview](#)” section on [page 1](#) for a more detailed description of SGM.

The following information is included in this preface:

- [Document Objectives, page xxiii](#)
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Document Objectives

This guide describes the architecture, supporting hardware and software, and MWR management procedures for MWTM. Using the information provided in this guide, you can complete the tasks that are necessary to use MWTM in your RAN-O system environment.

Document Audience

This guide is for network administrators or operators who use the MWTM software to manage RAN-O installations. Network administrators or operators should have the following skills:

- Basic network management skills
- Basic Solaris system administrator skills

- Basic IP knowledge

Document Organization

This guide is divided into the following chapters:

- [“MWTM Overview”](#) provides brief descriptions of Cisco RAN-O network, MWTM, and MWTM’s client/server architecture, and an overview of how to use MWTM to manage your RAN-O installation.
- [“Discovering Your RAN-O Networks Using MWTM”](#) provides procedures for configuring SNMP settings, working with seed files, and running Discovery.
- [“Getting Started with MWTM”](#) provides basic information and procedures for using MWTM, with links to more detailed information and procedures in following chapters and appendixes.
- [“Working with Views”](#) provides information about using MWTM to create, change, and load views and subviews, and view basic and detailed information for views and subviews.
- [“Working with Events”](#) provides information about using MWTM to view basic and detailed information for events, and change the way MWTM processes events.
- [“Working with Nodes”](#) provides information about using MWTM to view basic and detailed information for nodes, and change some aspects of nodes.
- [“Working with Interfaces”](#) provides information about using MWTM to view detailed information for interfaces.
- [“Viewing the Topology of the Network”](#) provides procedures for viewing the topology of your network, changing the way MWTM displays the topology, and saving customized topology displays.
- [“Working with MWTM Statistics Reports”](#) provides procedures for creating and viewing MWTM statistics reports.
- [“Configuring MWTM Security”](#) provides information about configuring MWTM security and limiting access to MWTM.
- [“Configuring MWTM for Your Network”](#) provides figures and detailed descriptions of how MWTM is configured on a variety of network configurations, and for operation with other NMS systems.
- [“Troubleshooting MWTM and the Network”](#) provides information for troubleshooting basic MWTM and network problems, including how to verify Discovery, clearing a locked-up MWTM display, and using MWTM to diagnose a typical RAN-O network problem.
- [“Accessing MWTM Data from a Web Browser”](#) describes how to access MWTM data from a Web browser.
- [“MWTM Status Definitions”](#) defines the default status settings for all MWTM network objects.
- [“MWTM FAQs”](#) provides a list of frequently asked questions and troubleshooting tips for MWTM.
- [“MWTM Command Reference”](#) describes the IOS Commands used to set up and operate MWTM.
- [“MWTM MIB Reference”](#) lists and describes the MIB variables that are polled by MWTM.
- [“MWTM Trap Reference”](#) lists and describes the traps that MWTM supports.
- [“Configuring MWTM to Run with Various Networking Options”](#) describes communication between the MWTM client and the MWTM server in different networking environments, including Virtual Private Network (VPN), Network Address Translation (NAT), firewall, port-forwarding, and Secure Sockets Layer (SSL).
- [“MWTM Statistics Export File Formats”](#) lists the formats for MWTM statistics export files.

- “[MWTM and Ports](#)” lists MWTM services ports, port type and descriptions.

Document Conventions

This guide uses basic conventions to represent text and table information.

Command descriptions use the following conventions:

- Commands and keywords are in `font`.
- Arguments for which you supply values are in *italic font*.
- Elements in square brackets ([]) are optional.
- Alternate but required keywords are grouped in braces ({ }) and separated by a vertical bar (|).

Examples use the following conventions:

- Terminal sessions and information that the system displays are printed in `screen font`.
- Information that you enter is in **boldface screen** font. Variables for which you enter actual data are printed in *italic screen* font.
- Nonprinting characters, such as passwords, are shown in angle brackets (< >).
- Information that the system displays is in `screen` font, with default responses in square brackets ([]).

This publication also uses the following conventions:

- Menu items and button names are in **boldface** font.
- Directories and filenames are in *italic* font.
- If items such as buttons or menu options are grayed out on application windows, it means that the items are not available either because you do not have the correct permissions or because the item is not applicable at this time.



Note

Means *reader take note*. Notes contain helpful suggestions or references to materials not contained in the manual.



Caution

Means *reader be careful*. You are capable of doing something that might result in equipment damage or loss of data.



Tip

Means *the following are useful tips*.

Related Documentation

Additional information can be found in the following publications of the SGM documentation set:

- *Cisco Mobile Wireless Transport Manager Installation Guide*
- *Cisco Mobile Wireless Transport Manager Release Note*
- *Cisco Mobile Wireless Transport Manager Online Help System*

Information about Cisco IOS software-related functions can be found in the following publication:

- *Cisco Management Information Base (MIB) User Quick Reference*

Information about Cisco Mobile Wireless Router (MWR), including procedures for configuring MWR objects, can be found in the following publication:

- *Cisco MWR 1941-DC-A Mobile Wireless Edge Router Software Configuration Guide*

Information about the Cisco MWRs can be found in the documentation that shipped with the MWR.

You can find answers to frequently asked questions about MWTM in the MWTM online help or in the *Cisco Mobile Wireless Transport Manager User Guide*.

MWTM includes a browser-based online help system that provides overviews, related information, procedures, and glossary terms for MWTM. You can select underlined text to access additional help topics that provide related information.

When you access online help for MWTM the first time there might be a slight pause while your client browser loads the online help.

Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

You can access the most current Cisco documentation on the World Wide Web at this URL:

<http://www.cisco.com/univercd/home/home.htm>

You can access the Cisco website at this URL:

<http://www.cisco.com>

International Cisco websites can be accessed from this URL:

http://www.cisco.com/public/countries_languages.shtml

Ordering Documentation

You can find instructions for ordering documentation at this URL:

http://www.cisco.com/univercd/cc/td/doc/es_inpk/pdi.htm

You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Ordering tool:

<http://www.cisco.com/en/US/partner/ordering/index.shtml>

- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, USA) at 408 526-7208 or, elsewhere in North America, by calling 800 553-NETS (6387).

Documentation Feedback

You can submit e-mail comments about technical documentation to bug-doc@cisco.com.

You can submit comments by using the response card (if present) behind the front cover of your document or by writing to the following address:

Cisco Systems
Attn: Customer Document Ordering
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Obtaining Technical Assistance

For all customers, partners, resellers, and distributors who hold valid Cisco service contracts, the Cisco Technical Assistance Center (TAC) provides 24-hour-a-day, award-winning technical support services, online and over the phone. Cisco.com features the Cisco TAC website as an online starting point for technical assistance. If you do not hold a valid Cisco service contract, please contact your reseller.

Cisco TAC Website

The Cisco TAC website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The Cisco TAC website is available 24 hours a day, 365 days a year. The Cisco TAC website is located at this URL:

<http://www.cisco.com/tac>

Accessing all the tools on the Cisco TAC website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a login ID or password, register at this URL:

<http://tools.cisco.com/RPF/register/register.do>

Opening a TAC Case

Using the online TAC Case Open Tool is the fastest way to open P3 and P4 cases. (P3 and P4 cases are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Case Open Tool automatically recommends resources for an immediate solution. If your issue is not resolved using the recommended resources, your case will be assigned to a Cisco TAC engineer. The online TAC Case Open Tool is located at this URL:

<http://www.cisco.com/tac/caseopen>

For P1 or P2 cases (P1 and P2 cases are those in which your production network is down or severely degraded) or if you do not have Internet access, contact Cisco TAC by telephone. Cisco TAC engineers are assigned immediately to P1 and P2 cases to help keep your business operations running smoothly.

To open a case by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)
EMEA: +32 2 704 55 55
USA: 1 800 553-2447

For a complete listing of Cisco TAC contacts, go to this URL:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>

TAC Case Priority Definitions

To ensure that all cases are reported in a standard format, Cisco has established case priority definitions.

Priority 1 (P1)—Your network is “down” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Priority 2 (P2)—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Priority 3 (P3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Priority 4 (P4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- Cisco Marketplace provides a variety of Cisco books, reference guides, and logo merchandise. Go to this URL to visit the company store:
<http://www.cisco.com/go/marketplace/>
- The Cisco *Product Catalog* describes the networking products offered by Cisco Systems, as well as ordering and customer support services. Access the Cisco Product Catalog at this URL:
<http://cisco.com/univercd/cc/td/doc/pcat/>
- Cisco Press publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press online at this URL:
<http://www.ciscopress.com>
- *Packet* magazine is the Cisco quarterly publication that provides the latest networking trends, technology breakthroughs, and Cisco products and solutions to help industry professionals get the most from their networking investment. Included are networking deployment and troubleshooting tips, configuration examples, customer case studies, tutorials and training, certification information, and links to numerous in-depth online resources. You can access Packet magazine at this URL:
<http://www.cisco.com/packet>
- *iQ Magazine* is the Cisco bimonthly publication that delivers the latest information about Internet business strategies for executives. You can access iQ Magazine at this URL:
<http://www.cisco.com/go/iqmagazine>
- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:
<http://www.cisco.com/ipj>
- Training—Cisco offers world-class networking training. Current offerings in network training are listed at this URL:
<http://www.cisco.com/en/US/learning/index.html>



CHAPTER 1

MWTM Overview

This chapter describes RAN-O, MWTM, and MWTM's client/server architecture. It includes the following major sections:

- [What is RAN-O?, page 1-1](#)
- [What is MWTM?, page 1-1](#)
- [What is Client/Server Architecture?, page 1-4](#)

What is RAN-O?

Cisco's Radio Access Network Optimization (RAN-O) delivers standard-based, end-to-end, IP connectivity for GSM and UMTS RAN transport. Cisco's solution frames RAN voice and data frames into IP packets at the cell-site and transports them seamlessly over an optimized backhaul network. At the central site, the RAN frames are extracted from IP packets and the Abis or Iub data streams are rebuilt. The result is a transparent, radio vendor-agnostic, RAN IP transport and optimization solution that delivers nominal optimization efficiency of 50% without any impact on voice quality.

In RAN-O, and in MWTM, a *node* is a Cisco RAN-O device (for example, a Cisco MWR 1941-DC-A router) or a legacy RAN device (BSC or RNC). Nodes are known as *managed objects*.

For more information about RAN-O, including procedures for configuring RAN-O objects, see the *Cisco MWR 1941-DC-A Mobile Wireless Edge Router Software Configuration Guide*.

What is MWTM?

MWTM is a network management software product that enables network administrators to discover, manage, and troubleshoot networks that include Cisco RAN-O devices. MWTM provides the following key features:

- Uses client/server architecture. See the [“What is Client/Server Architecture?” section on page 1-4](#) for more details.
- Runs on standard IP-connected networks, and transparently over Virtual Private Networks (VPNs). Also runs in Network Address Translation (NAT), firewall, port-forwarding, and Secure Sockets Layer (SSL) networking environments with minimal additional configuration. MWTM can run in each of these environments individually or in any combination.
- Provides a Java-based, easy-to-use graphical user interface (GUI) on the client with an easy-to-navigate “tree” display of all network objects as well as extensive Web-based online help.

Also provides a powerful command-line interface (CLI) on the server.

Also provides an extensive HTML-based Web interface with:

- Access to network and server status information
 - Access to statistics summary reports for network objects
 - Ability to export reports for use in spreadsheet and graphics programs
 - Installation, message, command, report, and security logs
 - Client downloads
 - Product documentation
 - Other information about MWTM. Most of the primary GUI client features are also available on the Web interface, with the exception of the topology map, real-time data charts and event management.
- Provides extensive security services, including:
 - Management of SSL certificates via the GUI
 - Multi-level password-protected access for multiple users
 - Passwords that can be changed by users via the GUI
 - Audit trails of all user actions and all access via the Web interface

- Security logs
 - Optional access via VPN, Secure Shell (SSH), and SSL
- Automatically discovers the RAN-O network from any RAN-O device, with links to non-RAN-O devices, and creates both topological (graphical) and tabular (text) views of the network.
 - The topology view displays network objects as color-coded glyphs on a topology map, with right-click menus and layout, zoom, find, grid, hide, show, and save-as-JPEG functions. The topology map can be organized into one or more submaps, with groups of network objects represented by single objects on the main topology map.
 - The tabular view displays detailed data in columns that can be resized, sorted, or hidden, depending on your preferences.
- Enables you to customize just about every aspect of the GUI, topology, and tabular views to meet your specific needs. Customized views and subviews can be saved for future use and reference, and shared with other users of the network.
- Automatically saves your preferences, such as the size of specific windows or the order of columns in a window, and automatically applies those preferences whenever you launch the MWTM client.
- Polls the RAN-O devices on demand, and at user-defined intervals, and reports the real-time status of all network objects and events, including the reason for any changes in status.
- Enables you to annotate network objects and events, attaching important information such as detailed descriptions, locations, service history, what triggered the event, how often it has occurred, and so on.
- Enables you to customize the displayed category, severity, color, and message associated with events. You can even have MWTM play unique sounds for different types of events.
- Enables you to automate events, calling UNIX scripts to drive automatic paging, e-mail, and so on, on the MWTM server.
- Receives SNMP traps natively or via HP OpenView, to drive alarms and accurate and up-to-date status displays.
- Enables you to forward SNMP traps, and MWTM events in the form of SNMP traps, to other hosts, such as the Cisco Info Center (CIC), HP OpenView, and Micromuse's Netcool suite of products.
- Provides Web-based alarm viewing, sorting, filtering, archiving, metric calculations, and reason codes.
- Supports high server uptime with multiple server support, primary and secondary configurations, dynamic routing, automatic process management, and many debugging and customization tools, including real-time drill-down diagnostic applications.
- Can integrate with the entire suite of CiscoWorks products, including:
 - Resource Manager Essentials, which provides network management for Cisco RAN-O devices.
 - CiscoView Element Manager, which provides dynamic status, monitoring, and configuration information for a broad range of Cisco internetworking products.

You can launch the CiscoView Element Manager and the CiscoWorks Device Center directly from the topology map, for quick drill-down network analysis.

- Supports printing of windows to a file or to a PostScript printer.

What is Client/Server Architecture?

MWTM provides central services and database functions on an MWTM server, which communicates through a messaging interface with multiple MWTM clients.

MWTM recommends a maximum of 20 clients per MWTM server. If you connect more than 20 clients to a single server, the server requires additional memory and a more powerful CPU.

MWTM consists of server and client software components that can be installed on the same workstation or on different workstations. The MWTM server is currently available on Solaris or Linux. The MWTM client is available on Solaris, Windows 2000 Professional, and Windows XP Professional.

**Note**

The MWTM client is also available on Linux, but is not a supported feature of MWTM. Use it under advisement.

The client/server architecture is cross-platform compatible, which allows you to run the client and server software in mixed operating system environments. For example, you can run the MWTM server on a Solaris or Linux workstation and access it from an MWTM client running on a Windows 2000 Professional or Windows XP Professional workstation.

The MWTM server software consists of a group of functional services that manage the data among the network, client workstations, and the centralized database. The MWTM server manages the exchange of data between the MWTM database and the network devices. The MWTM process manager launches and manages all of the MWTM server processes, providing a robust and reliable launching platform for MWTM.

The MWTM client software communicates with the MWTM server. You can install the MWTM client software on the same workstation as the MWTM server software, or on a different workstation on the same network as the MWTM server. After you install the MWTM server, you can download the MWTM client software from the Web, for easy distribution to users and easier access to important information.



CHAPTER 2

Discovering Your RAN-O Networks Using MWTM

This chapter provides details on using MWTM to discover your RAN-O networks. It includes the following sections:

- [Discovery Overview, page 2-1](#)
- [Configuring SNMP Settings, page 2-3](#)
- [Launching the Discovery Dialog, page 2-9](#)
- [Loading Seed Nodes and Seed Files, page 2-11](#)
- [Running Discovery, page 2-18](#)
- [Verifying Discovery, page 2-24](#)

Discovery Overview

MWTM uses a discovery process to populate the MWTM database, discovering the objects in your network. When a new node is discovered, it is added to the database. The node is set up to be polled if its SNMP access is defined as out-of-band. To prevent a node from being polled, right-click the node in a window, select **Edit > RAN Properties**, and change the SNMP access to in-band.

You can run Discovery if MWTM User-Based Access is disabled, or if it is enabled and you are a Network Administrator or System Administrator. (For more information about user authorization levels in MWTM, see the [“Configuring MWTM User Authentication Levels \(Server Only\)”](#) section on page 10-6.)

To discover your network in MWTM:

-
- Step 1** Start the MWTM client, as described in the [“Starting the MWTM Client”](#) section on page 3-4.
 - Step 2** If you want to change SNMP settings, do so *before* running Discovery. See the [“Configuring SNMP Settings”](#) section on page 2-3 for more information.
 - Step 3** Select **Network > Network Discovery** from the MWTM Main Menu. MWTM displays the Discovery Dialog. See the [“Launching the Discovery Dialog”](#) section on page 2-9 for more information.
 - Step 4** Select the **Seed Settings** tab, if it is not already selected. MWTM displays the Seed Settings panel of the Discovery Dialog, which enables you to create, save, load, and delete MWTM seed files. Load one or more seed nodes, or an existing seed file, using the procedures in the [Loading Seed Nodes and Seed Files, page 2-11](#).

- Step 5** Select the **Discovery** tab, or click **Next**. MWTM displays the Discovery panel of the Discovery Dialog, which enables you to discover the objects in your network. See the [“Running Discovery” section on page 2-18](#) for more information.
- To specify the extent of the network discovery, use the **Entire Network** checkbox. See the description of the **Entire Network** checkbox in the [“Running Discovery” section on page 2-18](#) for more information.
 - To specify whether MWTM is to keep or delete the existing database when discovering the network, use the **Delete Existing Data** checkbox. See the description of the **Delete Existing Data** checkbox in the [“Running Discovery” section on page 2-18](#) for more information.
 - To specify the maximum number of hops for discovering objects in your network, enter a value in the **Max. Hops** text box. See the description of the **Max. Hops** text box in the [“Running Discovery” section on page 2-18](#) for more information.
- Step 6** When the “Discovery In Progress” message disappears, Discovery is complete. The Discovered Nodes section of the Discovery panel lists all nodes that were discovered by MWTM (all nodes, including new and excluded nodes, not just the nodes in the current view). See the [“Discovered Nodes” section on page 2-21](#) for more information.

- Step 7** Examine the Discovered Nodes table to verify that MWTM discovered all of the nodes in the network. If you suspect that MWTM did not discover all of the nodes, see the [“Verifying Discovery” section on page 2-24](#) for troubleshooting information. You might need to add more seed nodes and run Discovery again.
- Step 8** When you are satisfied that MWTM discovered all of the nodes in the network, save the list of seed nodes in a seed file. See the [“Saving a Seed File” section on page 2-13](#) for more information.
-

Related Topics:

- [Backing Up or Restoring MWTM Files \(Server Only\), page 11-31](#)
- [Investigating Data Problems, page 12-2](#)

Configuring SNMP Settings

**Note**

If you want to change SNMP settings, do so *before* running Discovery.

If MWTM User-Based Access is disabled, or if it is enabled and you are a Network Administrator or System Administrator, MWTM enables you to view and change some SNMP settings.

For more information about user authorization levels in MWTM, see the [“Configuring MWTM User Authentication Levels \(Server Only\)” section on page 10-6](#).

For more information about SNMP, refer to “Configuring SNMP Support” in the Cisco IOS Release 12.2 *Configuration Fundamentals Configuration Guide*, Part 3, System Management.

To change SNMP settings in MWTM, start the MWTM client, as described in the [“Starting the MWTM Client” section on page 3-4](#), then select **Network > SNMP Configuration** from the MWTM Main Menu. (If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Administrator [Level 4] and higher.)

MWTM displays the SNMP Configuration Dialog.

The SNMP Configuration Dialog is composed of the following sections:

- [SNMP Configuration Menu, page 2-4](#)
- [SNMP Settings Table, page 2-5](#)
- [SNMP Configuration Table, page 2-6](#)
- [SNMP Configuration Buttons, page 2-7](#)

MWTM also provides a set of commands that you can use to configure SNMP settings:

- [SNMP Configuration Commands, page 2-8](#)

SNMP Configuration Menu

The menu on the SNMP Configuration Dialog provides the following options:

Menu Command	Description
File > Save (Ctrl-S)	Saves the SNMP configuration changes. When you are satisfied with all of your changes to the SNMP settings, select the File > Save menu option. MWTM saves the changes, updates the SNMP information on the MWTM server in real time. Note If another user modifies and saves the SNMP configuration before you save your changes, MWTM asks if you want to overwrite that user's changes. If you choose to do so, the other user's changes are overwritten and lost. If you choose not to do so, your changes are lost.
File > Close (Ctrl-W)	Closes the current window.
Help > Topics (F1)	Displays the table of contents for the MWTM online help.
Help > Window (Shift-F1)	Displays online help for the current window.
Help > About (F3)	Displays build date, version, SSL support, and copyright information about the MWTM application.

SNMP Settings Table

The SNMP settings table displays current SNMP information for nodes in MWTM. You can edit these fields in the [SNMP Configuration Table, page 2-6](#).

The SNMP configuration table contains the following columns:

Column	Description
IP Address Range or Hostname	IP address or DNS name of a node or range of nodes. An asterisk (*) indicates a wildcard value.
Read Community	SNMP community name used by the node for read access to the information maintained by the SNMP agent on the RAN-O device.
Timeout (secs)	Time, in seconds, MWTM waits for a response from the node.
Retries	Number of times MWTM attempts to connect to the node.
Poll Interval (mins)	Time, in minutes, between polls for the node.

SNMP Configuration Table

The SNMP configuration table enables you to change SNMP settings for a node.

The SNMP configuration table contains the following fields:

Field	Description
IP Address Range or Hostname	IP address or DNS name of a node. To change the IP address or DNS name of a node, select the node, enter the new address or name in the IP Address Range or Hostname field, then click Update. IP addresses use the format <i>x.x.x.x</i>, where each <i>x</i> has one of the following values: - An integer in the range 0 through 255. - A range of integers separated by a dash (-), such as 10-60. - An asterisk (*), which is equivalent to specifying 0-255. Unlike IP addresses, you cannot specify a range of node names or use wildcards in node names. Each node name corresponds to a single node in the network. The default value for this field is the IP address <i>*.*.*.*</i>, which MWTM uses for all nodes not covered by other IP address ranges or names.
Read Community	SNMP community name to be used by the node for read access to the information maintained by the SNMP agent on the RAN-O node. To change the SNMP community name for a node, select the node and enter the new name in the Read Community field, then click Update. This new SNMP community name must match the name used by the node. The default name is public. For information about exporting SNMP community names from CiscoWorks Resource Manager Essentials (RME), see the “Importing SNMP Community Names from CiscoWorks (Solaris Only)” section on page 11-2.
Timeout (secs)	Time, in seconds, MWTM waits for a response from the node. If you determine that MWTM waits too long for a response from a node, or does not wait long enough, you can change the timeout value. To change the time that MWTM waits for a response from a node, select the node and enter the new timeout value in the Timeout (secs) field, then click Update. The valid range is 1 to 60 seconds. The default value is 1 second.

Field	Description
Retries	Number of times MWTM attempts to connect to the node. If you determine that MWTM retries a node too many times, or not enough times, you can change the number of retries. To change the number of times MWTM attempts to connect to a node, select the node and enter the new number in the Retries field, then click Update. The valid range is 0 to 99. The default value is 2 retries.
Poll Interval (mins)	Time, in minutes, between polls for the node. If you determine that MWTM polls a node too often, or not often enough, you can change the poll interval. To change the time, in minutes, between polls for a node, select the node and enter the new interval in the Poll Interval (mins) field, then click Update. The valid range is 5 to 1440. The default value is 15 minutes.

SNMP Configuration Buttons

The SNMP Configuration Dialog contains the following buttons:

Button	Description
Add	Adds the new SNMP settings to the MWTM database. To add a new node or range of nodes, enter the SNMP information in the appropriate fields and click Add. The new SNMP settings are added to the MWTM database.
Update	Applies the values in the SNMP configuration fields to the selected node or range of nodes.
Delete	Deletes the selected node or range of nodes. To delete a node, select it and click Delete. MWTM deletes the node without asking for confirmation.

SNMP Configuration Commands

MWTM also provides the following SNMP-related commands:

- To set a new default SNMP read community name, use the **mwtm snmpcomm** command.
- To change the file used for SNMP parameters, such as community names, timeouts, and retries, use the **mwtm snmpconf** command.
- To query a host using SNMP GetRequests, use the **mwtm snmpget** command.
- To query a host using SNMP GetNextRequests, use the **mwtm snmpnext** command.
- To query a host, using SNMP GetNextRequests to “walk” through the MIB, use the **mwtm snmpwalk** command.

For more information on the use of these commands, see the [“MWTM Command Reference” section on page C-1](#).

Launching the Discovery Dialog

To launch the Discovery Dialog and begin the Discovery process, select **Network > Network Discovery** from the MWTM Main Menu. MWTM displays the Discovery Dialog.

The Discovery Dialog enables you to load and configure seed nodes, and use those seed nodes to discover the objects in your network.

If you start the MWTM client and the MWTM database is empty (including the very first time you start the MWTM client), MWTM automatically opens the Discovery Dialog so you can run Discovery and populate the database.

The Discovery Dialog is composed of the following sections:

- [Discovery Dialog Menu, page 2-10](#)
- [Discovery Dialog Tabs, page 2-11](#)

Discovery Dialog Menu

The menu on the Discovery Dialog provides the following options:

Menu Command	Description
File > Load Seeds (Ctrl-L)	Opens the Load File Dialog: Seed File List, enabling you to load a seed file into MWTM: - Enter the name of the seed file, and click OK to load it. - Click Cancel to return to the Seed Settings panel without loading a seed file.
File > Save Seeds (Ctrl-S)	Opens the Save File Dialog: Seed File List, which enables you to save changes you have made to the selected seed file.
File > Save As	Opens the Save File Dialog: Seed File List, which enables you to save changes you have made to the selected seed file with a new name, or overwrite an existing seed file.
File > Close (Ctrl-W)	Closes the current window.
Edit > SNMP Configuration (Ctrl-B)	Opens the SNMP Configuration Dialog. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Administrator (Level 4) and higher.
Help > Topics (F1)	Displays the table of contents for the MWTM online help.
Help > Window (Shift-F1)	Displays online help for the current window.
Help > About (F3)	Displays build date, version, SSL support, and copyright information about the MWTM application.

Discovery Dialog Tabs

The Discovery Dialog contains the following tabs:

Tab	Description
Seed Settings	Displays the Seed Settings panel in the Discovery Dialog.
Discovery	Displays the Discovery panel in the Discovery Dialog.

Loading Seed Nodes and Seed Files

MWTM enables you to load one or more new seed nodes, or to create, save, load, and delete existing MWTM seed files.

This section includes the following information:

- [Loading a Seed Node, page 2-11](#)
- [Loading a Seed File, page 2-11](#)
- [Saving a Seed File, page 2-13](#)
- [Creating a New Seed File, page 2-15](#)
- [Creating a New Seed File, page 2-15](#)
- [Creating and Changing Seed Files Using a Text Editor, page 2-17](#)

Loading a Seed Node

To load a seed node, enter the name or IP address of the seed node in the **IP Address or DNS Hostname** field, and click **Add Node** (or press **Enter**). MWTM displays details of the SNMP settings for the seed nodes in the right pane of the window.

Continue adding seed nodes until you are certain that MWTM will be able to discover the entire network.

Loading a Seed File

If you have already created and saved one or more seed files, you can load a seed file, change the list of seed files, and select one seed file to be loaded automatically when the MWTM client is started or the Discovery Dialog is opened.

To load an existing seed file, select **File > Load Seeds** from the Discovery Dialog menu. SGM displays the Load File Dialog: Seed File List dialog.

The Load File Dialog: Seed File List contains the following fields and buttons:

Field or Button	Description
Type	Icon indicating whether the item in the table is a file or a folder.
Name	Name of the seed file or folder.
Last Modified	Date and time the seed file or folder was last modified.

Field or Button	Description
Size (bytes)	Size of the seed file or folder, in bytes.
Make this my preferred start option	Specifies whether the selected seed file is to be loaded automatically whenever this MWTM client is started or the Discovery Dialog is opened. By default, this checkbox is cleared for all seed files. That is, no seed file is loaded automatically when the MWTM client is started or the Discovery Dialog is opened.
Number of Files (displayed in bottom left corner)	Total number of seed files and folders.
OK	Loads the selected seed file, saves any changes you made to the list of files, and closes the dialog. To load a seed file, double-click it in the list, select it in the list and click OK, or enter the name of the file and click OK. MWTM saves any changes you made to the list of files, closes the Load File Dialog: Seed File List dialog, loads the seed file, and returns to the Discovery Dialog. MWTM lists all of the seed nodes in the seed file in the left pane of the window, and displays details of the SNMP settings for the seed nodes in the right pane.
Delete	Deletes the selected file from the seed file list. MWTM issues an informational message containing the name and location of the deleted file.
Cancel	Closes the dialog without loading a seed file or saving any changes to the seed file list.
Help	Displays online help for the dialog.

Saving a Seed File

MWTM enables you to save a specific seed file, change the list of seed files, and select one seed file to be loaded automatically when the MWTM client is started or the Discovery Dialog is opened.

When you are satisfied that MWTM has discovered all of the nodes in the network, save the list of seed nodes in a seed file, using one of the following procedures:

- To save the changes you have made to the seed file without changing the name of the file, select **File > Save** from the Discovery Dialog menu.
- To save the changes you have made to the seed file with a new name, select **File > Save As** from the Discovery Dialog menu. MWTM displays the Save File Dialog: Seed File List dialog.

MWTM stores the seed file in the seed file directory on the MWTM server:

- If you installed MWTM in the default directory, */opt*, then the MWTM seed file directory is */opt/CSCOsgm/seeds*.
- If you installed MWTM in a different directory, then the MWTM seed file directory is located in that directory.



Note

If another user modifies and saves the seed file before you save your changes, MWTM asks if you want to overwrite that user's changes. If you choose to do so, the other user's changes are overwritten and lost. If you choose not to do so, your changes are lost, unless you save the seed file to a different filename.

The Save File Dialog: Seed File List contains the following fields and buttons:

Field or Button	Description
Type	Icon indicating whether the item in the table is a file or a folder.
Name	Name of the seed file or folder.
Last Modified	Date and time the seed file or folder was last modified.
Size (bytes)	Size of the seed file or folder, in bytes.
Filename	Name by which you want to save the seed file. If you create a new seed file name, you can use any letters, numbers, or characters in the name that are allowed by your operating system. However, if you include any spaces in the new name, MWTM converts those spaces to dashes. For example, MWTM saves file "a b c" as "a-b-c".
Make this my preferred start option	Specifies whether the selected seed file is to be loaded automatically whenever this MWTM client is started or the Discovery Dialog is opened. By default, this checkbox is cleared for all seed files. That is, no seed file is loaded automatically when the MWTM client is started or the Discovery Dialog is opened.
Number of Files (displayed in bottom left corner)	Total number of seed files and folders.

Field or Button	Description
OK	Saves the seed file and any changes you made to the seed file list and closes the dialog. To save the seed file with a new name, use one of the following procedures: • To save the file with a completely new name, enter the new name and click OK. • To save the file with an existing name, overwriting an old seed file, select the name in the list and click OK. MWTM saves the seed file with the new name, saves any changes you made to the list of files, closes the Save File Dialog: Seed File List dialog, and returns to the Discovery Dialog.
Delete	Deletes the selected file from the seed file list. MWTM issues an informational message containing the name and location of the deleted file.
Cancel	Closes the dialog without saving the seed file or saving any changes to the seed file list.
Help	Displays online help for the dialog.

Creating a New Seed File

To create a new seed file in MWTM, launch the Discovery Dialog, as described in the [“Launching the Discovery Dialog” section on page 2-9](#), then select the **Seed Settings** tab, if it is not already selected. MWTM displays the Seed Settings panel.

The Seed Settings panel in the Discovery Dialog enables you to create, save, load, and delete MWTM seed files.

The Seed Settings panel on the Discovery Dialog contains the following fields and buttons:

Field or Button	Description
Seed Nodes	Lists the seed nodes currently defined in MWTM.
IP Address Range or Hostname	IP address of the seed node. The default is *.*.*.*.
Retries	Number of times MWTM attempts to connect to the seed node. The valid range is 0 to 99. The default value is 2.
Timeout (sec)	Time, in seconds, MWTM waits for a response from the seed node. The valid range is 0 (no timeout) to 9999. The default value is 1 second.
Read Community	SNMP community name for read access to the information maintained by the SNMP agent on the RAN-O device. This value can be up to 32 characters in length. Do not include special characters such as ` @ \$ ^ * ' " & . This value is usually set to public (the default).
Poll Interval (mins)	Time, in minutes, between polls. The valid range is 0 to 9999. The default value is 15 minutes.
IP Address, Address range, Subnet, CIDR, or DNS Hostname	Address or name of the selected seed node. To create a new seed file, enter the name or address of a seed node in this field. Examples of acceptable input include: • IP Address: 1.2.3.4 • Address Range: 1.2.3.2-15 • Subnet, CIDR: 1.2.3.0/24, 1.2.3.0/255.255.255.0 • DNS Hostname: mwtm.cisco.com MWTM displays details of the SNMP settings for the seed node in the right pane of the window. Continue to add as many seed nodes as necessary to discover your entire network. When you are ready to save the list of seed nodes in a new seed file, select File > Save As from the Discovery Dialog menu. MWTM displays the Save File Dialog: Seed File List dialog. See the “Saving a Seed File” section on page 2-13 for more information about saving seed files.
Add Node	Adds a new seed node to MWTM.

Field or Button	Description
Delete Node	Deletes the selected seed node. MWTM deletes the seed node without asking for confirmation.
Next	Displays the Discovery panel in the Discovery Dialog. If you enter a seed node IP address or name in the IP Address or DNS Hostname field, then click Next , MWTM automatically adds the seed node before displaying the Discovery panel.

Changing an Existing Seed File

To change an existing seed file in MWTM, load the seed file as described in the [“Loading a Seed File” section on page 2-11](#).

To add another seed node to the seed file, enter the name or IP address of the seed node in the **IP Address or DNS Hostname** field, and click **Add Node**.

To delete a seed node from the seed file, select the seed node and click **Delete**.

When you are ready to save the modified seed file, use the procedure described in the [“Saving a Seed File” section on page 2-13](#).

Creating and Changing Seed Files Using a Text Editor

A seed file is simply an unformatted list of seed node names. To create a seed file using a text editor, simply create a file and list the seed node names, one on each line, with no other formatting:

new-york-a

new-york-b

chicago-c

When you save and name the seed file, keep the following considerations in mind:

- You can use any letters, numbers, or characters in the name that are allowed by your operating system, except blanks.
- MWTM saves the seed file with a *.see* file extension.
- MWTM saves the seed file in the MWTM server's seed file directory, *seeds*:
 - If you installed MWTM in the default directory, */opt*, then the seed file directory is */opt/CSCOs/gm/seeds/*.
 - If you installed MWTM in a different directory, then the seed file directory is located in that directory.

When MWTM loads the seed file, it verifies the syntax of the file, deleting blank lines and extraneous leading and trailing spaces as needed. MWTM also verifies that each seed node name resolves to a valid IP address. If a name does not resolve to a valid IP address, MWTM logs the erroneous entry and ignores it.

For example, given the following seed file:

new-york-a<space>

<space>new-york-b

zzzzzzzzzzzz

<blank line>

<tab>chicago-c<tab>

MWTM loads the following entries:

new-york-a

new-york-b

chicago-c

Running Discovery

The Discovery panel in the Discovery Dialog enables you to discover the objects in your network.

To display the Discovery panel, launch the Discovery Dialog, as described in the [“Launching the Discovery Dialog” section on page 2-9](#), then select the **Discovery** tab in the Discovery Dialog, or click **Next** in the Seed Settings panel. MWTM displays the Discovery panel. (If you enter a seed node IP address or name in the **IP Address, Address range, Subnet, CIDR, or DNS Hostname** field, then click **Next**, MWTM automatically adds the seed node before displaying the Discovery panel.)

The Discovery panel is composed of the following sections:

- [Discovery Settings, page 2-19](#)
- [Discovered Nodes, page 2-21](#)

Related Topics:

- [Discovery Overview, page 2-1](#)
- [Polling a Node, page 6-53](#)

Discovery Settings

The Discovery Settings section of the Discovery panel contains the following fields and button:

Field or Button	Description
Entire Network	Checkbox used to specify the extent of the network discovery: - To discover the entire network, select this checkbox. This is called <i>recursive discovery</i>, and it is the default setting. With this checkbox selected, MWTM discovers all seed nodes and attempts to manage them; then attempts to discover and manage all RAN-O nodes that are adjacent to those seed nodes (unless the nodes are connected by serial links only); then attempts to discover and manage all RAN-O nodes that are adjacent to <i>those</i> nodes; and so on, until MWTM has discovered the entire network. - To rediscover only seed nodes, clear this checkbox. This is called <i>nonrecursive discovery</i>. With this checkbox cleared, MWTM discovers all seed nodes and attempts to manage them, then labels all nodes that are adjacent to those seed nodes Unmanaged.
Delete Existing Data	Checkbox used to keep or delete the existing MWTM database when discovering the network: - To keep all existing network data in the MWTM database before rediscovering the network, clear this checkbox. This is the default setting. - To delete all existing network data from the MWTM database before rediscovering the network, select this checkbox. Choose this option if you know that network elements have been deleted from your network since the last Discovery. If you discover the network with Delete Existing Data selected, MWTM stops any real-time polls that are running and issues appropriate messages.
Max Hops	The maximum number of hops from the seed node to search for other nodes to discover. Default is 3.

Field or Button	Description
Discover Network	Begins discovering the network. Click Discover Network to begin Discovery. If you have not defined at least one seed node in the Seed Settings panel, MWTM prompts you to do so. When Discovery begins: - The Discover Network button changes to Stop Discovery. - The “Discovery In Progress” message is displayed in the title bar of all MWTM client windows. Discovery progresses in bursts. You might see a number of updates, followed by a pause, followed by more updates. The information displayed in MWTM windows is not fully updated until Discovery is complete. By default, Discovery times out after 600 seconds (10 minutes). To change the Discovery timeout, change the value of the DISCOVERY_TIMELIMIT entry in the <i>Server.properties</i> file: - If you installed MWTM in the default directory, <i>/opt</i>, then the location of the <i>Server.properties</i> file is <i>/opt/CSCOsgm/properties/Server.properties</i>. - If you installed MWTM in a different directory, then the <i>Server.properties</i> file is located in that directory. Because MWTM is an asynchronous system, with the MWTM server contacting clients one at a time, and because clients might run at different speeds, the information displayed by MWTM clients during Discovery might not always be synchronized. All other MWTM windows (Node, Topology, and so on) are also populated with the newly discovered network data.
Stop Discovery	Stops the Discovery process. For example, if you click Discover Network, then you realize that you loaded a seed node that you did not intend to load, you can click Stop Discovery to stop the Discovery process. Note If you stop the Discovery process, the information in the MWTM database is incomplete and unreliable. To generate a new, complete, and reliable MWTM database, you must run Discovery again, with Delete Existing Data selected. This button replaces the Discover Network button when the Discovery process begins, and changes back to the Discover Network button when the Discovery process ends.

If you run Discovery with **Entire Network** cleared, then you run Discovery with **Entire Network** selected, any **Unmanaged** nodes in the first Discovery are not rediscovered by the second Discovery.

To recover from this situation and generate a new, complete, and reliable MWTM database, you **must** perform one of the following procedures:

1. Run Discovery again, with both **Entire Network** and **Delete Existing Data** selected.
2. Change the Unmanaged nodes to managed status. See the [“Unmanaging and Managing a Node” section on page 6-51](#) for more information.

3. Poll the nodes that were **Unmanaged** in the first Discovery. See the [“Polling a Node” section on page 6-53](#) for more information.

Discovered Nodes

The Discovered Nodes section of the Discovery panel lists all nodes that have been discovered by MWTM (all nodes, including new and excluded nodes, not just the nodes in the current view). By default, this table is sorted by **Status**.

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 Discovered Nodes section except **Internal ID**, **Router Uptime**, **Reboot Reason**, **Process Traps**, and **Last Status Change**.

- 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 Discovered Nodes section contains the following columns and buttons:

Column or Button	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.
Name	Name or IP address of the discovered node. All discovered nodes are placed in a DEFAULT configuration view, which is stored on the MWTM server and shared by all MWTM clients. Initially, all clients use the DEFAULT view. Clients can then create their own views, which are subsets of the DEFAULT view, to meet their individual needs. However, the DEFAULT view stored on the MWTM server cannot be modified by the clients. It is always available, for users who need to view the entire network.
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 Type	Device type of the node. Possible values are: • CiscoMWR-1941-A—Cisco MWR-1941-DC-A series router • CiscoMWR1900—Cisco Mobile Wireless Router 1900 • BSC—Base Station Controller • BTS—Base Transceiver Station • Node-B—Radio transmission/reception unit for communication between radio cells in UMTS network • RNC—Radio Network Controller • 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.
Trap Polling	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	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.
Router Uptime	Time the RAN-O device has been up, in days, hours, minutes, and seconds.
Reboot Reason	Reason for the last reboot of the RAN-O device.

Column or Button	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.
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.) During Discovery, MWTM might flag most nodes with an event icon (orange triangle). If the event icons are too distracting, select Edit > Clear All Events from the MWTM Main Menu to remove them.
Last Status Change	Date and time that the status of the node last changed.
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.

Column or Button	Description
Status Reason	Reason for the current status of the object. For a full list of possible reasons, see the <i>stateReasons.html</i> file: - If you installed MWTM in the default directory, <i>/opt</i>, then the file is located at <i>/opt/CSCOs/gm/apache/share/htdocs/eventHelp</i> 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.
Back	Displays the Seed Settings panel in the Discovery Dialog.
Delete	Deletes the selected node or nodes from the Discovery database. MWTM deletes the nodes without asking for confirmation.
Poll Node	Begins a poll of all nodes selected in the Discovered Nodes section of the Discovery panel. 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 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 button is grayed-out and cannot be selected.

Verifying Discovery

After you discover the network (see the “[Discovery Overview](#)” section on page 2-1), examine the Discovered Nodes table to verify that MWTM discovered all of the RAN-O nodes in the network. If you suspect that MWTM did not discover all of the RAN-O nodes, verify the following conditions:

- Verify that no nodes are excluded from your current view.
- Verify that the MWTM server can ping the nodes.
- Verify that the nodes are running images that are compatible with the MWTM server.
- Verify that SNMP is enabled on the nodes.
- Verify that MWTM is configured with the correct SNMP community name. See the “[Configuring SNMP Settings](#)” section on page 2-3 for details.
- Verify that you selected **Entire Network** when you ran Discovery. If you suspect that you did not, run Discovery again with **Entire Network** selected.



CHAPTER 3

Getting Started with MWTM

This chapter provides information about starting and stopping MWTM, and provides an overview of how to use MWTM to manage your Radio Access Network-Optimization (RAN-O) installation.

This chapter includes the following information:

- [Becoming the Root User \(Server Only\), page 3-3](#)
- [Starting the MWTM Server \(Server Only\), page 3-3](#)
- [Starting the MWTM Client, page 3-4](#)
- [Viewing the MWTM Main Window, page 3-7](#)
- [Using the MWTM Main Menu, page 3-7](#)
- [Viewing Alarms, page 3-15](#)
- [Viewing Events, page 3-18](#)
- [Viewing a Summary of Network Objects, page 3-19](#)
- [Viewing Views, page 3-22](#)
- [Viewing Nodes, page 3-22](#)
- [Viewing the Topology of the Network, page 3-23](#)
- [Viewing MWTM Data on the Web, page 3-23](#)
- [Viewing Server Status Information, page 3-24](#)
- [Viewing Online Help, page 3-29](#)
- [Finding Information in a Window, page 3-29](#)
- [Resizing, Sorting, and Hiding Table Columns, page 3-30](#)
- [Editing Object Properties, page 3-30](#)
- [Attaching Notes to Objects, page 3-31](#)
- [Printing MWTM Windows, page 3-31](#)
- [Loading and Saving MWTM Files, page 3-31](#)
- [Viewing Real-Time Data for a Node, page 3-33](#)
- [Changing Real-Time Poller and Counter Settings, page 3-33](#)
- [Connecting to a New Server, page 3-33](#)
- [Integrating MWTM with Other Products, page 3-35](#)
- [Exporting MWTM Data, page 3-38](#)

- [Using the Windows Start Menu, page 3-42](#)
- [Using the MWTM Command Line Interface, page 3-44](#)
- [Running Simultaneous MWTM Sessions, page 3-45](#)
- [Exiting the MWTM Client, page 3-45](#)

For detailed information about MWTM's supported platforms, and hardware and software requirements, see the *Cisco Mobile Wireless Transport Manager Installation Guide*.

**Note**

The default directory for installing MWTM is `/opt`. In commands that call for the default directory, if you installed MWTM in a different directory, you must specify that directory instead of `/opt`.

Becoming the Root User (Server Only)

Some MWTM procedures require you to be logged in as the root user.



Caution

As the root user, you can adversely affect your operating environment if you are unaware of the effects of the commands you use. If you are a relatively inexperienced UNIX user, limit your activities as the root user to the tasks described in this manual.

If you are not logged in, log in as the root user:

```
> login: root
```

```
> Password: root-password
```

If you are already logged in, but not as the root user, use the **su** command to change your login to root:

```
# su
```

```
# Password: root-password
```

Starting the MWTM Server (Server Only)

Before starting an MWTM server, verify the following prerequisite conditions:

- The RAN-O devices use supported IOS images
- The MWTM server has IP connectivity to the RAN-O devices
- SNMP is enabled on the RAN-O devices
- (Optional) Traps are enabled on the RAN-O devices

To enable traps on the RAN-O device, enter the following:

```
snmp-server enable traps snmp authentication linkdown linkup coldstart warmstart
```

```
snmp-server enable traps ipran
```

- (Optional) A trap host is defined in the RAN-O network

To receive the traps on a host, enter the following on the RAN-O device:

```
snmp-server host IP_address version 2c v2c
```

Because the MWTM application is comprised of a server component and a client component, you must start both components to run the application.

To start the MWTM server on a Solaris/Linux system, enter the following commands:

```
# cd /opt/CSCOs/gm/bin
```

```
# ./mwtm start
```

**Note**

To issue the **mwtm start** command, you must be logged in as the root user or as a super user, or your login must have administrator privileges. See the [“Becoming the Root User \(Server Only\)”](#) section on page 3-3 and the [“Specifying a Super User \(Server Only\)”](#) section on page 10-19 for more information.

Starting the MWTM Client

This section contains the following information:

- [Before Starting the MWTM Client, page 3-5](#)
- [Starting the MWTM Client on Solaris/Linux, page 3-6](#)
- [Starting the MWTM Client on Windows, page 3-6](#)
- [Starting the MWTM Client for the First Time, page 3-6](#)

Before Starting the MWTM Client

When you start an MWTM client, the version and release of the client must match that of the MWTM server, and the patch level must be greater than or equal to that of the server. For example, the following MWTM client-server connections are allowed:

Table 3-1 **Allowed MWTM Client-Server Connections**

Client Level	Server Level
5.0.0	5.0.0
5.1.0	5.1.0

The following MWTM client-server connections are *not* allowed:

Table 3-2 **Disallowed MWTM Client-Server Connections**

Client Level	Server Level
5.0.0	5.1.0
5.1.0	5.0.0

If there is a client-server mismatch, MWTM displays a warning message when you try to start the client. If you have a Web browser installed, MWTM optionally opens a Web page enabling you to download an allowed, matching client. See the [“Downloading the MWTM Client from the Web”](#) section on [page 13-50](#) for more information about downloading the MWTM client.

Starting the MWTM Client on Solaris/Linux

To start the MWTM client on a Solaris/Linux system on which the MWTM server is installed, make sure the MWTM server is running, then enter the following commands:

```
# cd /opt/CSCOsgm/bin
```

```
# ./mwtm client
```

To start the MWTM client on a Solaris/Linux system other than the one on which the MWTM server is installed, make sure the MWTM server is running, then enter the following commands:

```
# cd /opt/CSCOsgmClient/bin
```

```
# ./mwtm client
```

To start the MWTM client on a Solaris/Linux system other than the one on which the MWTM server is installed, and connect to an MWTM server other than the default server, enter the following commands:

```
# cd /opt/CSCOsgmClient/bin
```

```
# ./mwtm client server_name_or_ip_address
```

where *server_name_or_ip_address* is the name or IP address of the Solaris/Linux system on which the MWTM server is running.

Starting the MWTM Client on Windows

To start the MWTM client on a Windows system, select **Start > Programs > Cisco MWTM Client > Launch MWTM Client**, or double-click the MWTM Client icon on the Windows desktop.

Starting the MWTM Client for the First Time

When you start MWTM for the first time, MWTM displays the Discovery Dialog and the MWTM Main Window.

The MWTM Main Window is the primary MWTM window. It is the first window to appear when you launch the MWTM client. It displays basic information about the events and objects that MWTM discovers.

When you start MWTM for the first time, if you did not configure the MWTM server to automatically discover your network the first time the server starts after installation, the MWTM database contains no information, and the MWTM Main Window is blank. The database is populated, and reflected in the MWTM Main Window, when you run Discovery for the first time; MWTM displays the Discovery Dialog to make it easier for you to do so. In fact, any time you start the MWTM client and the MWTM database is empty, MWTM automatically opens the Discovery Dialog so you can run Discovery and populate the database. For more information about Discovery, see the [“Discovery Overview” section on page 2-1](#).

The events and objects that MWTM discovers are displayed in the left and right panes of the MWTM Main Window.

MWTM also uses the right pane of the MWTM Main Window when displaying more detailed information about your network, such as configuration details and real-time data.

Viewing the MWTM Main Window

The MWTM Main Window is the primary MWTM client window. It is the first window to appear when you launch the MWTM client. It displays basic information about the events and objects that MWTM discovers in the left and right panes. MWTM also uses the right pane of the MWTM Main Window when displaying more detailed information about your network, such as configuration details and real-time data.

For detailed descriptions of the information that is displayed in the MWTM Main Window, see the following sections:

- [Using the MWTM Main Menu, page 3-7](#)
- [Viewing Alarms, page 3-15](#)
- [Viewing Events, page 3-18](#)
- [Viewing a Summary of Network Objects, page 3-19](#)
- [Viewing Views, page 3-22](#)
- [Viewing Nodes, page 3-22](#)
- [Viewing Interfaces, page 3-23](#)

Using the MWTM Main Menu

The MWTM Main Menu appears in the menu bar of most MWTM windows.

Some menu items do not appear on some windows. In addition, menu items that are grayed-out are not available on that window.

For detailed information about the menu options provided by other windows, see the descriptions of those windows.

The MWTM Main Menu provides the following menu options:

Menu Command	Description
File > Load DEFAULT View (Ctrl-D)	Loads the DEFAULT view, which is the view into which MWTM places all discovered objects when discovering the network. The DEFAULT view is stored on the MWTM server and shared by all MWTM clients, but it cannot be modified by the clients.
File > Load View (Ctrl-L)	Loads an already existing view. MWTM prompts you for the name of the view you want to load: • Select the name of the view, or accept the default view name, then click OK to load the view. • Click Cancel to close the prompt window without loading a view.

Menu Command	Description
File > Save View (Ctrl-S)	Saves the current view: - If you have not already saved the current view, opens the Save File Dialog: View List, which enables you to enter or select a file name under which to save the current view. - If you have already saved the current view, saves the view to that file name. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Power User (Level 2) and higher.
File > Save View As	Opens the Save File Dialog: View List, which enables you to enter or select a file name under which to save the current view. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Power User (Level 2) and higher.
File > Connect to New Server (Ctrl-O)	Connects to a new server. MWTM prompts you for the new server's name or IP address, and UDP port number. MWTM stops the MWTM client, then restarts the client connected to the new server.
File > Print (Ctrl-P)	Enables you to: - Specify options for printing - Print the current window - Save the current window to a file The MWTM printing options require that you define a printer on your system. If you select File > Print and the Print window does not appear, make sure you have defined a printer on your system.
File > Exit (Ctrl-Q)	Exits the MWTM application, after prompting you for confirmation. If you are working in a custom view (that is, not the DEFAULT view), MWTM automatically saves any changes you made to the view.
Edit > Views (Ctrl-M)	Opens the View Editor Window.
Edit > Find (Ctrl-F)	Opens the Find dialog, which enables you to find a specific object, event, or text in the window. If you select an object in the left pane of the MWTM Main Window, this option is grayed-out and cannot be selected.

Menu Command	Description
Edit > Clear All Events (Ctrl-E)	Deletes the event icon (orange triangle) from MWTM displays for all known objects. The actual events are not deleted from MWTM, only the event icon for all known objects. Note During Discovery, MWTM might flag most objects with an event icon. If the event icons are too distracting, use the Edit > Clear All Events menu option to remove them.
Edit > Delete (Delete)	Deletes the currently selected element or elements from the MWTM database. MWTM displays the Confirm Deletion dialog: - To delete the selected elements, click Yes. The items are deleted from the MWTM database and the Confirm Deletion dialog is closed. - To retain the selected elements, click No. The items are kept in the MWTM database and the Confirm Deletion dialog is closed. - 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.
Edit > Preferences (Ctrl-H)	Opens the Preferences window.
Network > SNMP Configuration (Ctrl-B)	Opens the SNMP Configuration Dialog. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Administrator (Level 4) and higher.
Network > Network Discovery (Ctrl-Y)	Opens the Discovery Dialog. 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
Network > Poll Nodes > Normal Poll (Alt-N)	Polls all selected RAN-O nodes. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Operator (Level 3) and higher.
Network > Poll Nodes > Clean Poll (Alt-C)	Polls all selected RAN-O nodes and removes any Unknown objects after the completion of the poll. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Operator (Level 3) and higher.
View > Show Topology (Ctrl-T)	Opens the Topology Window.
View > MWTM Server > Home Page	Displays the MWTM Server Home Page in a Web browser.
View > MWTM Server > Telnet To (Ctrl-N)	Opens a Telnet window to the server.
View > MWTM Server > Status Information	Opens the Server Status Information Window.
View > Network Status Dashboard	Displays the MWTM Node Dashboard in a Web browser.
View > Event History > Status Changes	Displays the MWTM Network Status Log for Status Change Messages in a Web browser, with messages displayed for all known objects.
View > Event History > SNMP Trap Messages	Displays the MWTM Network Status Log for SNMP Trap Messages in a Web browser, with messages displayed for all known objects.
View > 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 all known objects.
View > Event History > Network Status Metrics	Displays the MWTM Network Status Log for Metrics in a Web browser, with metrics displayed for all known objects.
View > Event History > Network Status Archives	Displays all archived Status Change Messages and SNMP Trap Messages in a Web browser.
View > User Audit > User Actions	Displays action messages in the system log, in a Web browser.
View > User Audit > User Accounts	Displays information about all user accounts that have been defined for the MWTM server, in a Web browser.
View > User Audit > Security Log	Displays the contents of the MWTM system security log file for the server to which you are connected, and which is currently running the MWTM server, in a Web browser.

Menu Command	Description
View > User Audit > Command Log	Displays the contents of the MWTM command log file for the server to which you are connected, and which is currently running the MWTM server, in a Web browser. The command log lists all mwtm commands that have been entered for the MWTM server, the time each command was entered, and the user who entered the command.
View > User Audit > Connected Clients	Lists all MWTM clients that are currently connected to the MWTM server, in a Web browser. It also lists all Solaris/Linux users that are logged in to the MWTM server.
View > Message of the Day	Opens the Message of the Day dialog.
View > Cisco.com	Displays the Cisco.com Home Page in a Web browser.
Reports > Router Node IOS Versions	Displays the RAN-O Node IOS Versions for the server to which you are connected, and which is currently running the MWTM server, in a Web browser.
Go > Back (Alt-Left)	Navigates back to the last window viewed in this session.
Go > Forward (Alt-Right)	Navigates forward to the last window viewed in this session.
Go > Back > List of Windows	Navigates back to a window viewed in this session. MWTM maintains a list of up to 10 Back windows.
Go > Forward > List of Windows	Navigates forward to a window viewed in this session. MWTM maintains a list of up to 10 Forward windows.
Tools > Event Configurator (Alt-E)	Launches the Event Configurator, which enables you to customize the displayed category, severity, color, and message associated with events; configure sounds for MWTM to play for different types of events; and load, save, and deploy customized event configurations. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Operator (Level 3) and higher.
Tools > Event Sounds (Alt-U)	Opens the Event Sound Filters dialog, which enables you to define sounds that the MWTM client is to play when specific events are logged.

Menu Command	Description
Products > CiscoWorks > Device Center (Ctrl-2)	Links to the CiscoWorks Device Center, which provides a number of Web-based functions, including reachability trends, response time trends, interface status, Syslog browsing, and detailed inventory. MWTM prompts you for a CiscoWorks user ID and password before linking to CiscoWorks. The link to CiscoWorks has the following prerequisites: • CiscoWorks must be installed somewhere in the network. • The specific Cisco device must to be monitored by CiscoWorks. This option is grayed-out if the selected node is not a RAN-O node, or if the selected node is in Unmanaged status or has a Device Type of Unknown. (CiscoWorks cannot monitor a non-RAN-O, Unmanaged, or Unknown node.) This option is not displayed if you did not specify a CiscoWorks server during installation. See the “Installing MWTM on Solaris” and “Installing MWTM on Windows” chapters of the <i>Cisco Mobile Wireless Transport Manager Installation Guide</i> for more information.
Products > CiscoWorks > CiscoView (Ctrl-3)	Links to CiscoView, which provides a real-time, color-coded, graphical representation of Cisco devices. You can use CiscoView to quickly identify an incorrect status on a port or interface. This option is grayed-out if the selected node is a non-RAN-O node, or if the selected node is in Unmanaged status or has a Device Type of Unknown. (CiscoWorks cannot monitor a non-RAN-O, Unmanaged, or Unknown node.) This option is not displayed if you did not specify a CiscoWorks server during installation. See the “Installing MWTM on Solaris” and “Installing MWTM on Windows” chapters of the <i>Cisco Mobile Wireless Transport Manager Installation Guide</i> for more information.
Help > Topics (F1)	Displays the table of contents for the MWTM online help.
Help > Window (Shift-F1)	Displays online help for the current window.
Help > About (F3)	Displays build date, version, SSL support, and copyright information about the MWTM application.

Menu Command	Description
Topology Tools > Zoom In (Ctrl=)	Makes the map twice as large. Note This option is displayed only in the Topology Window (View > Show Topology).
Topology Tools > Zoom Out (Ctrl-- or Ctrl-Minus)	Makes the map half as large. Note This option is displayed only in the Topology Window (View > Show Topology).
Topology Tools > Zoom Area	Zooms in on the selected area of the map. Note This option is displayed only in the Topology Window (View > Show Topology).
Topology Tools > Zoom Fit	Adjusts the size of the map to fit in the window. This is the default setting the first time the map is displayed. Note This option is displayed only in the Topology Window (View > Show Topology).
Topology Tools > Layout > Circular	Displays the map in a circular layout. Note This option is displayed only in the Topology Window (View > Show Topology).
Topology Tools > Layout > Spring	Displays the map in a spring layout. That is, nodes with the most links are drawn closer to the center of the map, while nodes with fewer links are drawn farther away. This is the default setting the first time the map is displayed. Note This option is displayed only in the Topology Window (View > Show Topology).
Topology Tools > Restore Positions	Restores the view to the last saved view. Note This option is displayed only in the Topology Window (View > Show Topology).
Topology Tools > Save As JPEG (Ctrl-J)	Opens the Save as JPEG dialog, enabling you to save the topology map to a JPEG file. Note This option is displayed only in the Topology Window (View > Show Topology).
Topology Tools > Magnetic Grid	Opens the Magnetic Grid Settings dialog. Note This option is displayed only in the Topology Window (View > Show Topology).
Topology Tools > Align	Opens the Align Objects dialog, which enables you to align two or more objects on the topology map. Note This option is displayed only in the Topology Window (View > Show Topology).

Menu Command	Description
Topology Tools > 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. Note This option is displayed only in the Topology Window (View > Show Topology). This option is grayed-out if the selected node is not a RAN-O node.
Topology Tools > Open Parent View	Opens the parent view of the currently displayed view in the Topology Window. Note This option is displayed only in the Topology Window (View > Show Topology). This option is grayed-out if the currently displayed view is the highest level parent view.
Topology Tools > Close View	Closes the currently displayed view in the Topology Window. Note This option is displayed only in the Topology Window (View > Show Topology). This option is grayed-out if the currently displayed view is the highest level parent view.

Viewing Alarms

MWTM enables you to view a summary of all currently active alarms in your network, including the current status of the associated network object. An active alarm is a network object with the following status:

- A node or interface that is **Warning** or worse and is not **Ignored**.
- A node or interface that is **Pending** or worse and is not **Ignored**.

To see a summary of all currently active alarms, click **Alarms** in the left pane. MWTM displays the Active Alarms Window in the right pane. For more information, see the [“Viewing Alarms” section on page 3-15](#).

Right-click **Alarms** in the left pane to display the right-click menu for all alarms. For more information, see the [“Right-Click Menu for All Alarms” section on page 3-18](#).

Right-click an alarm in the right pane to display the right-click menu for a specific alarm. For more information, see the [“Right-Click Menu for a Specific Alarm” section on page 3-18](#).

Viewing Alarms

To view alarms, select **Alarms** in the left pane of the MWTM Main Window. MWTM displays the Active Alarms Window.

The Active Alarms Window provides basic information about all currently active alarms in your network, that are not excluded from your current view. MWTM updates the information in the window at least once every minute.

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 **Age**, with the most recent alarms at the top, and MWTM displays all of the columns in the table except **Last Status Change**.

- 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 active alarms table contains the following columns:

Column	Description
Type	Type of network object associated with the selected alarm. To see all higher-level alarms associated with the network object, select the turner beside the object. MWTM displays the higher-level alarms below the selected alarm.
Name	Name of the network object associated with the selected alarm.

Column	Description
Status	Current status of the network object associated with the selected alarm. Possible values are: Unknown Unavailable Inactive Failed Down Pending Warning Shutdown Discovering Polling Waiting Unmanaged Active For detailed definitions of each status for each type of network object, see the “MWTM Status Definitions” section on page A-1.
Status Reason	Reason for the current status of the network object associated with the selected alarm. For a full list of possible reasons, see the <i>stateReasons.html</i> 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.

Column	Description
Last Status Change	Date and time that the status of the network object associated with the selected alarm last changed.
Age	Age of the selected alarm, in days, hours, and minutes. Note For the most accurate age data, ensure that the client and server clocks are in sync by using Network Time Protocol (NTP) or a similar service. For more details, see “Why are the age of my alarms always 0 minutes?” section on page B-14.

Right-Click Menu for All Alarms

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

Menu Command	Description
Show In New Window	Opens the Active Alarms 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 Alarm

The active alarms table provides a subset of the MWTM Main Menu as a right-click menu. To see this menu, select an alarm and click the right mouse button. The alarm right-click menu provides the same options as the right-click menu for the associated network object, plus the following additional options:

Menu Command	Description
Expand All	Displays all higher-level alarms associated with all network objects in the active alarms table.
Collapse All	Does not display higher-level alarms in the active alarms table.

**Caution**

The alarms displayed in the active alarms table are the actual network objects in MWTM. Options you select in the right-click menu affect the object in MWTM. For example, if you delete a node in the active alarms table, you delete that node from the MWTM database.

Viewing Events

To see all events discovered by MWTM, click **Events** in the left pane. MWTM displays the Event Window in the right pane. For more information, see the [“Working with Events” section on page 5-1](#).

Right-click **Events** in the left pane to display the right-click menu for all events. For more information, see the [“Right-Click Menu for All Events” section on page 5-3](#).

Right-click an event in the right pane to display the right-click menu for a specific event. For more information, see the [“Right-Click Menu for a Specific Event” section on page 5-3](#).

Viewing a Summary of Network Objects

MWTM enables you to view basic summary information about all discovered network objects, including their status and the number of each object with that status.

To see a summary of all network objects discovered by MWTM, click **Summary Lists** in the left pane. MWTM displays the Summary Statistics Window in the right pane. For more information, see the [“Viewing the Summary Lists” section on page 3-20](#).

Right-click **Summary Lists** in the left pane to display the right-click menu for the summary lists. For more information, see the [“Right-Click Menu for the Summary Lists” section on page 3-22](#).

**Note**

If an object in the left pane is not associated with any objects of a given type, MWTM does not display that sub-folder.

Viewing the Summary Lists

To view the summary lists, select **Summary Lists** in the left pane of the MWTM Main Window. MWTM displays the Summary Statistics Window.

The Summary Statistics Window provides basic summary information about all discovered network objects 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**, with failures (red statuses) at the top.

- 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 summary list table contains the following columns:

Column	Description
Status	Current status of the network objects. Possible values are: Unknown Unavailable Inactive Failed Down Blocked Pending Warning Shutdown Discovering Polling Waiting Unmanaged Active For detailed definitions of each status for each type of network object, see the “MWTM Status Definitions” section on page A-1.
Total	Total number of network objects with the indicated status. Objects in hidden columns are not included in the totals.
Nodes	Total number of discovered nodes with the indicated status.

Right-Click Menu for the Summary Lists

To see the right-click menu for the summary lists, select **Summary Lists** in the left pane and click the right mouse button. The summary lists right-click menu provides the following options:

Menu Command	Description
Show In New Window	Opens the Summary Statistics 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.

Viewing Views

To see all views currently configured on this MWTM client, select the turner beside **Summary Lists**, then click **Views** in the left pane. MWTM displays the View Window in the right pane. For more information, see the [“Viewing Basic Information for Views” section on page 4-4](#).

To display all views currently configured on this MWTM client in the left pane, select the turner beside **Views**. Then, you can select one of the views to display the View Details Window for that view in the right pane. For more information, see the [“Viewing Detailed Information for a View” section on page 4-9](#).

To display the DEFAULT view, select the turner beside **Views**, then select **DEFAULT** to display the View Details Window for the DEFAULT view in the right pane. For more information, see the [“Viewing Detailed Information for a View” section on page 4-9](#).

Right-click **Views** in the left pane to display the right-click menu for all views. For more information, see the [“Right-Click Menu for All Views” section on page 4-4](#).

Right-click a view in the right pane to display the right-click menu for a specific view. For more information, see the [“Right-Click Menu for a Specific View” section on page 4-5](#).

Viewing Nodes

To see all nodes discovered by MWTM, select the turner beside **Summary Lists**, then click **Nodes** in the left pane. MWTM displays the Node Window in the right pane. For more information, see the [“Viewing Basic Information for Nodes” section on page 6-1](#).

To display all nodes discovered by MWTM in the left pane, select the turner beside **Nodes**. Then, you can select one of the nodes to display the Node Details Window for that node in the right pane. For more information, see the [“Viewing Detailed Information for a Node” section on page 6-10](#).

Right-click **Nodes** in the left pane to display the right-click menu for all nodes. For more information, see the [“Right-Click Menu for All Nodes” section on page 6-3](#).

Right-click a node in the right pane to display the right-click menu for a specific node. For more information, see the [“Right-Click Menu for a Specific Node” section on page 6-4](#).

Viewing Interfaces

To see all interfaces discovered by MWTM, select the turner beside a node in the left pane. To see detailed information about an interface, select the interface in the left pane. MWTM displays the Interface Window in the right pane. For more information, see [“Viewing Detailed Information for an Interface” section on page 7-1](#).

Right-click an interface in the left pane to display the right-click menu. For more information, see the [“Interface Details: Right-Click Menu” section on page 7-2](#).

Viewing the Topology of the Network

To see a topology (graphical) view of the objects in your network select **View > Show Topology** in the MWTM Main Menu. MWTM displays the Topology Window in a new window. For more information, see the [“Viewing the Topology of the Network” section on page 8-1](#).

Viewing MWTM Data on the Web

MWTM enables you to access MWTM data from the MWTM Server Home Page, using a Web browser. To do so, select **View > MWTM Server > Home Page** in the MWTM Main Menu. MWTM displays the MWTM Server Home Page in a Web browser. For more information, see the [“Accessing MWTM Data from a Web Browser” section on page 13-1](#).

Viewing Server Status Information

MWTM enables you to view detailed information about the processes, pollers, tasks, and clients for the server to which you are connected, and which is currently running the MWTM server.

To display server status information, select **View > MWTM Server > Status Information** in the MWTM Main Menu. MWTM displays the Server Status Information window.

The Server Status Information window is composed of the following sections:

- [Server Status Information: Fields and Buttons, page 3-25](#)
- [Server Status Information: Processes, page 3-25](#)
- [Server Status Information: Pollers, page 3-26](#)
- [Server Status Information: Tasks, page 3-27](#)
- [Server Status Information: Clients, page 3-28](#)

Server Status Information: Fields and Buttons

The Server Status Information window contains the following fields and buttons:

Menu Command	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.
Update	Forces an immediate poll, and refreshes the Server Status Information window with the latest data.
Close	Closes the Server Status Information window.
Help	Displays online help for the Server Status Information Dialog.

Server Status Information: Processes

The Server Status Information: Processes section lists the processes that make up the MWTM server.

The Processes table contains the following columns:

Field	Description
Name	Name of the process, such as AppServer .
Process ID	Number to uniquely identify the process.
Is Running	Indicates whether the process is running (true) or not (false).

Server Status Information: Pollers

The Server Status Information: Pollers table lists the detail and demand pollers that are currently being processed by the MWTM server.

The Server Status Information: Pollers table contains the following columns:

Field	Description
Poller ID	Number to uniquely identify each MWTM detail poller that is currently active. MWTM detail pollers collect detailed data (such as real-time data, statistics, route detail, and so on) that is not collected by the regular MWTM poller.
Client Host	Name of the MWTM client that started the detail poller.
Interval	Poll interval for the detail poller, in hours, minutes, and seconds.
Iteration	Number of times the detail poller is to poll. If this field displays Forever , the detail poller will never stop polling, until requested to stop by the MWTM client.
Next Poll	Time until the next poll, in hours, minutes, and seconds.
Time Limit	Time remaining, in hours, minutes, and seconds, until the poller times out. When the poller times out, MWTM automatically stops the poller to prevent unnecessary traffic on the network and sends an appropriate error message to the client. By default, MWTM allows pollers to run up to 8 hours. To change that setting, see the description of the mwtm pollertimeout command in the “ mwtm pollertimeout ” section on page C-36.
Description	Description of the detail poller.

Server Status Information: Tasks

The Server Status Information: Tasks table lists long-running services being performed by the MWTM server.

The Server Status Information: Tasks table contains the following columns:

Field	Description
Task ID	Number to uniquely identify the task.
Interval	Time between runs for the task, in hours, minutes, and seconds.
Iteration	Number of times the task is to run. If this field displays Forever , the task will never stop polling.
Next Execution	Time until the next run for the task, in hours, minutes, and seconds.
State	Current state of the task. Valid values are: • None—Task is stopped. • Waiting—Task is waiting to transition to Ready or Running state. • Ready—Task is ready to execute but is not yet in Running state. • Running—Task has been started and is currently executing. • Pending—Task was in Ready state when it was canceled by a user. The task is pending final removal from the scheduler. • Error—Task encountered an error. • Dying—Task was in Running state when it was canceled by a user. The task continues to run in Dying state until it completes, then it is removed from the scheduler.
Description	Description of the task.

Server Status Information: Clients

The Server Status Information: Clients table contains the following columns:

Field	Description
Process Name	Name of an MWTM client that is currently connected to the server.
User Name	If you have implemented MWTM User-Based Access, this field displays the name of an MWTM client user who is currently logged in and connected to the server. If you have not implemented MWTM User-Based Access, this field displays the name of the device being used by the user.
Message Mask	Mask that indicates which messages [1-81] are allowed to be sent to the client: - For the MWTM client, this field displays [1-81]. That is, all messages are allowed to be sent to the MWTM client. - For the Event Configurator, this field displays [14, 56, 67]. That is, only messages 14, 56, and 67 are allowed to be sent to the Event Configurator.
Sleeping?	Indicates whether the thread that is responsible for delivering messages is sleeping (yes) or not (no). The normal setting for this field is no .
Sleep Time	Time in seconds the thread that is responsible for delivering messages has been sleeping. The normal setting for this field is 0 .
Queue Size	Number of messages waiting to be sent to the MWTM client. The normal setting for this field is 0 , but it could be higher if the MWTM server or client is very busy, as during Discovery.

Viewing Online Help

MWTM provides the following online help options in the MWTM Main Menu:

- To display the table of contents for the MWTM online help in a Web browser, select **Help > Topics**.
- To display online help for the current window in a Web browser, click **Help > Window**.
- To display build date, version, SSL support, and copyright information about the MWTM application in a Web browser, click **Help > About**.

Related Topics:

- [Viewing the MWTM Technical Documentation, page 13-49](#)

Finding Information in a Window

Sometimes it can be difficult to find a specific piece of information, such as a node name or event text, in a window. MWTM enables you to search for a character string in a window.

To find and highlight a character string in a window, select **Edit > Find** from the MWTM Main Menu. MWTM displays the Find dialog.

The Find dialog contains the following fields and buttons:

Field or Button	Description
What	Character string for which MWTM is to search in the window. This can be any character string: all or part of a node name, event text, status, and so on.
Match Case	Checkbox used to indicate whether MWTM is to search for only character strings that match the case of the text in the What field: • To search with case-matching on, select this check box. • To search with case-matching off, clear this check box. This is the default setting.
Search Forward	Specifies whether MWTM is to search forward (down and to the right) in the window. This radio button is mutually exclusive with the Search Backward button. The default setting for this checkbox is selected.
Search Backward	Specifies whether MWTM is to search backward (up and to the left) in the window. This radio button is mutually exclusive with the Search Forward button. The default setting for this checkbox is cleared.
Find	Launches the search: • If a matching character string is found in the window, MWTM highlights the first line that contains the string. To find the next occurrence of the string, click Find again. You can continue to click Find until there are no more matches in the window. At that time, MWTM displays an appropriate message in the dialog, such as Bottom of table reached. • If no matching character string is found, MWTM displays an appropriate message in the dialog, such as Bottom of table reached.
Close	Closes the Find dialog when you are done searching.

Resizing, Sorting, and Hiding Table Columns

The columns in some tables in MWTM can be resized, sorted, or hidden to meet your specific needs. MWTM automatically saves your new settings and, thereafter, launches the client with the new settings.

- To make a column wider or narrower, click the column divider in the header and move the divider to the right or left while holding down the left or right mouse button.

Changes you make to an object's Components or Recent Events table in the MWTM Main Window are reflected in all Components or Recent Events tables in the MWTM Main Window for all other objects. The changes are not reflected in Show In New Window windows or Real-Time Data and Charts windows.

Depending on your system, as well as other factors, MWTM windows can sometimes display so small that text is illegible, and columns and text entry fields are very narrow and unusable. If this happens, resize the window and widen the individual columns until the information is again legible and the columns and text entry fields are usable.

- By default, MWTM displays most of the columns in tables, but some columns may be hidden.
 - 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.

Changes you make to an object's Components or Recent Events table in the MWTM Main Window are reflected in all Components or Recent Events tables in the MWTM Main Window for all other objects. The changes are not reflected in Show In New Window windows or Real-Time Data and Charts windows.

- To sort a table based on the data in a column, left-click in the column header. The table is sorted alphanumerically from top to bottom, based on the data in the selected column. To sort the table in reverse order, left-click in the column header a second time. If two entries in the selected column are identical, MWTM sorts those rows based on the data in the remaining table columns, moving left to right.
- Many of the tables in MWTM Web pages display an icon in the column header to indicate the column on which the table is sorted, and the direction of the sort. The icon displays an upward-pointing arrow if the table is sorted in ascending order (1-9, A-Z), and a downward-pointing arrow if the table is sorted in descending order (Z-A, 9-1).
- If you sort a table in an MWTM Web page based on the **Nodes** column, by default the table is sorted based on the DNS names of the nodes, as discovered by MWTM. However, if you modified your preferences to identify nodes by their user-defined names, then the table is sorted based on the user-defined names of the nodes. For more information, see the [“Node Name Settings” section on page 11-8](#).
- To customize the order in which status settings are sorted in the **Status** column of tables, use the Status settings section of the Preferences window. For more information, see the [“Status Settings” section on page 11-15](#).

Editing Object Properties

MWTM enables you to quickly and easily edit some properties of nodes and views. For more information, see the following sections:

- [Editing Node Properties, page 6-43](#)

- [Editing View Properties, page 4-25](#)

Attaching Notes to Objects

MWTM enables you to quickly and easily attach notes to objects in the MWTM database. For more information, see the following sections:

- [Attaching a Note to an Event, page 5-16](#)
- [Attaching a Note to a Node, page 6-46](#)
- [Attaching a Note to a View, page 4-27](#)

Printing MWTM Windows

You can print most MWTM windows, as well as the topology map, for those times when you need hardcopy.

To print an MWTM window, select **File > Print** from most MWTM windows (for example, the MWTM Main Window or Topology Window).

MWTM displays the Print dialog.

The Print dialog enables you to specify print settings, such as which printer to print to, whether to send output to a file (the default location for the print file is your home directory), and whether to print duplex.



Note

You can send output to a file only in the file formats supported by your printer drivers. Sending output to a file can also result in very large files.

When you are satisfied with your print settings, click **Print**. MWTM prints the map.

To exit the Print dialog at any time without printing, click **Cancel**.

Loading and Saving MWTM Files

MWTM enables you to quickly and easily load and save MWTM files. The files are stored on the MWTM server and can be loaded on any connected MWTM client.

To display a Load File Dialog, use one of the following procedures:

- To display the Load File Dialog: Load Filter, click **Load** in the Event Filter dialog. For more information, see the [“Loading an Existing Event Filter” section on page 5-12](#).
- To display the Load File Dialog: Preferences File List, select **File > Load** from the Preferences window. For more information, see the [“Loading an Existing Preference Settings File” section on page 11-22](#).
- To display the Load File Dialog: Seed File List, select **File > Load Seeds** from the Discovery Dialog. For more information, see the [“Loading Seed Nodes and Seed Files” section on page 2-11](#).
- To display the Load File Dialog: View List, select **File > Load** from the View Editor Window. For more information, see the [“Loading a Client-Specific View” section on page 4-40](#).

- To load the DEFAULT network view, select **File > Load DEFAULT View** from the MWTM Main Menu. MWTM loads the DEFAULT view.

To display a Save File Dialog, use one of the following procedures:

- To display the Save File Dialog: Save Filter, click **Save** in the Event Filter dialog. For more information, see the [“Saving an Event Filter File” section on page 5-13](#).
- To display the Save File Dialog: Preferences File List, select **File > Save As** from the Preferences window. For more information, see the [“Saving the Preference Settings File” section on page 11-23](#).

- To display the Save File Dialog: Seed File List, select **File > Save As** from the Discovery Dialog. For more information, see the [“Saving a Seed File” section on page 2-13](#).
- To display the Save File Dialog: View List, select **File > Save As** from the View Editor window. For more information, see the [“Closing the View Editor Window” section on page 4-39](#).

Viewing Real-Time Data for a Node

MWTM enables you to view detailed statistics for a selected node.

To display detailed statistics for one of these nodes, select the Shorthaul Performance or Backhaul Performance tab in the Node Details window.

For more information, see the following sections:

- [“Node Details: Shorthaul Performance” section on page 6-18](#)
- [“Node Details: Backhaul Performance” section on page 6-24](#)

Changing Real-Time Poller and Counter Settings

MWTM provides three pollers for use in the MWTM client GUI and Web pages: a fast poller, a slow poller, and a status refresh poller. MWTM enables you to change settings for those pollers, and also enables you to specify how you want MWTM to aggregate displayed counter values.

To change MWTM poller refresh and counter display settings, use one of the following methods:

- The fast poller, slow poller, and status refresh poller have default minimum, maximum, and default settings specified in the MWTM *System.properties* file. To change those settings, see the [“Changing MWTM System Poller Settings” section on page 11-24](#).
- To change MWTM poller refresh and counter display settings for the MWTM GUI using the MWTM Preferences window, see the [“Poller Settings” section on page 11-8](#).

Connecting to a New Server

MWTM enables you to connect the client to a new MWTM server. For example, you can monitor two or more networks from the same MWTM client, simply by switching servers. Or, if you have two MWTM servers monitoring the same network, and one server fails, the MWTM client automatically switches to the secondary server.

If you want to determine the default host name before you connect to the new server, it is contained in the `SERVER_NAME` entry in the *System.properties* file:

- If you installed MWTM in the default directory, `/opt`, then the location of the *System.properties* file is `/opt/CSCOs/gm/properties/System.properties`.
- If you installed MWTM in a different directory, then the *System.properties* file is located in that directory.

To connect the client to a new server, select **File > Connect to New Server** from the MWTM Main Menu. MWTM displays the Connect to New Server Dialog.

The Connect to New Server Dialog contains the following fields and buttons:

Field or Button	Description
Server Name or IP Address	Name or IP address of the new server. Enter the name of the new server, or its IP address, in the Server Name or IP Address field.
Name Server Port	UDP port number for the new server. Enter the MWTM Naming Server UDP port number for the new server in the Name Server Port field. The default value is 44742.
OK	Stops the MWTM client, then restarts the client connected to the specified server. When you have entered the name of the new server, or its IP address, and its UDP port number, click OK . MWTM stops the MWTM client, then restarts the client connected to the new server.
Cancel	Closes the Connect to New Server Dialog without connecting to the new server.
Help	Displays online help for the Connect to New Server Dialog.

Integrating MWTM with Other Products

MWTM does not require either CiscoWorks or HP OpenView, but MWTM does integrate with those products to provide added value. See the following sections for more information:

- [Integrating MWTM with HP OpenView, page 3-35](#)
- [Integrating MWTM with CiscoWorks, page 3-35](#)
- [Forwarding Traps to Other Hosts \(Server Only\), page 3-36](#)

Integrating MWTM with HP OpenView

MWTM can integrate with HP OpenView during installation, registering to receive forwarded traps. See the “Installing MWTM on Solaris” chapter of the *Cisco Mobile Wireless Transport Manager Installation Guide* for more information.

You can also integrate MWTM with HP OpenView after installation, using the **mwtm trapsetup** command. See the “[mwtm trapsetup](#)” section on [page C-69](#) for more information.

Integrating MWTM with CiscoWorks

MWTM can integrate with CiscoWorks during installation, registering with CiscoWorks as an installed application. See the “Installing MWTM on Solaris” and “Installing MWTM on Windows” chapters of the *Cisco Mobile Wireless Transport Manager Installation Guide* for more information.

You can also integrate MWTM with CiscoWorks after installation, using the **mwtm cwsetup** command. See the “[mwtm cwsetup](#)” section on [page C-16](#) for more information.

When MWTM is integrated with CiscoWorks, you can launch the CiscoWorks Device Center and CiscoView from the MWTM Main Menu. See the following sections for more information:

- [Launching the CiscoWorks Device Center, page 3-36](#)
- [Launching CiscoView, page 3-36](#)

Launching the CiscoWorks Device Center

The CiscoWorks Device Center provides a number of useful Web-based device-monitoring functions, including reachability trends, response time trends, interface status, Syslog browsing, and a detailed inventory.

To link MWTM to the Device Center:

-
- Step 1** Make sure CiscoWorks is installed in the network.
 - Step 2** Select a node that you know CiscoWorks is monitoring in a window. If you select a non-RAN-O node, or a node with a status of **Unmanaged** or a **Device Type** of **Unknown**, the **CiscoWorks** menu option is grayed-out.
 - Step 3** Select **Products > CiscoWorks > Device Center** from the MWTM Main Menu.
 - Step 4** At the prompt, enter a CiscoWorks user ID and password. MWTM links to CiscoWorks Device Center dashboard.
-

Launching CiscoView

CiscoView provides a real-time, color-coded, graphical representation of Cisco devices. You can use CiscoView to quickly identify an incorrect status on a port or interface. If you are running CiscoWorks on UNIX or Windows, you can access CiscoView through the link to the Web version of CiscoWorks.

To link MWTM to CiscoView:

-
- Step 1** Select a node that you know CiscoWorks is monitoring in a window. If you select a non-RAN-O node, or a node with a status of **Unmanaged** or a **Device Type** of **Unknown**, the **CiscoWorks** menu option is grayed-out.
 - Step 2** Select **Products > CiscoWorks > CiscoView** from the MWTM Main Menu.
 - Step 3** At the prompt, enter a CiscoWorks user ID and password. MWTM links to CiscoView.
-

Forwarding Traps to Other Hosts (Server Only)

MWTM enables you to forward SNMP traps to other SNMP servers, or hosts. This enables MWTM to function as a trap multiplexer, integrating with high-level event- and alarm-monitoring systems such as the Cisco Info Center (CIC), HP OpenView, and Micromuse's Netcool suite of products. These systems can provide a single high-level view of all alarm monitoring in your network, making it easier to detect and resolve problems.

To enable MWTM to forward SNMP traps to other hosts, specify the list of hosts in the *TrapForwarder.properties* file. The default file is located in the MWTM *properties* directory:

- If you installed MWTM in the default directory, */opt*, then the default file is located at */opt/CSCOsgm/properties/TrapForwarder.properties*.
- If you installed MWTM in a different directory, then the default file is located in that directory.

In the *TrapForwarder.properties* file, begin all comment lines with a pound sign (#).

All other lines in the file are host definition lines, with the following format:

SERVER*xx=dest-address[:portno]*

where:

- *xx* is the user-defined server number.
- *dest-address* is the host name, or the IP address in dotted decimal format.
- *portno* is the optional port number. The default port number is **162**.

For example, the following host definition line:

SERVER02=64.102.86.104:162

enables MWTM to forward traps to **Server 02**, with IP address **64.102.86.104**, on port **162**.

Any changes you make to the *TrapForwarder.properties* file take effect when you restart the MWTM server. Thereafter, MWTM forwards all traps from the listed hosts except:

- Traps that MWTM cannot parse.
- Traps from hosts listed in the *trapaccess.conf* file. For more information, see the [“Limiting Traps by IP Address \(Server Only\)”](#) section on page 11-29.

Version 2c traps that do not have the agent IP address already specified in the varbind list are modified to include the agent IP address in the varbind list.

You can also forward MWTM events to other hosts, in the form of SNMP traps. For more information, see the [“Forwarding Events as Traps to Other Hosts”](#) section on page 5-35.

Exporting MWTM Data

MWTM enables you to export its data for use by other products, such as CiscoWorks or Microsoft Excel. This section includes the following information:

- [Exporting Current MWTM Data for Network Objects](#), page 3-39
- [Exporting Current MWTM Node Names and SNMP Community Names](#), page 3-40
- [Viewing RAN Data Export Files](#), page 3-40

Exporting Current MWTM Data for Network Objects

You can use the MWTM command line interface (CLI) to export all MWTM data, or to export only selected MWTM data.

To export all current MWTM data, with fields separated by vertical bars (; this is the default setting), enter the **mwtm export all** command with the **-d bar** keywords:

```
mwtm export all -d bar
```

To export all MWTM data with fields separated by commas (,), specify the **-d comma** keywords:

```
mwtm export all -d comma
```

To export all MWTM data with fields separated by tabs, specify the **-d tab** keywords:

```
mwtm export all -d tab
```

To export only node-specific MWTM data, specify the **node** keyword:

```
mwtm export nodes
```

You can also specify the **-d comma** or **-d tab** keywords on any of these object-specific **mwtm export** commands.

Here is sample output for the **mwtm export nodes** command:

```
mwtm-sun24:2> ./mwtm export nodes
# v5.0.0.9
# t1122238712043|Sun Jul 24 16:58:32 EDT 2005
#
# Total 12 nodes
# name|displayname|sgmid|old_description|cllicode|ipaddress|
old_pointcode|old_secondary|old_capability|state|statetimestamp|
ioslevel|devicetype|usericonname|sysdescr|lastpolltimestamp|
lastpolltime|avgpolltime|old_lasterrormsg|
old_lasterrortime|notesexist|old_variant|sysuptime|rebootreason|
statereason|discoveredtime|eventRcvd|telnetTo|ignore|customDisplayname|processTraps|nsocon
fig|mtpp3offload|rfpeerstate|trapPollingEnabled|
reportPollingEnabledRNC_to_ems1941kb|RNC_to_ems1941kb|1215|not_used|
not_used|null|not_used|not_used|not_used|Unmanaged|1121953480035|0|RNC|null|null|-1|-1|-1|
not_used|not_used|false|not_used|-1|null|0|
1121953480036|false|null|false|null|true|not_used|not_used|not_used|
false|false|BSC_to_ems1941kb|BSC_to_ems1941kb|1219|not_used|not_used|
null|not_used|not_used|not_used|Unmanaged|1121953480044|0|BSC|null|
null|-1|-1|-1|not_used|not_used|false|not_used|-1|null|0|1121953480045|false|null|false|nu
ll|true|not_used|not_used|not_used|false|false|
BSC_to_ems1941kb|BSC_to_ems1941kb|1223|not_used|not_used|null|not_used|not_used|not_used|U
nmanaged|1121953480050|0|BSC|null|null|-1|-1|-1|
not_used|not_used|false|not_used|-1|null|0|1121953480050|false|null|
false|null|true|not_used|not_used|not_used|false|false|
BSC_to_ems1941kb|BSC_to_ems1941kb|1227|not_used|not_used|null|not_used|not_used|not_used|U
nmanaged|1121953480055|0|BSC|null|null|-1|-1|-1|
not_used|not_used|false|not_used|-1|null|0|1121953480055|false|null|
false|null|true|not_used|not_used|not_used|false|false|
ems1941kb.cisco.com|ems1941kb.cisco.com|1182|not_used|not_used|
[172.18.156.21][20.1.1.254]|not_used|not_used|not_used|Unknown|
1122221399654|1|CiscoMWR-1941-DC|null|sysDescr|1122220550854|170|170|
not_used|not_used|false|not_used|22232166|reload|8|1121953480066|false|null|false|null|tru
e|not_used|not_used|not_used|false|false|
RNC_to_ems1941ka|RNC_to_ems1941ka|1291|not_used|not_used|null|not_used|not_used|not_used|U
```

```

nmanaged|1121953480230|0|RNC|null|null|-1|-1|-1|
not_used|not_used|false|not_used|-1|null|0|1121953480230|false|null|
false|null|true|not_used|not_used|not_used|false|false|
BSC_to_ems1941ka|BSC_to_ems1941ka|1294|not_used|not_used|null|not_used|not_used|not_used|U
nmanaged|1121953480231|0|BSC|null|null|-1|-1|-1|
not_used|not_used|false|not_used|-1|null|0|1121953480231|false|null|
false|null|true|not_used|not_used|not_used|false|false|
BSC_to_ems1941ka|BSC_to_ems1941ka|1297|not_used|not_used|null|not_used|not_used|not_used|U
nmanaged|1121953480233|0|BSC|null|null|-1|-1|-1|
not_used|not_used|false|not_used|-1|null|0|1121953480233|false|null|
false|null|true|not_used|not_used|not_used|false|false|
BSC_to_ems1941ka|BSC_to_ems1941ka|1300|not_used|not_used|null|not_used|not_used|not_used|U
nmanaged|1121953480234|0|BSC|null|null|-1|-1|-1|
not_used|not_used|false|not_used|-1|null|0|1121953480234|false|null|
false|null|true|not_used|not_used|not_used|false|false|
ems1941ka.cisco.com|ems1941ka.cisco.com|1233|not_used|not_used|
[172.18.156.20][20.1.1.253]|not_used|not_used|not_used|Warning|
1122221418932|1|CiscoMWR-1941-DC|null|sysDescr|1122238176675|312|314|
not_used|not_used|false|not_used|1752636|reload|60|1121953480235|false|null|false|null|tru
e|not_used|not_used|not_used|false|false|
JMX0710L3S9|JMX0710L3S9|1786|not_used|not_used|null|not_used|not_used|not_used|Waiting|112
1957445502|0|IPDevice|null|null|-1|-1|-1|not_used|not_used|false|not_used|-1|null|0|112195
7445502|false|null|false|null|true|not_used|not_used|not_used|false|false|JMX0710L2YY|JMX0
710L2YY|
3608|not_used|not_used|null|not_used|not_used|not_used|Waiting|
1121986548590|0|IPDevice|null|null|-1|-1|-1|not_used|not_used|false|
not_used|-1|null|0|1121986548590|false|null|false|null|true|not_used|
not_used|not_used|false|false|
#

```

For more information about the use of the **mwtm export** command, see the “[mwtm export](#)” section on page C-21.

Exporting Current MWTM Node Names and SNMP Community Names

To export current MWTM node names and read and write SNMP community names, in CiscoWorks import format, with fields separated by commas (,), specify the **cw** keyword:

mwtm export cw

You can export this data to a file, then use the file to import the devices into the CiscoWorks database.

For more information about the use of the **mwtm export cw** command, see the “[mwtm export cw](#)” section on page C-21.

Viewing RAN Data Export Files

MWTM provides yearly, monthly, daily, and hourly RAN data export files for all nodes and interfaces known to MWTM.

To view RAN data files, select **RAN Backhaul Utilization** from the MWTM Server Home Page. This action opens the MWTM - RAN Backhaul Utilization Statistics page. Then select a year, month, day, or hour for a specific node. This action displays capacity planning and backhaul utilization statistics for the selected node and interval.

To export the RAN data, click **RAN Data Export** from the menu bar of the MWTM - RAN Backhaul Utilization Statistics page. This action opens the File Download window. Click **Open** to view the export data or **Save** to download the export file to your computer.

Using the Windows Start Menu

This section includes the following information:

- [Launching the MWTM Client, page 3-42](#)
- [Launching the MWTM Event Configurator, page 3-42](#)
- [Changing the Default MWTM Server Name, page 3-43](#)
- [Changing the Default MWTM Telnet Path, page 3-43](#)
- [Launching the MWTM DOS Prompt, page 3-44](#)
- [Launching the MWTM SSL Certificate Tool, page 3-44](#)
- [Uninstalling MWTM, page 3-44](#)
- [Viewing the MWTM README File, page 3-44](#)

Launching the MWTM Client

To launch the MWTM Client, select **Start > Programs > Cisco MWTM Client > Launch MWTM Client** from the Windows Start menu, or double-click the MWTM icon on the desktop. MWTM launches the MWTM Client.

Launching the MWTM Event Configurator

To launch the MWTM Event Configurator, select **Start > Programs > Cisco MWTM Client > Launch MWTM Event Configurator** from the Windows Start menu.

Changing the Default MWTM Server Name

If there is a failure of the IP address or host name to which your MWTM client is bound, you can change the default MWTM server name from the Windows Start menu.

To change the default MWTM server name, use the following procedure:

-
- Step 1** Close all open MWTM windows.
 - Step 2** Select **Start > Programs > Cisco MWTM Client > Modify Default MWTM Server Name**. MWTM opens a DOS window, and asks you to enter the name of the new default MWTM server.
 - Step 3** Type the name of the new default MWTM server, and press **Enter**. MWTM sets the default server to the new name you entered.
-

See the [“Connecting to a New Server” section on page 3-33](#) for more information about changing the default MWTM server name.

Changing the Default MWTM Telnet Path

MWTM provides a default Telnet interface for Telnet sessions, but you can also specify a path to a different Telnet application, if you prefer.

To specify the path to the new Telnet application, use the following procedure:

-
- Step 1** Select **Start > Programs > Cisco MWTM Client > Modify Default MWTM Telnet Path**. MWTM opens a DOS window, and asks you to enter the full Telnet executable pathname.
 - Step 2** Type the new pathname, and press **Enter**. If you do not enter a new pathname, MWTM uses the system default Telnet executable. MWTM asks you to enter any special parameters you want to pass to the new Telnet application. The default is **n**, for no special parameters.

- Step 3** Type the special parameters you want to pass to the new Telnet application, and press **Enter**. MWTM uses the new Telnet application for all Telnet sessions on the MWTM client, such as when you select **View > MWTM Server > Telnet To**.
- Step 4** Close the DOS window.
-

Launching the MWTM DOS Prompt

To launch a DOS prompt for MWTM from the Windows Start menu, select **Start > Programs > Cisco MWTM Client > MWTM DOS Prompt**. MWTM opens a DOS window, starting in the *bin* directory:

- If you installed the MWTM client in the default directory, *C:\Program Files*, then the DOS prompt starts at *C:\Program Files\SGMClient\bin*.
- If you installed the MWTM client in a different directory, then the *bin* directory is located in that directory.

Launching the MWTM SSL Certificate Tool

To launch the MWTM SSL Certificate Tool from the Windows Start menu, select **Start > Programs > Cisco MWTM Client > MWTM SSL Certificate Tool**.

Uninstalling MWTM

You can uninstall MWTM from the Windows Start menu. For details, see the “Uninstalling MWTM” section of the *Cisco Mobile Wireless Transport Manager Installation Guide*.

Viewing the MWTM README File

The MWTM README file contains late-breaking information about MWTM that might not be found in the other product documentation. To open the MWTM README file from the Windows Start menu, select **Start > Programs > Cisco MWTM Client > View README**.

Using the MWTM Command Line Interface

MWTM provides a command line interface that enables you to interact with the MWTM and with the Cisco IOS software operating system by entering commands and optional arguments. For more information, see the [“MWTM Command Reference” section on page C-1](#).

Running Simultaneous MWTM Sessions

MWTM uses a client/server architecture that allows you to run multiple sessions of the MWTM client simultaneously. Central services and database functions are provided on an MWTM server that communicates with multiple MWTM clients. You can install the MWTM client software on the same system as the MWTM server, or on a different system on the same network as the MWTM server.

**Note**

Running more than one MWTM client on the same workstation can degrade the workstation's performance.

MWTM recommends a maximum of 20 clients per MWTM server. If you connect more than 20 clients to a single server, the server requires additional memory and a more powerful CPU.

Exiting the MWTM Client

When you are finished monitoring network performance statistics, you can exit the MWTM client using the following procedure:

-
- Step 1** From the MWTM Main Menu, select **File > Exit**. The Exit MWTM confirmation window is displayed.
- Step 2** Click **Yes** to close the MWTM client application.
-



CHAPTER 4

Working with Views

When MWTM discovers your network, all discovered objects are placed in a DEFAULT configuration view, which is stored on the MWTM server and shared by all MWTM clients. The DEFAULT view that is stored on the MWTM server cannot be modified by the clients. It is always available, for users who need to view the entire network.

Initially, all clients use the DEFAULT view. However, MWTM enables you to create your own, client-specific views, which are subsets of the DEFAULT view, to meet your individual needs.

You can choose the nodes you are interested in managing, remove all other nodes from your view, and change the layout of the topology map in the Topology Window. You can save all of this customized information in a view, set that view as the default view for the MWTM client, and use the MWTM client from then on to manage only the part of the network you are interested in, with the settings you prefer. As soon as you modify the DEFAULT view in any way (except modifying the layout of the topology map in the Topology Window), MWTM prompts you to name the new, custom view.

You can also create many different views on a given MWTM client, with each view devoted to a different aspect of the network. You can then switch between views to manage different parts of the network, or switch to the DEFAULT view to see the entire network. For details on creating views, see [Creating a New View, page 4-31](#).

If a given MWTM client is used by more than one person, each user can create his or her own personal view.

To help you keep track of which view you are currently using, as well as other important information, most MWTM windows display the following information:

- In the title bar, the name of the system on which the MWTM server is running.
- Across the bottom of the window:
 - A “locked padlock” symbol if the MWTM server has a security certificate. To see the certificate, click the symbol.
 - An “unlocked padlock” symbol if the MWTM server does not have a security certificate.
 - The number of objects currently displayed in the window, if any.
 - The number of files currently displayed in the load or save files dialog, if any.
 - Status messages, as appropriate.

Informational messages, such as “Discovery running”, are displayed in black.

Messages that indicate successful actions, such as “View Saved”, are displayed in green.

Error messages, such as “Node does not have a note”, are displayed in red.

There are many fields in MWTM that enable you to enter information, such as a new node name or IP address. If you enter an incorrect value in the field, such as an IP address that contains letters or is too long, MWTM beeps and retains the current value of the field. Check the message bar at the bottom of the window for information and assistance.

- The text **(Modified)**, if the view has been modified but not yet saved. You must save the view if you want to save your changes. See the [“Working with Views” section on page 4-1](#) for more details.

- A “New!” icon, if there is at least one newly discovered node in the network that has not been added to your current view. To add the node to your current view, see the [“Viewing the Topology of the Network” section on page 8-1](#). To exclude the node from your current view, see the [“Working with Views” section on page 4-1](#).

Clicking the “New!” icon in the Topology Window opens the New Objects panel in the left pane. Clicking the “New!” icon in any other window opens the **Edit View** tab of the View Editor Window.

- The name of the current view.
- The name of the current user, or the name of the device the user is using.
- If you have implemented MWTM User-Based Access, the authentication level of the user.

If your personal default view has been deleted, then the next time you launch the client MWTM informs you that your default view has been deleted and that your view has been reset to the DEFAULT view. To choose another view as your default view, use the Load File Dialog: View List. See the [“Loading a Client-Specific View” section on page 4-40](#) for details.

This section includes the following information:

- [Viewing Basic Information for Views, page 4-4](#)
- [Viewing Detailed Information for a View, page 4-9](#)
- [Editing a View, page 4-25](#)
- [Saving a View, page 4-27](#)
- [Viewing Notes for a View, page 4-30](#)
- [Creating a New View, page 4-31](#)
- [Loading the DEFAULT View, page 4-39](#)
- [Loading a Client-Specific View, page 4-40](#)
- [Ignoring a View, page 4-41](#)
- [Viewing Ignored Views, page 4-42](#)

Related Topics:

- [Discovery Overview, page 2-1](#)
- [Changing MWTM Client Preference Settings, page 11-2](#)
- [Changing the Message Display, page 11-27](#)
- [Viewing the Topology of the Network, page 8-1](#)

Viewing Basic Information for Views

To view basic information for views, select **Views** in the left pane of the MWTM Main Window. MWTM displays the View Statistics Window.

The View Statistics Window provides information about all views that have been defined for this MWTM client, including their status and other important information.

The View Statistics Window is composed of the following sections:

- [Right-Click Menu for All Views, page 4-4](#)
- [Right-Click Menu for a Specific View, page 4-5](#)
- [View Table, page 4-6](#)

Related Topics:

- [Viewing Detailed Information for a View, page 4-9](#)
- [Changing MWTM Client Preference Settings, page 11-2](#)
- [Resizing, Sorting, and Hiding Table Columns, page 3-30](#)
- [Using the MWTM Main Menu, page 3-7](#)
- [Viewing Notes for a View, page 4-30](#)

Right-Click Menu for All Views

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

Menu Command	Description
Show In New Window	Opens the View Statistics 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 View

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

Menu Command	Description
Show In New Window	Opens the View Details Window for the selected view in a new window.
Edit > Properties	Opens the Edit Properties Dialog for the selected view. 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 view. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Power User (Level 2) and higher.
Clear Event Icon	Deletes the event icon (orange triangle) from MWTM displays for the selected view, for this MWTM client only. The actual events are not deleted from MWTM, only the event icon for the selected view for this MWTM client. This option is grayed-out if the selected view has no associated event icon.
Delete	Deletes the currently selected view from the MWTM database. MWTM displays the Confirm Deletion dialog: - To delete the selected view, click Yes. The view is deleted from the MWTM database and the Confirm Deletion dialog is closed. - To retain the selected view, click No. The view is kept in the MWTM database and the Confirm Deletion dialog is closed. - 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.

Menu Command	Description
View > Components	Displays the Components panel for the selected view. If there are no components associated with the selected view, this option is grayed-out.
View > Configuration Details	Displays the Configuration Data panel for the selected view.
View > Notes	Displays the Notes panel for the selected view. If there are no notes associated with the selected view, this option is grayed-out.
View > Events	Displays the Recent Events panel for the selected application server process and its associated linksets and links.
View > Center in Topo	Opens the Topology Window, with the display zoomed to center on the selected view. If more than one view contains the selected view, MWTM prompts you to choose one of the views.
View > Open in Topo	Opens the selected view in the Topology Window.
Ignore	Ignores the selected view 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 view 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.

View Table

The view table displays information about the views that have been defined for this MWTM client.

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 view table except **Internal ID** and **Last Status Change**.

- 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 view table contains the following columns:

Column	Description
Internal ID	Internal ID of the view. 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 view.
Subviews	Number of subviews in the view.
Nodes	Number of nodes in the view.
Ignored	Indicates whether the view is to be included when aggregating and displaying MWTM status information: • Clear the checkbox to include the view. This is the default setting. • Select the checkbox to exclude the view. 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 view.
Events	Indicates whether there is a recent event associated with a network object in the view. (Even if the server purges all of the events associated with objects in the view, MWTM continues to display the event icon in this field.) • To delete the event icon (orange triangle) from MWTM displays for a specific view, select the view and click the icon. • To delete the event icon from MWTM displays for all views, select Edit > Clear All Events from the MWTM Main Menu. Note During Discovery, MWTM might flag most views with an event icon. If the event icons are too distracting, use the Edit > Clear All Events menu option to remove them. Changing a view (for example, by ignoring it or attaching a note to it) does not generate an event, and therefore does not cause an event icon to be displayed in this field. Deleting an application server process, node, or signaling point with the Delete menu option does not generate an event, and therefore does not cause an event icon to be displayed in this field. However, if MWTM rediscovers a deleted application server process, node, or signaling point, events are generated and logged for both the deletion and the rediscovery, and the event icon is then displayed in this field.
Last Status Change	Date and time that the status of the view last changed.

Column	Description
Status	Current status of the view. Possible values are: Active Unmanaged Warning For detailed definitions of each status, see the “Status Definitions for Views” section on page A-4.
Status Reason	Reason for the current status of the view. For a full list of possible reasons, see the <i>stateReasons.html</i> file: • If you installed MWTM in the default directory, <i>/opt</i>, then the file is located at <i>/opt/CSCOs/gm/apache/share/htdocs/eventHelp</i> 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 View

MWTM can display detailed information about a selected view, including its associated objects, status, and other information.

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

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

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

MWTM displays the View Details Window.

The View Details Window is composed of the following sections:

- [View Details: Right-Click Menu, page 4-10](#)
- [View Details: Components, page 4-12](#)
- [View Details: Configuration Data, page 4-17](#)
- [View Details: Notes, page 4-19](#)

- [View Details: Recent Events, page 4-19](#)
- [View Details: Alarms, page 4-22](#)

Related Topics:

- [Viewing Basic Information for Views, page 4-4](#)

View Details: Right-Click Menu

The View Details Window provides a right-click menu. To see this menu for a view, select a view 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 View Details Window for the selected view in a new window.
Edit > Properties	Opens the Edit Properties Dialog for the selected view. 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 view. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Power User (Level 2) and higher.
Clear Event Icon	Deletes the event icon (orange triangle) from MWTM displays for the selected view, for this MWTM client only. The actual events are not deleted from MWTM, only the event icon for the selected view for this MWTM client. This option is grayed-out if the selected view has no associated event icon.

Menu Command	Description
Delete	Deletes the currently selected view from the MWTM database. MWTM displays the Confirm Deletion dialog: - To delete the selected view, click Yes. The view is deleted from the MWTM database and the Confirm Deletion dialog is closed. - To retain the selected view, click No. The view is kept in the MWTM database and the Confirm Deletion dialog is closed. - 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 > <i>List of Windows</i>	Navigates back to a window viewed in this session. MWTM maintains a list of up to 10 Back windows.
Forward > <i>List of Windows</i>	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 view. If there are no components associated with the selected view, this option is grayed-out.
View > Configuration Details	Displays the Configuration Data panel for the selected view.
View > Notes	Displays the Notes panel for the selected view. If there are no notes associated with the selected view, this option is grayed-out.
View > Events	Displays the Recent Events panel for the selected application server process and its associated linksets and links.
View > Center in Topo	Opens the Topology Window, with the display zoomed to center on the selected view. If more than one view contains the selected view, MWTM prompts you to choose one of the views.
View > Open in Topo	Opens the selected view in the Topology Window.

Menu Command	Description
Ignore	Ignores the selected view 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 view 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.

View Details: Components

The View Details: Components section is composed of the following sub-sections:

- [Subviews, page 4-12](#)
- [Nodes, page 4-14](#)



Note

If the view does not contain any objects of a given type, MWTM does not display that tab.

Subviews

The subview table displays information about the subviews that have been defined for this MWTM client.



Note

Subviews are created within the View Editor window, using the **Edit > Create Subview** menu option (for details, see [Creating a New View, page 4-31](#)).

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 subview table.

- 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 subview table contains the following columns:

Column	Description
Internal ID	Internal ID of the subview. 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 subview.
Subviews	Number of subviews in the subview.
Nodes	Number of nodes in the subview.
Ignored	Indicates whether the subview is to be included when aggregating and displaying MWTM status information: • Clear the checkbox to include the subview. This is the default setting. • Select the checkbox to exclude the subview. 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 subview.
Events	Indicates whether there is a recent event associated with a network object in the subview. (Even if the server purges all of the events associated with objects in the subview, MWTM continues to display the event icon in this field.) • To delete the event icon (orange triangle) from MWTM displays for a specific subview, select the subview and click the icon. • To delete the event icon from MWTM displays for all subviews, select Edit > Clear All Events from the MWTM Main Menu. Note During Discovery, MWTM might flag most subviews with an event icon. If the event icons are too distracting, use the Edit > Clear All Events menu option to remove them. Changing a subview (for example, by ignoring it or attaching a note to it) does not generate an event, and therefore does not cause an event icon to be displayed in this field. Deleting an application server process, node, or signaling point with the Delete menu option does not generate an event, and therefore does not cause an event icon to be displayed in this field. However, if MWTM rediscovers a deleted application server process, node, or signaling point, events are generated and logged for both the deletion and the rediscovery, and the event icon is then displayed in this field.
Last Status Change	Date and time that the status of the subview last changed.

Column	Description
Status	Current status of the subview. Possible values are: Active Unmanaged Warning For detailed definitions of each status, see the “Status Definitions for Views” section on page A-4.
Status Reason	Reason for the current status of the subview. For a full list of possible reasons, see the <i>stateReasons.html</i> file: • If you installed MWTM in the default directory, <i>/opt</i>, then the file is located at <i>/opt/CSCOs/gm/apache/share/htdocs/eventHelp</i> 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.

Nodes

The node table displays information about the nodes that are associated with the selected view.

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**, and **Last Status Change**.

- 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 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.
IOS MIB Level	MIB conformance level used by the RAN-O device, such as GSM RAN .
Router Uptime	Time the router has been up, in days, hours, minutes, and seconds.
Reboot Reason	Reason for the last reboot of the router device.
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.
Notes	Indicates whether there is a note associated with the node.

Column	Description
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.
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 <i>stateReasons.html</i> file: - If you installed MWTM in the default directory, <i>/opt</i>, then the file is located at <i>/opt/CSCOs/gm/apache/share/htdocs/eventHelp</i> 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.

View Details: Configuration Data

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

- [Naming Information, page 4-17](#)
- [Status Information, page 4-17](#)

Naming Information

The Naming Information sub-section contains the following fields:

Field	Description
Name	Name of the view.
Is Ignored	Indicates whether the view is Ignored (that is, whether the view is to be included when aggregating and displaying MWTM status information).
Last Status Change	Date and time that the status of the view last changed.
Status	Current status of the view. Possible values are: Active Unmanaged Warning For detailed definitions of each status, see the “Status Definitions for Views” section on page A-4 .
Status Reason	Reason for the current status of the view. For a full list of possible reasons, see the <i>stateReasons.html</i> file: • If you installed MWTM in the default directory, <i>/opt</i>, then the file is located at <i>/opt/CSCOs/gm/apache/share/htdocs/eventHelp</i> 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.

Status Information

The Status Information table provides basic summary information about network objects in this view 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 Status Information table except **Linksets** and **Links**.

- 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 Status Information table contains the following columns:

Column	Description
Status	Current status of the network objects. Possible values are: Unknown Unavailable Inactive Failed Down Blocked Pending Warning Shutdown InhibitLoc InhibitRem Discovering Polling Waiting Unmanaged Active For detailed definitions of each status for each type of network object, see the “MWTM Status Definitions” section on page A-1.
Total	Total number of discovered objects with the indicated status.
Nodes	Total number of discovered nodes with the indicated status.

View Details: Notes

The View Details: Notes section displays:

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

Related Topics:

- [Attaching a Note to a View, page 4-27](#)
- [Viewing Notes for a View, page 4-30](#)

View Details: Recent Events

The View Details: Recent Events table displays about all recent events associated with the view, 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**, and **Node**.

- 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 View 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 objects. The filter is not activated in Recent Events tables in Show In New Window windows or Real-Time Data and Charts windows.

Toolbar Button or Column	Description
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.
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.

Toolbar Button or Column	Description
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.
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.
Time	Date and time the event was logged.
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.

Toolbar Button or Column	Description
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.

View Details: Alarms

The View Details: Alarms table provides basic information about all currently active alarms in your network, that are not excluded from your current view. MWTM updates the information in the window at least once every minute.

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 **Age**, with the most recent alarms at the top, and MWTM displays all of the columns in the table except **Last Status Change**.

- 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 active alarms table contains the following columns:

Column	Description
Type	Type of network object associated with the selected alarm. To see all higher-level alarms associated with the network object, select the turner beside the object. MWTM displays the higher-level alarms below the selected alarm. For example, if you select the turner beside a link, MWTM displays the alarms for the linkset, signaling point, and node associated with that link.
Name	Name of the network object associated with the selected alarm.

Column	Description
Status	Current status of the network object associated with the selected alarm. Possible values are: Unknown Unavailable Inactive Failed Down Blocked Pending Warning Shutdown InhibitLoc InhibitRem Discovering Polling Waiting Unmanaged Active For detailed definitions of each status for each type of network object, see the “MWTM Status Definitions” section on page A-1.
Status Reason	Reason for the current status of the network object associated with the selected alarm. For a full list of possible reasons, see the <i>stateReasons.html</i> file: • If you installed MWTM in the default directory, <i>/opt</i>, then the file is located at <i>/opt/CSCOs/gm/apache/share/htdocs/eventHelp</i> 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.

Column	Description
Last Status Change	Date and time that the status of the network object associated with the selected alarm last changed.
Age	Age of the selected alarm, in days, hours, and minutes.

The active alarms table provides a subset of the MWTM Main Menu as a right-click menu. To see this menu, select an alarm and click the right mouse button. The alarm right-click menu provides the same options as the right-click menu for the associated network object, plus the following additional options:

Menu Command	Description
Expand All	Displays all higher-level alarms associated with all network objects in the active alarms table.
Collapse All	Does not display higher-level alarms in the active alarms table.

**Caution**

The alarms displayed in the active alarms table are the actual network objects in MWTM. Options you select in the right-click menu affect the object in MWTM. For example, if you delete a node in the active alarms table, you delete that node from the MWTM database.

Editing a View

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

- [Editing View Properties, page 4-25](#)
- [Attaching a Note to a View, page 4-27](#)

Editing View Properties

MWTM enables you to change the name and icon name associated with a view.

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

The Edit Properties Dialog contains the following fields and buttons:

Field or Button	Description
Name	Name of the view. You can also use this field to specify a new, more meaningful name for the view. The new name can be from 1 to 30 characters, and can contain any letters, numbers, or special characters. When you click Save, all MWTM windows are updated automatically to reflect the new name.
Icon Name	Name of the graphic icon to assign to this view in topology maps. MWTM automatically assigns an appropriate icon to each discovered Cisco device, and to Unknown nodes, but you can use this field to assign a different icon. Valid values for RAN-O networks include: • BSC—Base Station Controller • BTS—Base Transceiver Station • Building—Icon representing a collection of objects within a building • CiscoMWR1900—Cisco Mobile Wireless Router 1900
Icon Name (continued)	• City—Icon representing a collection of objects within a city • Cloud—Collection of 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—Radio transmission/reception unit for communication between radio cells in UMTS network • RNC—Radio Network Controller used in UMTS network • 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 or signaling point 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 view information, updates all MWTM windows to reflect your changes, and exits the dialog.
Restore	Restores changes you have made to the Name and Icon Name fields of the Edit Properties Dialog, and leaves the dialog open.
Cancel	Exits the dialog without saving any changes.
Help	Displays online help for the dialog.

Related Topics:

- [Editing a View, page 4-25](#)
- [Viewing Notes for a View, page 4-30](#)

Attaching a Note to a View

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

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

If you add notes to the DEFAULT view, you are prompted to save the view under a different name, since customization to the DEFAULT view is not allowed (for more details on saving views, see [Saving a View, page 4-27](#).)

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

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

Related Topics:

- [Viewing Basic Information for Views, page 4-4](#)
- [Viewing Detailed Information for a View, page 4-9](#)
- [Viewing Notes for a View, page 4-30](#)

Saving a View

MWTM enables you to save a specific view, change the list of views, and select one view to be loaded automatically when the associated preferences file is saved.

When you are satisfied with the changes you have made to a view, use one of the following procedures to save the view:

- To save the changes you have made to the view without changing the name of the file, select **File > Save** from the View Editor Window menu.

**Note**

You cannot save changes to the DEFAULT view. If you are currently using the DEFAULT view and you select **File > Save**, MWTM displays the Save File Dialog: View List dialog .

- To save the changes you have made to the view with a new name, select **File > Save As** from the Discovery Dialog menu. MWTM displays the Save File Dialog: View List dialog .

MWTM stores the view in the view file directory on the MWTM server:

- If you installed MWTM in the default directory, */opt*, then the MWTM view file directory is */opt/CSCOs-gm/views*.
- If you installed MWTM in a different directory, then the MWTM view file directory is located in that directory.



Note

If another user modifies and saves the view before you save your changes, MWTM asks if you want to overwrite that user's changes. If you choose to do so, the other user's changes are overwritten and lost. If you choose not to do so, your changes are lost, unless you save the view to a different filename.

The Save File Dialog: View List contains the following fields and buttons:

Field or Button	Description
Type	Icon indicating whether the item in the table is a file or a folder.
Name	Name of the view file or folder.
Last Modified	Date and time the view file or folder was last modified.
Size (bytes)	Size of the view file or folder, in bytes.
Filename	Name by which you want to save the view. You must specify a name other than DEFAULT. You cannot save changes to the DEFAULT view. When you create a new view file name, you can use any letters, numbers, or characters in the name that are allowed by your operating system. However, if you include any spaces in the new name, MWTM converts those spaces to dashes. For example, MWTM saves file "a b c" as "a-b-c".
Make this my preferred startup option	Specifies whether the selected view is to be loaded automatically whenever the associated preferences file is loaded: • To load the saved view, select the view, then select this checkbox. • To load the last-used view, clear the checkbox. This is the default setting.
Number of Files (displayed in bottom left corner)	Total number of view files and folders.

Field or Button	Description
OK	Saves any changes you made to the current named view or to the list of views and closes the dialog. To save the view with a new name, use one of the following procedures: • To save the file with a completely new name, enter the new name and click OK. • To save the file with an existing name, overwriting an old view, select the name in the list and click OK. MWTM saves the view with the new name, closes the Save File Dialog: View List dialog, and returns to the Discovery Dialog. To save any changes you made to the list of files, click OK. MWTM saves the changes and closes the Load File Dialog: View List dialog.
Delete	Deletes the selected file from the view list. MWTM issues an informational message containing the name and location of the deleted file.
Cancel	Closes the dialog without saving the view or any changes to the view list.
Help	Displays online help for the dialog.

Related Topics:

- [Working with Views, page 4-1](#)

Viewing Notes for a View

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

To view a note for a view, right-click a view 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 view.)

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

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

Related Topics:

- [Editing a View, page 4-25](#)

Creating a New View

MWTM enables you to specify the nodes you want to see in MWTM displays. This is called a client-specific network view. All changes you make are reflected in topology tables and maps as soon as you make the changes.

Before creating a client-specific network view, make sure that Discovery has been run at least once, and there is data in the server's MWTM database. See the [“Discovery Overview” section on page 2-1](#) for details.

To create a client-specific network view, select **Edit > Views** from the MWTM Main Menu. MWTM displays the View Editor Window.

The View Editor Window displays two tabs, **Edit View** and **Import Views**:

- The **Edit View** tab provides the following information:
 - All objects that are in the current view.
 - All objects that have been excluded from the current view.
 - New objects that have been found by MWTM.
- The **Import Views** tab provides the following information:
 - All views currently defined on this MWTM client.
 - Data about the views.

The View Editor Window also enables you to move objects into and out of the current view. All changes made in this window are reflected in the MWTM client and in the topology tables and maps as soon as you make the changes.

The View Editor Window is composed of the following sections:

- [View Editor Window Menu, page 4-32](#)
- [Objects In Current View \(Left Pane\), page 4-33](#)
- [Excluded from View Panel, page 4-35](#)
- [New on the Network Panel, page 4-36](#)
- [Views List Panel, page 4-37](#)
- [View Data Panel, page 4-39](#)
- [Directory Listing Panel, page 4-39](#)
- [Closing the View Editor Window, page 4-39](#)

Related Topics:

- [Changing the Message Display, page 11-27](#)
- [Changing MWTM Client Preference Settings, page 11-2](#)
- [Viewing the Topology of the Network, page 8-1](#)

View Editor Window Menu

The menu on the View Editor Window provides the following options:

Menu Command	Description
File > Load DEFAULT View	Loads the DEFAULT view, which is the view into which MWTM places all discovered objects when discovering the network. The DEFAULT view is stored on the MWTM server and shared by all MWTM clients, but it cannot be modified by the clients.
File > Load (Ctrl-L)	Loads an already existing view. If you have already saved a view and you want to change it, select the File > Load menu option. MWTM prompts you for the name of the view you want to load: - Select the name of the view, or accept the default view name, then click OK to load the view. - Click Cancel to close the prompt window without loading a view.
File > Save (Ctrl-S)	Saves the current view: - If you have not already saved the current view, opens the Save File Dialog: View List, which enables you to enter or select a file name under which to save the current view. - If you have already saved the current view, saves the view to that file name. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Power User (Level 2) and higher.
File > Save As	Opens the Save File Dialog: View List, which enables you to save changes you have made to the selected view with a new name, or overwrite an existing seed file. The view is updated immediately in the MWTM client. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Power User (Level 2) and higher.
File > Close (Ctrl-W)	Closes the View Editor Window. If you have modified the view, MWTM asks if you want to save your changes. - Click Yes to save your changes to the current view. - Click No to keep the current view as-is, without applying any changes. MWTM closes the View Editor Window. - Click Cancel to close the prompt window and return to the View Editor Window without applying any changes to the current view.
Edit > Create Subview (Ctrl-N)	Creates a new subview for the selected view or subview. Enter a name for the new subview.
Edit > Rename View (Ctrl-R)	Enables you to rename the selected view. The new name can be from 1 to 30 characters, and can contain any letters, numbers, or special characters.
Edit > Include In View (Ctrl-I)	Enables you to include the selected object in the view.

Menu Command	Description
Edit > Exclude From View (Alt-X)	Enables you to exclude the selected object from the view.
Edit > Delete View (Ctrl-D)	Deletes the selected view.
Edit > Cut (Alt-X)	Cuts the selected object from the view.
Edit > Copy (Alt-C)	Copies the selected object or view.
Edit > Paste (Alt-V)	Pastes a cut or copied object or view into the selected view.
Help > Topics (F1)	Displays the table of contents for the MWTM online help.
Help > Window (Shift-F1)	Displays online help for the current window.
Help > About (F3)	Displays build date, version, SSL support, and copyright information about the MWTM application.

Objects In Current View (Left Pane)

The left pane of the View Editor Window lists the nodes that are in the current view.

To see the objects that are associated with a node, and that are in the current view, select the turner beside the node.

To exclude any of these objects from the current view, select them in the left pane, then select **Edit > Exclude From View** to move them to the Excluded From View panel of the View Editor Window.



Note

If you are using an MWTM client with the DEFAULT view set, MWTM automatically adds all newly discovered objects to the left pane as soon as they are discovered.

If you delete an object, MWTM removes it from the left pane. If MWTM then discovers the object, MWTM places it in the New on the Network panel. To see this object again in your current view, you must move it into the left panel using **Edit > Include In View** from the View Editor Window.

The left pane of the View Editor Window provides the following right-click menus:

- [Objects in Current View Right-Click Menu for a View, page 4-33](#)
- [Objects in Current View Right-Click Menu for a Subview, page 4-34](#)
- [Objects in Current View Right-Click Menu for an Object, page 4-35](#)

Objects in Current View Right-Click Menu for a View

The right-click menu for a view in the left pane of the View Editor Window provides the following options:

Menu Command	Description
Create Subview	Creates a new subview for the selected view. Enter a name for the new subview.
Rename View	Enables you to rename the selected view. The new name can be from 1 to 30 characters, and can contain any letters, numbers, or special characters.
Copy	Copies the selected view.
Paste	Pastes a cut or copied object or view into the selected view.

Objects in Current View Right-Click Menu for a Subview

The right-click menu for a subview in the left pane of the View Editor Window provides the following options:

Menu Command	Description
Create Subview	Creates a new subview for the selected subview. Enter a name for the new subview.
Rename View	Enables you to rename the selected subview. The new name can be from 1 to 30 characters, and can contain any letters, numbers, or special characters.
Delete From View	Deletes the selected subview from the view or subview.
Export View	Opens the Save File Dialog: View List dialog , which enables you to save the subview as a unique view.
Copy	Copies the selected subview.
Paste	Pastes a cut or copied object or view into the selected subview.

Objects in Current View Right-Click Menu for an Object

The right-click menu for an object in the left pane of the View Editor Window provides the following options:

Menu Command	Description
Exclude From View	Excludes the selected object, and any lower-level associated objects, from the view or subview.
Cut	Cuts the selected object from the view or subview.
Copy	Copies the selected object.

Excluded from View Panel

The Excluded from View panel lists the objects that have been excluded from the current view. To add these objects to the current view, select them in the Excluded from View panel, then select **Edit > Include In View** to move them to the left pane of the View Editor Window.

The Excluded from View panel provides the following right-click options for an object:

Menu Command	Description
Include In View	Includes the selected object, and any lower-level associated objects, in the selected view or subview.
Copy	Copies the selected object.

New on the Network Panel

The New on the Network panel displays newly discovered objects, based on the following criteria:

- If you are using an MWTM client with the DEFAULT view set, this table never contains any objects. In the DEFAULT view, MWTM adds all newly discovered objects to the left pane of the View Editor Window as soon as they are discovered.
- If you are using an MWTM client with a custom view set, this table contains all objects discovered since the View Editor Window was opened in this session, that have *not* been excluded in the Excluded from View panel, or that are not in the current view.

When MWTM discovers one or more new objects in the network, MWTM also takes the following actions:

- MWTM broadcasts the discovery of the new objects to all MWTM clients.
- MWTM displays a “New!” icon in the bottom of most MWTM windows. Clicking the “New!” icon in the Topology Window opens the New Objects panel in the left pane. Clicking the “New!” icon in any other window opens the **Edit View** tab of the View Editor Window.
- MWTM adds graphical elements for the newly discovered objects to the New Objects panel in the left pane of the Topology Window. For more information, see the [“Displaying the Topology New Objects Panel” section on page 8-17](#).

To add a newly discovered object to the current view, select one or more objects in the New on the Network panel, then select **Edit > Include In View** to move them to the left pane of the View Editor Window.

To exclude a newly discovered object from the current view, select one or more objects in the New on the Network panel, then select **Edit > Exclude From View** to move them to the Excluded From View panel of the View Editor Window.

The New on the Network panel provides the following right-click options for an object:

Menu Command	Description
Include In View	Includes the selected object, and any lower-level associated objects, in the selected view or subview.
Exclude From View	Excludes the selected object, and any lower-level associated objects, from the view or subview.
Copy	Copies the selected object.

Views List Panel

The Views List panel is found under the Import Views tab of the View Editor window. The Views List panel lists all views that are currently defined on this MWTM client. Note that if you have no views defined, this list will be empty.

To see mouse over help popup for each column in the Views List panel, 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 **Name**, and MWTM displays all of the columns in the Views List panel.

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

See the [“Resizing, Sorting, and Hiding Table Columns” section on page 3-30](#) for more information about resizing, sorting, displaying, or hiding columns.

The Views List panel contains the following columns:

Column	Description
Type	Indicates whether the selected name is a directory or a file.
Name	Name of the view.
Last Modified	Date and time the view was last modified.
Size (bytes)	Size of the view in bytes.

The Views List panel provides the following right-click menu option for views:

Menu Command	Description
Import View	Copies the selected view into the view or subview that is currently selected in the left pane of the View Editor Window.
Delete View	Deletes the selected folder, view, or subview. (You can delete a folder only if it contains no views or subviews.)

The Views List panel provides the following right-click menu option for folders:

Menu Command	Description
Open View	Opens the selected folder, displaying views contained in the folder in the Views List panel.

View Data Panel

The View Data panel lists all subviews and objects that are in the view that is selected in the Views List panel. If you have not saved a view yet, and there are no views in the Views List panel, this panel does not appear.

The View Data panel provides the following right-click menu option for views and subviews:

Menu Command	Description
Import View	Copies the selected view or subview into the view or subview that is currently selected in the left pane of the View Editor Window.

Directory Listing Panel

The Directory Listing panel lists all subfolders that are in the folder that is selected in the Views List panel. If there are no views in the Views List panel, or if a folder (not a file) exists in the Views List panel, the Directory Listing panel is displayed. If there are only files in the Views List panel, the Directory Listing panel does not appear.

To see the Directory Listing panel, select a folder in the Views List panel.

Closing the View Editor Window

To close the View Editor Window at any time, click **File > Close**. If you have modified the view, MWTM asks if you want to apply the changes before leaving the window:

- Click **Yes** to apply the changes to the current view. MWTM applies the changes to all MWTM windows immediately. MWTM then asks if you want to make this the default view:
 - Click **Yes** to make this view the new default view. In the future, when this client is started, this will be the default view.
 - Click **No** to retain your old default view.

MWTM closes the View Editor Window.

- Click **No** to keep the current view as-is, without applying any changes. MWTM closes the View Editor Window.
- Click **Cancel** to close the prompt window and return to the View Editor Window without applying any changes to the current view.

If you are working in a custom view (that is, not in the DEFAULT view) and you exit the MWTM client, MWTM automatically saves any changes you made to the view.

Loading the DEFAULT View

To load the DEFAULT network view, select **File > Load DEFAULT View** from the MWTM Main Menu. You may be prompted to save the view you are currently in. Once you have chosen whether or not to save your current view, MWTM loads the DEFAULT view.

**Note**

Any custom views are saved in the View Editor window (Import Views tab) found under the **Edit > Views** option in the MWTM Main window.

Loading a Client-Specific View

MWTM enables you to load a specific view, change the list of views, and select one view to be loaded automatically when the associated preferences file is loaded.

To load a client-specific network view, select **Edit > Views** from the MWTM Main Menu. MWTM displays the View Editor Window. Then select **File > Load** from the View Editor Window menu. MWTM displays the Load File Dialog: View List dialog.

The Load File Dialog: View List contains the following fields and buttons:

Field or Button	Description
Type	Icon indicating whether the item in the table is a file or a folder.
Name	Name of the view file or folder.
Last Modified	Date and time the view file or folder was last modified.
Size (bytes)	Size of the view file or folder, in bytes.
Make this my preferred start option	Specifies whether the selected view is to be loaded automatically whenever the associated preferences file is loaded: - To load the selected view, select the view, then select this checkbox. - To load the last-used view, clear the checkbox. This is the default setting.
Number of Files (displayed in bottom left corner)	Total number of view files and folders.
OK	Loads the selected view, saves any changes you made to the list of views, closes the dialog, and returns to the View Editor Window. To load a view, double-click it in the list, select it in the list and click OK, or enter the name of the view and click OK. Note If the network elements belonging to a client-specific view have been removed from the network, a message displays when you load the view. The message warns you that the network elements have been removed from the view. To prevent the warning from being issued the next time you load the view, save the view using the same name (File > Save from the View Editor Window).
Delete	Deletes the selected file from the view list. MWTM issues an informational message containing the name and location of the deleted file.

Field or Button	Description
Cancel	Closes the dialog without loading a view or saving any changes to the view list.
Help	Displays online help for the dialog.

Related Topics:

- [Working with Views, page 4-1](#)

Ignoring a View

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

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

**Note**

If you set a view to **Ignored**, the view is ignored for only the current MWTM client.

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

You cannot ignore the DEFAULT view.

To set a view to **Ignored**, select the **Ignored** checkbox in the View Window for the view you want MWTM to ignore.

Viewing Ignored Views

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



CHAPTER 5

Working with Events

MWTM enables you to view information about all discovered events, including their associated network objects and other information.

This chapter includes the following information:

- [Viewing Basic Information for All Events, page 5-1](#)
- [Viewing Events for a Specific Object, page 5-7](#)
- [Viewing Detailed Information for an Event, page 5-7](#)
- [Setting an Event Filter, page 5-8](#)
- [Loading an Existing Event Filter, page 5-12](#)
- [Saving an Event Filter File, page 5-13](#)
- [Viewing Event Properties, page 5-15](#)
- [Attaching a Note to an Event, page 5-16](#)
- [Viewing Notes for an Event, page 5-17](#)
- [Changing the Way MWTM Processes Events, page 5-17](#)
- [Forwarding Events as Traps to Other Hosts, page 5-35](#)
- [Setting Sounds for Events at an MWTM Client, page 5-36](#)

Related Topics:

- [Changing MWTM Client Preference Settings, page 11-2](#)
- [Viewing the Topology of the Network, page 8-1](#)
- [Working with Nodes, page 6-1](#)

Viewing Basic Information for All Events

To view basic information for all events, select **Events** in the left pane of the MWTM Main Window. MWTM displays the Event Window.

The Event Window displays information about the events delivered by the MWTM event logger and event processor for all objects in the current network view.

**Note**

You can display more than one Event Window at one time. This enables you to view multiple Event Windows at the same time, with different event filtering in each window or dialog.

The Event Window is composed of the following sections:

- [Event Toolbar Buttons, page 5-2](#)
- [Right-Click Menu for All Events, page 5-3](#)
- [Right-Click Menu for a Specific Event, page 5-3](#)
- [Event Table, page 5-5](#)

Event Toolbar Buttons

The Event Window provides the following toolbar buttons:

Button	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 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.

Button	Description
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.

Right-Click Menu for All Events

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

Menu Command	Description
Show In New Window	Opens the Event 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 Event

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

Menu Command	Description
Edit Notes	Opens the Edit Event Dialog for the selected event.
Go To > Object	Displays the Node Window for the node or Interface Window for the interface associated with the selected event. If there is no object associated with the event, this option is not displayed.
View > Configuration Details	Displays the Details window for the object associated with the selected event.
View > Notes	Displays the Event Notes dialog for the selected event. If there are no notes associated with this event, this option is grayed-out.
View > Center in Topo	Opens the Topology Window, with the display zoomed to center on the object associated with the selected event. If more than one view contains the object associated with the selected event, MWTM prompts you to choose one of the views.
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 object associated with selected event.
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 object associated with selected event.
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 object associated with selected event.
Event History > Network Status Metrics	Displays the MWTM Network Status Log for Metrics in a Web browser, with metrics displayed for only the object associated with selected event.
Node Drill-Down > Show Syslog Messages	Displays the Node Details: Syslog table, which polls the node associated with the selected event and displays all messages in its system log. This option is not available if the node is in Unknown or Unmanaged status.
Node Drill-Down > Show CPU Processes	Opens the Node Details: CPU Processes panel, which polls the node associated with the selected event for information about its CPU processes. This option is not available if the node is in Unknown or Unmanaged status.

Menu Command	Description
Node 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.
Acknowledge	Makes the event acknowledged, which means that it has been received and processed.
Unacknowledge	Makes a previously acknowledged event unacknowledged.
Event Properties	Opens the Event Properties window.
Create Sound Filter	Opens the Event Sound Filters dialog and the Event Sound Filters List dialog, with fields populated based on the selected event.
Help for Event	Displays context-sensitive help for the selected event in a separate Web browser.

Event Table

The event table displays information about events delivered by the MWTM event logger and event processor.

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 event table except **Internal ID**, **Note**, **Message Name**, **Ack By**, **Ack Time**, **Node**, and **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.

To see detailed information about an event, right-click the event in a window, then select **Event Properties** in the right-click menu.

The event table contains the following columns:

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.
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.

Column	Description
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	Message associated with the event. You can customize this field. See the “Changing the Way MWTM Processes Events” section on page 5-17 for more information.
Router Interface	Name of the router interface associated with the event. If there is no router interface associated with the event, None is displayed.

Viewing Events for a Specific Object

MWTM enables you to view events for only a selected object. To do so, right-click an object in a window, then select **View > Events** from the right-click menu. MWTM displays recent events for the selected object. For more information, see the following sections:

- [Node Details: Recent Events, page 6-38](#)
- [View Details: Recent Events, page 4-19](#)

Viewing Detailed Information for an Event

MWTM enables you to view detailed configuration information for the object associated with a specific event.

To display detailed information for an event, select **Events** in the left pane of the MWTM Main Window, right-click an event in a window, then select **View > Configuration Details** in the right-click menu. MWTM displays detailed information for the selected object. For more information, see the following sections:

- [Viewing Detailed Information for a Node, page 6-10](#)
- [Viewing Detailed Information for a View, page 4-9](#)

Setting an Event Filter

MWTM enables you to change the way it presents event information.

To change the way MWTM presents event information, select the **Set Filter** button at the top of the Event Window. MWTM displays the Event Filter dialog with the **Properties** tab selected.

The Event Filter dialog is composed of the following sections:

- [Event Filter Buttons, page 5-8](#)
- [Properties Settings, page 5-8](#)
- [Selected Objects Settings, page 5-11](#)

Related Topics:

- [Loading an Existing Event Filter, page 5-12](#)
- [Saving an Event Filter File, page 5-13](#)
- [Viewing Event Properties, page 5-15](#)

Event Filter Buttons

The Event Filter dialog contains the following buttons:

Button	Description
OK	Applies any changes you made to the event filter and closes the Event Filter dialog.
Load	Opens the Load File Dialog: Load Filter, which enables you to load an already existing event filter file. If you are viewing events for a specific object in the left pane of the MWTM Main Window, this button is not available.
Save	Opens the Save File Dialog: Save Filter, which enables you to save the event filter file with a new name, or overwrite an existing event filter file. If you are viewing events for a specific object in the left pane of the MWTM Main Window, this button is not available.
Cancel	Closes the Event Filter dialog without applying any changes to the event filter.
Help	Displays online help for the current dialog.

Properties Settings

The Properties settings in the Event Filter dialog enable you to specify the types of event MWTM is to display in the Event Window, including the category and severity of event, whether the event is acknowledged, and other properties.

To display the Properties settings, select the **Properties** tab in the Event Filter dialog.

The Properties settings contain the following sections:

- [Categories, page 5-9](#)
- [Severities, page 5-10](#)

- [Other, page 5-10](#)

Categories

Use the Categories section of the Properties settings to specify which event categories you want to display in the Event Window.

The Categories section contains the following default fields and buttons.



Note

These are the default categories; there might be additional categories, as defined by the MWTM system administrator. For information about custom categories, see the [“Changing Event Categories” section on page 5-23](#).

Field or Button	Description
Status	Checkbox used to indicate whether Status events are to be displayed in the Event Window. The default setting for this checkbox is selected.
Trap	Checkbox used to indicate whether Trap events are to be displayed in the Event Window. The default setting for this checkbox is selected.
Create	Checkbox used to indicate whether Create events are to be displayed in the Event Window. The default setting for this checkbox is selected.
Delete	Checkbox used to indicate whether Delete events are to be displayed in the Event Window. The default setting for this checkbox is selected.
Discover	Checkbox used to indicate whether Discover events are to be displayed in the Event Window. The default setting for this checkbox is selected.
Edit	Checkbox used to indicate whether Edit events are to be displayed in the Event Window. The default setting for this checkbox is selected.
Ignore	Checkbox used to indicate whether Ignore events are to be displayed in the Event Window. The default setting for this checkbox is selected.
Login	Checkbox used to indicate whether Login events are to be displayed in the Event Window. The default setting for this checkbox is selected.
LoginDisable	Checkbox used to indicate whether LoginDisable events are to be displayed in the Event Window. The default setting for this checkbox is selected.
LoginFail	Checkbox used to indicate whether LoginFail events are to be displayed in the Event Window. The default setting for this checkbox is selected.
Logout	Checkbox used to indicate whether Logout events are to be displayed in the Event Window. The default setting for this checkbox is selected.
OverWrite	Checkbox used to indicate whether OverWrite events are to be displayed in the Event Window. The default setting for this checkbox is selected.
Poll	Checkbox used to indicate whether Poll events are to be displayed in the Event Window. The default setting for this checkbox is selected.
Purge	Checkbox used to indicate whether Purge events are to be displayed in the Event Window. The default setting for this checkbox is selected.
Select All	Selects all event category checkboxes.
Deselect All	Clears all event category checkboxes.

Severities

Use the Severities section of the Properties settings to specify which event severities you want to display in the Event Window.

The Severities section contains the following default fields.



Note

These are the default severities; there might be additional severities, as defined by the MWTM system administrator. For information about custom severities, see the [“Changing Event Severities and Colors” section on page 5-24](#).

Field	Description
Informational	Checkbox used to indicate whether events of severity Informational are to be displayed in the Event Window. The default setting for this checkbox is selected.
Normal	Checkbox used to indicate whether events of severity Normal are to be displayed in the Event Window. The default setting for this checkbox is selected.
Indeterminate	Checkbox used to indicate whether events of severity Indeterminate are to be displayed in the Event Window. The default setting for this checkbox is selected.
Warning	Checkbox used to indicate whether events of severity Warning are to be displayed in the Event Window. The default setting for this checkbox is selected.
Critical	Checkbox used to indicate whether events of severity Critical are to be displayed in the Event Window. The default setting for this checkbox is selected.
Minor	Checkbox used to indicate whether events of severity Minor are to be displayed in the Event Window. The default setting for this checkbox is selected.
Major	Checkbox used to indicate whether events of severity Major are to be displayed in the Event Window. The default setting for this checkbox is selected.

Other

Use the Other section of the Properties settings to further define the event filter for the Event Window. These settings are applied to all event displays in the current view.

The Other section contains the following fields:

Field	Description
Acknowledged	Checkbox used to indicate whether only acknowledged events are to be displayed in the Event Window. The default setting for this checkbox is cleared.
Unacknowledged	Checkbox used to indicate whether only unacknowledged events are to be displayed in the Event Window. The default setting for this checkbox is selected.
Time Before	Checkbox used to indicate whether only events logged by MWTM prior to a specified date and time are to be displayed in the Event Window. The default setting for this checkbox is cleared.

Field	Description
Time Before Field	Specifies the date and time prior to which events logged by MWTM are to be displayed in the Event Window. This field is grayed-out unless the Time Before checkbox is selected.
Time After	Checkbox used to indicate whether only events logged by MWTM after a specified date and time are to be displayed in the Event Window. The default setting for this checkbox is cleared.
Time After Field	Specifies the date and time after which events logged by MWTM are to be displayed in the Event Window. This field is grayed-out unless the Time After checkbox is selected.
Message Contains	Checkbox used to indicate whether only events that contain the specified message text are to be displayed in the Event Window. The default setting for this checkbox is cleared.
Match Case	Checkbox used to indicate whether only events that match the case of the text in the Message Contains field are to be displayed in the Event Window. This field is grayed-out unless the Message Contains checkbox is selected. If the Message Contains checkbox is selected, the default setting for this checkbox is cleared.

Selected Objects Settings

MWTM enables you to specify the object for which MWTM is to display events in the Event Window. To do so, select the **Selected Objects** tab in the Event Filter dialog. MWTM displays the Event Filter dialog with the **Selected Objects** tab highlighted.

The Selected Objects settings contains the following fields and buttons:

Field or Button	Description
Node	Drop-down list box of all nodes that have been discovered by MWTM: - If you want to filter events based on a node, select a node from the drop-down list box. The Rtr Interface drop-down list box appears. - If you do not want to filter events based on a node, select None. MWTM grays-out the other object fields. This is the default setting.
Rtr Interface	Drop-down list box of all interfaces associated with the selected router: - If you want to filter events based on a router interface, select an interface from the drop-down list box. - If you do not want to filter events based on a router interface, select None. This is the default setting.
Reset	Restores Node to None , grays-out other object fields.
Selected Objects: Object Type	Indicates the type of object, if any, upon which the event filter is based.
Selected Objects: Node	Indicates the node, if any, upon which the event filter is based.
Selected Objects: Rtr Interface	Indicates the router interface, if any, upon which the event filter is based.

Loading an Existing Event Filter

MWTM enables you to load a specific event filter file and change the list of event filter files.

To load an existing event filter, click **Load** in the Event Filter dialog. MWTM displays the Load File Dialog: Load Filter dialog.

The Load File Dialog: Load Filter contains the following fields and buttons:

Field or Button	Description
Type	Icon indicating whether the item in the table is a file or a folder.
Name	Name of the event filter file or folder.
Last Modified	Date and time the event filter file or folder was last modified.
Size (bytes)	Size of the event filter file or folder, in bytes.
Number of Files (displayed in bottom left corner)	Total number of event filter files and folders.
OK	Loads the selected event filter, saves any changes you made to the list of files, and closes the dialog. To load an event filter file, double-click it in the list, select it in the list and click OK , or enter the name of the file and click OK . MWTM loads the event filter file, saves any changes you made to the list of files, closes the Load File Dialog: Load Filter dialog, and returns to the Event Filter dialog.

Field or Button	Description
Delete	Deletes the selected file from the event filter file list. MWTM issues an informational message containing the name and location of the deleted file.
Cancel	Closes the dialog without loading an event filter file or saving any changes to the event filter file list.
Help	Displays online help for the dialog.

Saving an Event Filter File

MWTM enables you to save a specific event filter file and change the list of event filter files.

When you are satisfied with the filter settings, click **Save** in the Event Filter dialog. MWTM displays the Save File Dialog: Save Filter dialog.

The Save File Dialog: Save Filter contains the following fields and buttons:

Field or Button	Description
Type	Icon indicating whether the item in the table is a file or a folder.
Name	Name of the event filter file or folder.
Last Modified	Date and time the event filter file or folder was last modified.
Size (bytes)	Size of the event filter file or folder, in bytes.
Filename	Name by which you want to save the event filter file. If you create a new event filter file name, you can use any letters, numbers, or characters in the name that are allowed by your operating system. However, if you include any spaces in the new name, MWTM converts those spaces to dashes. For example, MWTM saves file “a b c” as “a-b-c”.
Number of Files (displayed in bottom left corner)	Total number of event filter files and folders.
OK	Saves any changes you made to the current event filter file and closes the dialog. To save the event filter file with a new name, use one of the following procedures: - To save the file with a completely new name, enter the new name and click OK. - To save the file with an existing name, overwriting an old event filter file, select the name in the list and click OK. MWTM saves the event filter file with the new name, saves any changes you made to the list of files, closes the Save File Dialog: Save Filter dialog, and returns to the Event Filter dialog.
Delete	Deletes the selected file from the event filter file list. MWTM issues an informational message containing the name and location of the deleted file.

Field or Button	Description
Cancel	Closes the dialog without saving the event filter file or saving any changes to the event filter file list.
Help	Displays online help for the dialog.

Viewing Event Properties

MWTM enables you to view detailed information about a selected event, including its associated object, status, and other information.

To view detailed information about an event, right-click the event in a window, then select **Event Properties** in the right-click menu.

MWTM displays the Event Properties Dialog.

The Event Properties dialog contains the following tabs, fields, and button:

Tab, Field, or Button	Description
Properties Tab	Displays detailed information about the selected event.
Message	Message text for the event. You can customize this field. See the “Changing the Way MWTM Processes Events” section on page 5-17 for more information.
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.

Tab, Field, or Button	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.
Timestamp	Date and time the event was logged.
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.
Acknowledged	Indicates whether the event has been acknowledged.
Acknowledged By	Name of the device that last acknowledged the event. If no one has acknowledged the event, this field is blank.
Ack Timestamp	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.
Notes Tab	Displays notes associated with this event.
Last Update	Date and time the Notes field for this event was last updated. If there is no note currently associated with this event, this field displays the value Not Set .
Notes	Notes associated with this event. If there is no note currently associated with this event, this field displays the value No Notes .
Close	Closes the Event Properties dialog.

Related Topic:

- [Viewing Basic Information for All Events, page 5-1](#)

Attaching a Note to an Event

MWTM enables you to annotate an event, attaching a descriptive string to the event.

To annotate an event, right-click an event in the Event Window, then select **Edit Notes** in the right-click menu.

MWTM displays the Edit Event Dialog.

The Edit Event Dialog contains the following fields and buttons:

Field or Button	Description
Name	Message text of the event.
Last Update	Date and time the Notes field for this event was last updated. If there is no note currently associated with this event, this field displays the value Not Set . You cannot edit this field.
Notes	Notes to associate with this event. In this field, you can enter any important information about the event, such as its associated object, what triggered the event, how often it has occurred, and so on.
Save	Saves changes you have made to the event information and exits the Edit Event Dialog.
Cancel	Exits the Edit Event Dialog without saving any changes.
Help	Displays online help for the current window.

Related Topics:

- [Viewing Basic Information for All Events, page 5-1](#)
- [Viewing Event Properties, page 5-15](#)
- [Viewing Notes for an Event, page 5-17](#)

Viewing Notes for an Event

MWTM enables you to view the notes that have been associated with an event.

To view a note, right-click an event 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 event.)

MWTM displays the Event Notes dialog.

The Event Notes dialog contains the following fields and button:

Field or Button	Description
Name	Message text of the event.
Last Updated	Date and time the Notes field for this event was last updated.
Notes	Notes associated with this event.
OK	Closes the Event Notes dialog.

Related Topics:

- [Attaching a Note to an Event, page 5-16](#)

Changing the Way MWTM Processes Events

There are three main types of events in MWTM:

- **Trap** events, which are incoming events that are not solicited by MWTM.

- **Status** events, which are status changes detected by MWTM.
- **User Action** events, which are events triggered by user actions.

Within those broad types, there are many subordinate types of events, each with a default category, severity, color, message text, and event help file. MWTM enables you to change the default characteristics of each type of event, tailoring them to meet your needs.

**Note**

Changes you make to MWTM event processing can adversely affect your operating environment. In most environments, MWTM recommends that you use the default event processing settings without modification.

To change MWTM event processing, use one of the following procedures:

- Select **Tools > Event Configurator** from the MWTM Main Menu.
- Select **Start > Programs > Cisco MWTM Client > Launch MWTM Event Configurator** in Windows.
- Enter the **mwtm eventeditor** command. See the “[mwtm eventeditor](#)” section on page C-20 for more information.

MWTM launches the MWTM Event Configurator.

The Event Configurator enables you to customize the displayed category, severity, color, and message associated with events; and load, save, and deploy customized event configurations. You can also specify a list of SNMP server to which MWTM is to forward events in the form of traps.

The high-level MWTM event processing settings are displayed in the left pane of the MWTM Event Configurator window. The detailed settings for each high-level setting are displayed in the right pane.

The MWTM Event Configurator menu provides the following options:

Menu Command	Description
File > Load Draft	Loads the local copy of the event configuration that you saved.
File > Save Draft (Ctrl-S)	Saves a local copy of the event configuration, including any changes you made using the Event Configurator. You can save only one local copy of the event configuration. You cannot specify a file name for the local copy.
File > Load Default	Loads the default event configuration on this MWTM client. The default event configuration is the standard event configuration used by MWTM when it is first installed. The default event configuration stored on the MWTM server and shared by all MWTM clients, but it cannot be modified by the clients.
File > Load Running	Loads the event configuration that is currently running on the MWTM server.
File > Load Backup	Loads the backup event configuration from the MWTM server. MWTM creates a backup event configuration every time the event configuration on the MWTM server is overwritten.
File > Revert	Reverts to the last event configuration that was loaded on the MWTM client. This could be the draft, default, running, or backup event configuration.

Menu Command	Description
File > Deploy	Deploys the event configuration that is currently being edited on this MWTM client to the MWTM server. The deployed event configuration does not take effect until you restart the MWTM server. When you restart the MWTM server, MWTM automatically reflects your changes to the event configuration on the MWTM server and on all MWTM clients that connect to that server, and reflects any new or changed categories, severities, and other event characteristics in its Web display navigation bars.
File > Exit	Closes the Event Configurator window. If you have made any changes to the event configuration, MWTM asks if you want to save the changes before leaving the window: - Click Save Draft to save the changes in a local copy of the event configuration. You can save only one local copy of the event configuration. You cannot specify a file name for the local copy. - Click Deploy to deploy the event configuration, including any changes you made, to the MWTM server. The deployed event configuration does not take effect until you restart the MWTM server. When you restart the MWTM server, MWTM automatically reflects your changes to the event configuration on the MWTM server and on all MWTM clients that connect to that server, and reflects any new or changed categories, severities, and other event characteristics in its Web display navigation bars. - Click No or Cancel to close the prompt window and return to the Event Configurator window.
Help > Topics (F1)	Displays the table of contents for the MWTM online help.
Help > Window (Shift-F1)	Displays online help for the current window.
Help > About (F3)	Displays build date, version, SSL support, and copyright information about the MWTM application.

This section provides the following information:

- [Changing Event Limits, page 5-20](#)
- [Specifying a List of SNMP Servers for Trap Forwarding, page 5-22](#)
- [Changing Event Categories, page 5-23](#)
- [Changing Event Severities and Colors, page 5-24](#)
- [Changing Trap Events, page 5-25](#)
- [Changing Status Alarm Events, page 5-29](#)
- [Changing User Action Events, page 5-32](#)

Changing Event Limits

To change limits for the MWTM event database, select the turner beside **Event Configuration**, then click **Limits** in the left pane. MWTM displays the Limits Configuration window in the right pane, which contains the following fields:

Field	Description
MaxEventDbRecords	Sets the maximum number of events the MWTM event database can hold. By default, the MWTM event database can hold a maximum of 5000 events. If the database exceeds 5000 events, MWTM deletes the oldest events until the database is reduced to 5000 events. To change the size of the MWTM event database, enter the new size, in number of events, in this field. The valid range is 0 events (that is, no limit) to an unlimited number of events. The default setting is 5000 events. Note As you increase the size of the event database, the performance of the MWTM server and clients is impacted.
MaxEventTimeToLive	Sets the maximum length of time, in days, MWTM is to retain an event in the database. By default, the MWTM event database retains events a maximum of 7 days. MWTM deletes events that are older than 7 days. To change the maximum age for events, enter the new age, in days, in this field. The valid range is 0 days (events are purged at each maintenance interval) to an unlimited number of days. The default setting is 7 days.
CompressEventDbInterval	Sets the length of time, in minutes, between maintenance checks of the database. By default, MWTM performs maintenance on the event database every 60 minutes, deleting all events in excess of 5000 and all events older than 7 days. To change the maintenance interval, enter the new interval, in minutes, in this field. The valid range is 0 minutes (perform continual maintenance; not advised) to an unlimited number of minutes. The default setting is 60 minutes. Note The shorter the maintenance interval, the greater the impact on the performance of the MWTM server and clients.

Field	Description
AutomationTimeout	Sets the maximum length of time, in seconds, MWTM is to allow an event automation script to run. By default, the MWTM event database allows an event automation script to run for 300 seconds (5 minutes) before canceling the script and moving on. To change the event automation timeout interval, enter the new interval, in seconds, in this field. The valid range is 0 seconds (no automation) to an unlimited number of seconds. The default setting is 300 seconds. Note MWTM runs each automation script sequentially, not in parallel. Therefore, the longer the automation timeout interval, the greater the chance that a failed script can delay follow-on scripts.
ProcessUndiscovered	Determines whether MWTM is to process events from undiscovered nodes: • False—Do not process events from undiscovered nodes. This is the default setting. • True—Begin processing events from undiscovered nodes.

Specifying a List of SNMP Servers for Trap Forwarding

MWTM enables you to specify a list of SNMP server, or hosts, to which MWTM is to forward events in the form of traps.

For more information about enabling MWTM trap forwarding, see the [“Forwarding Events as Traps to Other Hosts” section on page 5-35](#).

To specify the list of hosts, select the turner beside **Event Configuration**, then click **SNMP Servers** in the left pane. MWTM displays the SNMP Servers Configuration window in the right pane, which contains the following fields and buttons:

Field or Button	Description
Host	Name of the host NMS device that is to receive traps from MWTM. The host must be IP-routable, and the name must be a valid IP address or DNS name.
Port	Host port number to which MWTM is to forward traps.
Community	SNMP community string that MWTM is to include in forwarded traps.
Version	Trap version to forward. Valid values are 1 and 2c .
Trap Type	Type of trap MWTM is to forward to this host. Valid trap types are: • CISCO-SYSLOG: The CISCO-SYSLOG-MIB clogMessageGenerated trap. • CISCO-EPM-NOTIFICATION: CISCO-EPM-NOTIFICATION-MIB ciscoEpmNotificationAlarm trap.
Add	Adds a new host name to the bottom of the list. Type over the default values with the new values.
Delete	Deletes the selected host name from the list.
Send a trap for all events	Selects the Send Traps checkbox for all MWTM events. Select this button if you want MWTM to forward all events to the list of hosts. If you select this button, and then you clear even a single Send Traps checkbox for any event, MWTM clears this button. This radio button is mutually exclusive with the Send a trap for no events button.
Send a trap for no events	Clears the Send Traps checkbox for all MWTM events. Select this button if you do not want MWTM to forward any events to the list of hosts. This is the default setting. If you select this button, and then you select even a single Send Traps checkbox for any event, MWTM clears this button. This radio button is mutually exclusive with the Send a trap for all events button.

Changing Event Categories

To change categories for the MWTM event database, select the turner beside **Event Configuration**, then click **Categories** in the left pane. MWTM displays the Categories Configuration window in the right pane, which contains the following field and buttons:

Field or Button	Description
Category Name	Lists the names of the currently defined MWTM event categories. By default, MWTM provides the following event categories: • Status—Status change message generated. • Trap—SNMP trap message generated. • 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 event, linkset, or node. • 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.
Category Name (continued)	• 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. To change the name of an existing event category, highlight the category name and type over it with the new name. For example, you could replace every occurrence of LoginFail with BadLogin.
Add	Adds a new category name to the bottom of the list. Type over the default category name with the new name.
Delete	Deletes the selected category name from the list. If there are events in the MWTM database that use the deleted category name, MWTM displays the Entry Substitution Dialog, which enables you to select a new category name to use in place of the deleted category name. Either select an existing category name from the drop-down list box, or enter a new category name. If you enter a new category name, it is added to the Category Name field.

Changing Event Severities and Colors

To change severities or colors for the MWTM event database, select the turner beside **Event Configuration**, then click **Severities** in the left pane. MWTM displays the Severities Configuration window in the right pane, which contains the following fields and buttons:

Field or Button	Description
Severity Name	Lists the names of the currently defined MWTM event severities. By default, MWTM provides the following event severities: • Informational • Normal • Indeterminate • Warning • Critical • Minor • Major To change the name of an existing event severity, highlight the severity name and type over it with the new name. For example, you could replace every occurrence of Error with Problem.
Severity Color	Lists the colors of the currently defined MWTM event severities. By default, MWTM provides the following event colors: • Informational—The default color is white. • Normal—The default color is green. • Indeterminate—The default color is aqua. • Warning—The default color is blue. • Critical—The default color is red. • Minor—The default color is yellow. • Major—The default color is orange. To change the color associated with an existing severity, select the current color, then select a new color from the drop-down list box. For example, you can display Warning events in maroon instead of yellow.
Add	Adds a new severity name to the bottom of the list. Type over the default severity name with the new name, then select a color from the drop-down list box. The default color is white.
Delete	Deletes the selected severity name from the list. If there are events in the MWTM database that use the deleted severity name, MWTM displays the Entry Substitution Dialog, which enables you to select a new severity name to use in place of the deleted severity name. Either select an existing severity name from the drop-down list box, or enter a new severity name. If you enter a new severity name, it is added to the Severity Name field.

Field or Button	Description
Move Up	Moves the selected severity up in the list.
Move Down	Moves the selected severity down in the list.

Changing Trap Events

Trap events are incoming events that are not solicited by MWTM.

To change traps for the MWTM event database, select the turner beside **Event Configuration**, then select the turner beside **Traps**. MWTM lists the currently defined traps in the left pane.

To add a trap, right-click **Traps** and select **Add** from the right-click menu. MWTM opens the Add Entry Dialog, which lists the traps that are supported by MWTM but not yet configured. If all traps are configured, the **Add** and **Delete** options in the right-click menu are grayed out. Select a trap and click **Add**. MWTM adds the selected trap to the list of configured traps in the left pane.

To list all events associated with a trap, select the turner beside the trap. MWTM lists the currently defined events for that trap in the left pane.

- To add an event to a trap, right-click the trap (or one of its existing events) and select **Add** from the right-click menu. MWTM adds a new event to the list of events for that trap and opens the Trap Event Configuration panel for the new event, which enables you to change all aspects of that event.
- To delete a trap from the list of configured traps, right-click the trap and select **Delete** from the right-click menu. MWTM deletes the selected trap from the list of configured traps in the left pane.

- To delete an event from a trap, right-click the event and select **Delete** from the right-click menu. MWTM deletes the selected event from the list of events associated with the trap in the left pane.
- To change an event, select the event in the left pane. MWTM displays the Trap Event Configuration panel in the right pane, which enables you to change all aspects of that event.

The Trap Event Configuration panel contains the following fields and buttons:

Field or Button	Description
Name	Name of the trap. You cannot change this field.
Event Keys and Setting	Names of the event keys, such as RouteDestinationState , and their settings, such as False . You cannot change the names of the event keys, but you can change their settings. To change an event key setting, select a new setting from the drop-down list box. For example, you can change the setting for RouteDestinationState from Accessible to Unknown .
Category	Category of the trap event, such as Trap . To change the category, select a new category from the drop-down list box. The default category for traps is Trap .
Severity	Severity of the trap event, such as Normal . To change the severity, select a new severity from the drop-down list box. Note The order of the severities affects the sort order of the severities in MWTM client tables.
Message Name	User-specified message name for the event, used by MWTM for trap forwarding. If you want MWTM to forward this event in the form of a trap to another host, you can specify a new, more meaningful message name for the event. The new message name can be from 1 to 30 characters, and can contain any letters (upper- or lowercase), any numbers, and any special characters. If you do not specify a new message name, MWTM uses the default message name, MWTM . For more information about trap forwarding, see the “Forwarding Events as Traps to Other Hosts” section on page 5-35 .
Message	Message text associated with the trap event. To change the message text, type over the message text. You can also insert variable text in the message. To do so, right-click in the message text area. MWTM displays a popup menu of the valid substitution variables for this event. To insert a variable in the text area, select it in the popup menu.

Field or Button	Description
Help File	Help file associated with the trap. By default, MWTM provides extensive type-specific help for traps. However, if you prefer to provide your own enterprise-specific instructions to operators in the help file, MWTM enables you to do so. To change the help file, create a new HTML help file or change the default MWTM help file: • If you installed MWTM in the default directory, <i>/opt</i>, then the default help files are in the <i>/opt/CSCOs/gm/apache/share/htdocs/eventHelp</i> directory. • If you installed MWTM in a different directory, then the default help directory and files are located in that directory. If you use an MWTM help file as a basis for your help file, rename it when you save it; do not use the existing MWTM name. If you do so, then the next time you install MWTM, MWTM overwrites the file and you lose your changes. When you have created your new help files, store them in the <i>/opt/CSCOs/gm/apache/share/htdocs/customHelp</i> directory. This directory and its contents are preserved when you upgrade to a new MWTM release. If you do not store your new help files in the <i>customHelp</i> directory, the files are lost the next time you upgrade to a new MWTM release. When you have created your new help files and stored them in the <i>customHelp</i> directory, enter the new help file path and file name in the Help File field. After you deploy the new event settings and restart the MWTM server, whenever you display help for the trap, MWTM displays your new, custom help file.
Open	Opens the help file associated with the trap. To see the help file, click Open. MWTM displays context-sensitive help for the selected trap in a separate Web browser.
Action: Run	Automation command or script for the trap event, to be executed by a UNIX process. MWTM enables you to automate events. That is, you can configure MWTM to call a UNIX script to drive automatic paging or e-mail, for example, whenever MWTM logs an event for which you have defined an automation script. To configure automation for an event, enter a Run line with the following format: <i>UNIXCommand EventParameters</i> where: • <i>UnixCommand</i> specifies either a binary command name or a shell script. • <i>EventParameters</i> are information from the event that MWTM sends to <i>UnixCommand</i> as parameters. The set of <i>EventParameters</i> is the same as the set of Message element parameters, and they are specified the same way. After you deploy the new event settings and restart the MWTM server, the specified event causes the automation script to run.

Field or Button	Description
Action: Run (continued)	When configuring automation for events, keep in mind the following considerations: - Detailed information about event automation scripts, including the times they start and stop and any output produced by the scripts, is recorded in the MWTM system event automation log file. For more information, see the “Viewing the MWTM System Event Automation Log” section on page 13-40. - MWTM event automation scripts run separately from all other MWTM processing. - If MWTM logs more than one automated event in rapid succession, MWTM runs each automation script sequentially, not in parallel. MWTM spawns a new UNIX process for each script, and waits for it to complete before running the next script. - By default, MWTM allows an event automation script to run for 300 seconds (5 minutes) before canceling the script and moving on to the next script. To change the maximum run-time for event automation scripts, see the “Changing Event Limits” section on page 5-20.
Action: Poll	Checkbox indicating whether MWTM is to poll the associated nodes: - If you want MWTM to poll the nodes, select the checkbox. - If you do not want MWTM to poll the nodes, clear the checkbox.
Action: Send Trap	Checkbox indicating whether MWTM is to forward the event as a trap to other systems: - If you want MWTM to forward the event, select the checkbox. - If you do not want MWTM to forward the event, clear the checkbox. This is the default setting.
Errors	Error messages associated with the trap. Correct all errors before deploying the new event configuration.

Changing Status Alarm Events

Status alarm events are status changes detected by MWTM.

To change status alarms for the MWTM event database, select the turner beside **Event Configuration**, then select the turner beside **Status Alarms**. MWTM lists the currently defined status alarms in the left pane.

To add a status alarm, right-click **Status Alarms** and select **Add** from the right-click menu. MWTM opens the Add Entry Dialog, which lists the status alarms that are supported by MWTM but not yet configured. Select a status alarm and click **Add**. MWTM adds the selected status alarm to the list of configured status alarms in the left pane. To list all status settings associated with a status alarm, select the turner beside the status alarm. MWTM lists the currently defined status settings for that status alarm in the left pane.

- To add a status setting to a status alarm, right-click the status alarm (or one of its existing status settings) and select **Add** from the right-click menu. MWTM adds a new status setting to the list of status settings for that status alarm and opens the Status Event Configuration panel for the new status setting, which enables you to change all aspects of that status setting.
- To delete a status alarm from the list of configured status alarms, right-click the status alarm and select **Delete** from the right-click menu. MWTM deletes the selected status alarm from the list of configured status alarms in the left pane.
- To delete a status setting from a status alarm, right-click the status setting and select **Delete** from the right-click menu. MWTM deletes the selected status setting from the list of status settings associated with the status alarm in the left pane.
- To change a status setting, select the status setting in the left pane. MWTM displays the Status Event Configuration panel in the right pane, which enables you to change all aspects of that status setting.

The Status Event Configuration panel contains the following fields and buttons:

Field or Button	Description
Name	Name of the status alarm, such as RtrInterfaceStateChanged . You cannot change this field.
Status Key and Setting	Name of the status key, such as RtrInterfaceState, and its setting, such as Active. You cannot change the name of the status key, but you can change its setting. To change a status key, select a new key from the drop-down list box. For example, you can change the setting for RtrInterfaceState from Active to Down.
Category	Category of the status alarm, such as Status. To change the category, select a new category from the drop-down list box. The default category for status settings is Status.
Severity	Severity of the status alarm, such as Normal. To change the severity, select a new severity from the drop-down list box.
Message Name	User-specified message name for the event, used by MWTM for trap forwarding. If you want MWTM to forward this event in the form of a trap to another host, you can specify a new, more meaningful message name for the event. The new message name can be from 1 to 30 characters, and can contain any letters (upper- or lowercase), any numbers, and any special characters. If you do not specify a new message name, MWTM uses the default message name, MWTM. For more information about trap forwarding, see the “Forwarding Events as Traps to Other Hosts” section on page 5-35.
Message	Message text associated with the status alarm. To change the message text, type over the message text. You can also insert variable text in the message. To do so, right-click in the message text area. MWTM displays a popup menu of the valid substitution variables for this event. To insert a variable in the text area, select it in the popup menu.

Field or Button	Description
Help File	Help file associated with the status alarm. By default, MWTM provides extensive type-specific help for status alarms. However, if you prefer to provide your own enterprise-specific instructions to operators in the help file, MWTM enables you to do so. To change the help file, create a new HTML help file or change the default MWTM help file: • If you installed MWTM in the default directory, <i>/opt</i>, then the default help files are in the <i>/opt/CSCOSgm/apache/share/htdocs/eventHelp</i> directory. • If you installed MWTM in a different directory, then the default help directory and files are located in that directory. If you use an MWTM help file as a basis for your help file, rename it when you save it; do not use the existing MWTM name. If you do so, then the next time you install MWTM, MWTM overwrites the file and you lose your changes. When you have created your new help files, store them in the <i>/opt/CSCOSgm/apache/share/htdocs/customHelp</i> directory. This directory and its contents are preserved when you upgrade to a new MWTM release. If you do not store your new help files in the <i>customHelp</i> directory, the files are lost the next time you upgrade to a new MWTM release. When you have created your new help files and stored them in the <i>customHelp</i> directory, enter the new help file path and file name in the Help File field. After you deploy the new event settings and restart the MWTM server, whenever you display help for the status alarm, MWTM displays your new, custom help file.
Open	Opens the help file associated with the status alarm. To see the help file, click Open. MWTM displays context-sensitive help for the selected status alarm in a separate Web browser.
Action: Run	Automation command or script for the status setting, to be executed by a UNIX process. MWTM enables you to automate events. That is, you can configure MWTM to call a UNIX script to drive automatic paging or e-mail, for example, whenever MWTM logs an event for which you have defined an automation script. To configure automation for an event, enter a Run line with the following format: <i>UNIXCommand EventParameters</i> where: • <i>UnixCommand</i> specifies either a binary command name or a shell script. • <i>EventParameters</i> are information from the event that MWTM sends to <i>UnixCommand</i> as parameters. The set of <i>EventParameters</i> is the same as the set of Message element parameters, and they are specified the same way. After you deploy the new event settings and restart the MWTM server, the specified event causes the automation script to run.

Field or Button	Description
Action: Run (continued)	When configuring automation for events, keep in mind the following considerations: - Detailed information about event automation scripts, including the times they start and stop and any output produced by the scripts, is recorded in the MWTM system event automation log file. For more information, see the “Viewing the MWTM System Event Automation Log” section on page 13-40. - MWTM event automation scripts run separately from all other MWTM processing. - If MWTM logs more than one automated event in rapid succession, MWTM runs each automation script sequentially, not in parallel. MWTM spawns a new UNIX process for each script, and waits for it to complete before running the next script. - By default, MWTM allows an event automation script to run for 300 seconds (5 minutes) before canceling the script and moving on to the next script. To change the maximum run-time for event automation scripts, see the “Changing Event Limits” section on page 5-20.
Action: Send Trap	Checkbox indicating whether MWTM is to forward the event as a trap to other systems: - If you want MWTM to forward the event, select the checkbox. - If you do not want MWTM to forward the event, clear the checkbox. This is the default setting.
Errors	Error messages associated with the status alarm.

Changing User Action Events

User action events are events triggered by user actions.

To change user actions for the MWTM event database, select the turner beside **Event Configuration**, then select the turner beside **User Actions** in the left pane. MWTM lists the currently defined user actions in the left pane.

To add a user action, right-click **User Actions** and select **Add** from the right-click menu. MWTM opens the Add Entry Dialog, which lists the user actions that are supported by MWTM but not yet configured. Select a user action and click **Add**. MWTM adds the selected user action to the list of configured user actions in the left pane.

To list all settings associated with a user action, select the turner beside the user action. MWTM lists the currently defined settings for that user action in the left pane.

- To add a setting to a user action, right-click the user action (or one of its existing settings) and select **Add** from the right-click menu. MWTM adds a new setting to the list of settings for that user action and opens the Status Event Configuration panel for the new setting, which enables you to change all aspects of that setting.
- To delete a user action from the list of configured user actions, right-click the user action and select **Delete** from the right-click menu. MWTM deletes the selected user action from the list of configured user actions in the left pane.

- To delete a setting from a user action, right-click the setting and select **Delete** from the right-click menu. MWTM deletes the selected setting from the list of settings associated with the user action in the left pane.
- To change a setting, select the setting in the left pane. MWTM displays the Status Event Configuration panel in the right pane, which enables you to change all aspects of that setting.

The User Action Event Configuration panel contains the following fields and buttons:

Field or Button	Description
Name	Name of the user action, such as FileModification . You cannot change this field.
User Action Key and Setting	Name of the user action key, such as ModificationType , and its setting, such as Create . You cannot change the name of the user action key, but you can change its setting. To change a user action key, select a new key from the drop-down list box. For example, you can change the setting for ModificationType from Create to OverWrite .
Category	Category of the user action, such as Delete . To change the category, select a new category from the drop-down list box.
Severity	Severity of the user action, such as Normal . To change the severity, select a new severity from the drop-down list box. The default severity for user actions is Normal .
Message Name	User-specified message name for the event, used by MWTM for trap forwarding. If you want MWTM to forward this event in the form of a trap to another host, you can specify a new, more meaningful message name for the event. The new message name can be from 1 to 30 characters, and can contain any letters (upper- or lowercase), any numbers, and any special characters. If you do not specify a new message name, MWTM uses the default message name, MWTM . For more information about trap forwarding, see the “Forwarding Events as Traps to Other Hosts” section on page 5-35.
Message	Message text associated with the user action. To change the message text, type over the message text. You can also insert variable text in the message. To do so, right-click in the message text area. MWTM displays a popup menu of the valid substitution variables for this event. To insert a variable in the text area, select it in the popup menu.

Field or Button	Description
Help File	Help file associated with the user action. By default, MWTM provides extensive type-specific help for user actions. However, if you prefer to provide your own enterprise-specific instructions to operators in the help file, MWTM enables you to do so. To change the help file, create a new HTML help file or change the default MWTM help file: • If you installed MWTM in the default directory, <i>/opt</i>, then the default help files are in the <i>/opt/CSCOSgm/apache/share/htdocs/eventHelp</i> directory. • If you installed MWTM in a different directory, then the default help directory and files are located in that directory. If you use an MWTM help file as a basis for your help file, rename it when you save it; do not use the existing MWTM name. If you do so, then the next time you install MWTM, MWTM overwrites the file and you lose your changes. When you have created your new help files, store them in the <i>/opt/CSCOSgm/apache/share/htdocs/customHelp</i> directory. This directory and its contents are preserved when you upgrade to a new MWTM release. If you do not store your new help files in the <i>customHelp</i> directory, the files are lost the next time you upgrade to a new MWTM release. When you have created your new help files and stored them in the <i>customHelp</i> directory, enter the new help file path and file name in the Help File field. After you deploy the new event settings and restart the MWTM server, whenever you display help for the user action, MWTM displays your new, custom help file.
Open	Opens the help file associated with the user action. To see the help file, click Open. MWTM displays context-sensitive help for the selected user action in a separate Web browser.
Action: Run	Automation command or script for the user action, to be executed by a UNIX process. MWTM enables you to automate events. That is, you can configure MWTM to call a UNIX script to drive automatic paging or e-mail, for example, whenever MWTM logs an event for which you have defined an automation script. To configure automation for an event, enter a Run line with the following format: <i>UNIXCommand EventParameters</i> where: • <i>UnixCommand</i> specifies either a binary command name or a shell script. • <i>EventParameters</i> are information from the event that MWTM sends to <i>UnixCommand</i> as parameters. The set of <i>EventParameters</i> is the same as the set of Message element parameters, and they are specified the same way. After you deploy the new event settings and restart the MWTM server, the specified event causes the automation script to run.

Field or Button	Description
Action: Run (continued)	When configuring automation for events, keep in mind the following considerations: - Detailed information about event automation scripts, including the times they start and stop and any output produced by the scripts, is recorded in the MWTM system event automation log file. For more information, see the “Viewing the MWTM System Event Automation Log” section on page 13-40. - MWTM event automation scripts run separately from all other MWTM processing. - If MWTM logs more than one automated event in rapid succession, MWTM runs each automation script sequentially, not in parallel. MWTM spawns a new UNIX process for each script, and waits for it to complete before running the next script. - By default, MWTM allows an event automation script to run for 300 seconds (5 minutes) before canceling the script and moving on to the next script. To change the maximum run-time for event automation scripts, see the “Changing Event Categories” section on page 5-23.
Action: Send Trap	Checkbox indicating whether MWTM is to forward the event as a trap to other systems: - If you want MWTM to forward the event, select the checkbox. - If you do not want MWTM to forward the event, clear the checkbox. This is the default setting.
Errors	Error messages associated with the user action.

Forwarding Events as Traps to Other Hosts

MWTM enables you to forward MWTM events to other hosts, in the form of SNMP traps. This enables MWTM to integrate with high-level event- and alarm-monitoring systems such as the Cisco Info Center (CIC), HP OpenView, and Micromuse's Netcool suite of products. These systems can provide a single high-level view of all alarm monitoring in your network, making it easier to detect and resolve problems.

To forward MWTM events to other hosts, follow these steps:

- Step 1** Specify the list of SNMP servers, or hosts, to which you want MWTM to forward traps. See the [“Specifying a List of SNMP Servers for Trap Forwarding” section on page 5-22](#) for more information.
- Step 2** Specify the events you want to forward, using one of the following procedures:
 - a. To forward all MWTM events, select the **Send a trap for all events** radio button in the SNMP Servers Configuration window of the MWTM Event Configurator. See the [“Specifying a List of SNMP Servers for Trap Forwarding” section on page 5-22](#) for more information.
 - b. To forward only selected events, edit the events in the MWTM Event Configurator and select the **Send Trap** checkbox. For more information, see the description of the **Send Trap** field in one of the following sections:
 - [Changing Trap Events, page 5-25](#)
 - [Changing Status Alarm Events, page 5-29](#)

- [Changing User Action Events, page 5-32](#)

- Step 3** (Optional) Specify new, more meaningful names for the events you want to forward. If you do not specify a new message name for an event, MWTM uses the default message name, **MWTM**. For more information, see the description of the **Message Name** field in one of the following sections:
- [Changing Trap Events, page 5-25](#)
 - [Changing Status Alarm Events, page 5-29](#)
 - [Changing User Action Events, page 5-32](#)
- Step 4** Save your new event settings, deploy them to the MWTM server, and restart the MWTM server.
-

Setting Sounds for Events at an MWTM Client

MWTM enables you to create and change event sound filters for the MWTM client. Event sound filters determine the sounds that the MWTM client plays when specific events are logged. The MWTM client plays the sounds even if the Event Window is not currently displayed.

On Solaris/Linux, the root user can access the sound feature from a local or remote device. However, users other than the root user must use a local device, and must use a local client, not a remote Solaris/Linux MWTM client accessed using the **xhost + UNIX** command.

This section provides the following information:

- [Listing Event Sound Filters, page 5-36](#)
- [Creating a New Event Sound Filter, page 5-37](#)
- [Adding a Sound File to MWTM, page 5-40](#)
- [Changing an Existing Event Sound Filter, page 5-40](#)
- [Deleting an Event Sound Filter, page 5-40](#)
- [Playing and Muting Event Sounds, page 5-40](#)

Listing Event Sound Filters

MWTM enables you to change the list of event sound filters that the MWTM client applies to events, or prevent the MWTM client from playing sounds for events.

To work with the list of event sound filters, select **Tools > Event Sounds** from the MWTM Main Menu. MWTM displays the Event Sound Filters List dialog.

The Event Sound Filters List dialog lists all event sound filters that have been defined, and contains the following fields and buttons:

Field or Button	Description
Sound filters applied in order:	Indicates the order in which sound filters are to be applied, from top to bottom. That is, if an event matches two or more filters in the list, the top-most filter determines the sound that the MWTM client plays. This field is blank until you have created at least one new sound filter for events.
Move Up	Moves the selected event sound filter up in the Sound filters applied in order: list.

Field or Button	Description
Move Down	Moves the selected event sound filter down in the Sound filters applied in order: list.
New	Opens the Event Sound Filters dialog, which enables you to create a new event sound filter.
Edit	Opens the Event Sound Filters dialog, which enables you to change an existing event sound filter in the Sound filters applied in order: list.
Delete	Deletes the selected event sound filter from the Sound filters applied in order: list.
Mute Sounds	Checkbox indicating whether the MWTM client is to play event sounds: - To play event sounds, clear this checkbox. This is the default setting. - To not play event sounds, select this checkbox.
OK	Applies any changes you made to the event sound filters list and closes the Event Sound Filters List dialog. When you are satisfied with the changes you have made to the event sound filters list, click OK .
Apply	Applies any changes you made to the event sound filters list without closing the Event Sound Filters List dialog.
Cancel	Closes the Event Sound Filters List dialog without applying any changes to the event sound filters list.
Help	Displays online help for the current window.

Related Topics:

- [Setting Sounds for Events at an MWTM Client, page 5-36](#)
- [Working with Events, page 5-1](#)

Creating a New Event Sound Filter

MWTM enables you to create a new event sound filter. To do so, open the Event Sound Filters List dialog, as described in “[Listing Event Sound Filters](#)” section on page 5-36, then click **New**. MWTM displays the Event Sound Filters dialog.

The Event Sound Filters dialog contains the following fields and buttons:

Button	Description
Filter Name	Name of the event sound filter file. Enter a name for the filter, then specify filter criteria for this event sound filter in the Event Sound Filter Criteria field.
Event Sound Filter Criteria	Table listing the filter criteria for this event sound filter. To add a criteria, select options from the drop-down list boxes: - To filter based on message text: a. Select Message Text from the first drop-down list box. b. Select Contains, Equals, Does Not Contain, or Does Not Equal from the second drop-down list box. c. Enter the message text in the character string field. - To filter based on event severity: a. Select Severity from the first drop-down list box. b. Select Equals or Does Not Equal from the second drop-down list box. c. Select a severity, such as Normal or Error, from the third drop-down list box.the message text.
Event Sound Filter Criteria (continued)	- To filter based on event category: a. Select Category from the first drop-down list box. b. Select Equals or Does Not Equal from the second drop-down list box. c. Select a category, such as Status or Purge, from the third drop-down list box.the message text. - To filter based on the name of the node associated with the event: a. Select Node from the first drop-down list box. b. Select Equals or Does Not Equal from the second drop-down list box. c. Select a node from the third drop-down list box. MWTM lists all nodes that have been discovered in the drop-down list box.
More	Adds one or more additional filter criteria to the event sound filter. To add a filter criteria to the event sound filter, click More. MWTM adds a new criteria to the bottom of the list.
Fewer	Removes one or more filter criteria from the event sound filter. To remove a filter criteria from the event sound filter, click Fewer. MWTM deletes the last criteria in the list.

Button	Description
Play this sound:	Drop-down list box indicating the sound to be played if an event matches this event sound filter. MWTM client sound files are stored in the MWTM client's <i>sounds</i> directory: • If you installed the MWTM client for Solaris/Linux in the default directory, <i>/opt</i>, then the sound file directory is <i>/opt/CSCOsgmClient/sounds</i>. • If you installed the MWTM client for Windows in the default directory, <i>/Program Files</i>, then the sound file directory is <i>C:\Program Files\SGMClient\sounds</i>. • If you installed MWTM in a different directory, then the sound file directory is located in that directory. To add a sound file to MWTM, add it to the <i>sounds</i> directory. See the “Adding a Sound File to MWTM” section on page 5-40 for more information.
Play	Plays a sample of the sound selected in the Play this sound: drop-down list box.
OK	Applies any changes you made to the event sound filter criteria and closes the Event Sound Filters dialog. When you are satisfied with the changes you have made to the event sound filters, click OK.
Cancel	Closes the Event Sound Filters dialog without applying any changes to the event sound filter criteria.
Help	Displays online help for the current window.

Related Topics:

- [Listing Event Sound Filters, page 5-36](#)
- [Working with Events, page 5-1](#)

Adding a Sound File to MWTM

You can add sound files to an MWTM client. MWTM clients can play the following sound file formats: AIFC, AIFF, AU, SND, and WAV.

MWTM client sound files are stored in the MWTM client's *sounds* directory:

- If you installed the MWTM client for Solaris/Linux in the default directory, */opt*, then the sound file directory is */opt/CSCOSgmClient/sounds*.
- If you installed the MWTM client for Windows in the default directory, */Program Files*, then the sound file directory is *C:\Program Files\SGMClient\sounds*.
- If you installed MWTM in a different directory, then the sound file directory is located in that directory.

If for some reason MWTM cannot play a specified sound file, MWTM plays a default beep. For example, MWTM cannot play a sound file if one of the following conditions exists:

- The file has been moved or deleted from the *sounds* directory
- The *sounds* directory has been deleted or cannot be found
- Some other application is using all of the sound resources
- There is no sound card present

Related Topics:

- [Creating a New Event Sound Filter, page 5-37](#)
- [Working with Events, page 5-1](#)

Changing an Existing Event Sound Filter

MWTM enables you to change an existing event sound filter. To do so, open the Event Sound Filters List dialog, as described in “[Listing Event Sound Filters](#)” section on page 5-36, select the filter in the **Sound filters applied in order:** list, then click **Edit**. MWTM displays the Event Sound Filters dialog, populated with the selected filter's settings.

Change the settings as desired, then click **OK**. MWTM applies your changes and closes the Event Sound Filters dialog.

Deleting an Event Sound Filter

MWTM enables you to delete an existing event sound filter. To do so, open the Event Sound Filters List dialog, as described in “[Listing Event Sound Filters](#)” section on page 5-36, select the filter in the **Sound filters applied in order:** list, then click **Delete**. MWTM deletes the selected filter.

Playing and Muting Event Sounds

MWTM enables you to specify whether you want the MWTM client to play event sounds. To do so, open the Event Sound Filters List dialog, as described in “[Listing Event Sound Filters](#)” section on page 5-36:

- To play event sounds, clear the **Mute Sounds** checkbox. This is the default setting.
- To not play event sounds, select the **Mute Sounds** checkbox.



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:

- [Viewing Basic Information for Nodes, page 6-1](#)
- [Viewing Detailed Information for a Node, page 6-10](#)
- [Editing a Node, page 6-42](#)
- [Viewing Notes for a Node, page 6-48](#)
- [Deleting a Node, page 6-48](#)
- [Unmanaging and Managing a Node, page 6-51](#)
- [Polling a Node, page 6-53](#)
- [Allowing and Disallowing Trap Processing for a Node, page 6-54](#)
- [Excluding a Node from a View, page 6-54](#)
- [Ignoring a Node, page 6-55](#)
- [Viewing Ignored Nodes, page 6-55](#)
- [Viewing Node Information Using a Web Browser, page 6-55](#)

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:

- [Right-Click Menu for All Nodes, page 6-3](#)
- [Right-Click Menu for a Specific Node, page 6-4](#)

- [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 > <i>List of Windows</i>	Navigates back to a window viewed in this session. MWTM maintains a list of up to 10 Back windows.
Forward > <i>List of Windows</i>	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 <i>stateReasons.html</i> file: • If you installed MWTM in the default directory, /opt, then the file is located at /opt/CSCOs/gm/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:

- [Node Details: Right-Click Menu, page 6-11](#)
- [Node Details: CPU Processes, page 6-16](#)
- [Node Details: Trap Configuration, page 6-17](#)
- [Node Details: Shorthaul Performance, page 6-18](#)
- [Node Details: Backhaul Performance, page 6-24](#)
- [Node Details: Components, page 6-29](#)
- [Node Details: Configuration Data, page 6-31](#)
- [Node Details: Notes, page 6-37](#)
- [Node Details: Recent Events, page 6-38](#)
- [Node Details: Syslog, page 6-41](#)

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 interfaces 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 (<i>hh:mm:ss, dd.dd</i>), where: <i>hh:mm:ss</i> is the time for that data point in hours, minutes, and seconds. <i>dd.dd</i> 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. <i>interface_name</i> Sent—Send rate for the specified interface. <i>interface_name</i> 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 interfaces 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 (<i>hh:mm:ss, dd.dd</i>), where: <i>hh:mm:ss</i> is the time for that data point in hours, minutes, and seconds. <i>dd.dd</i> 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. • <i>interface_name</i> Sent—Send rate for the specified interface. • <i>interface_name</i> 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 (<i>hh:mm:ss, dd.dd</i>), where: <i>hh:mm:ss</i> is the time for that data point in hours, minutes, and seconds. <i>dd.dd</i> 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: <i>interface_name</i>—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 (<i>hh:mm:ss, dd.dd</i>), where: <i>hh:mm:ss</i> is the time for that data point in hours, minutes, and seconds. <i>dd.dd</i> 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: <i>interface_name</i>—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, page 6-25](#)
- [Backhaul Performance: Sent Utilization, page 6-25](#)
- [Backhaul Performance: Received Utilization, page 6-26](#)
- [Backhaul Performance: Errors, page 6-27](#)

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 (<i>hh:mm:ss, dd.dd</i>), where: • <i>hh:mm:ss</i> is the time for that data point in hours, minutes, and seconds. • <i>dd.dd</i> 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 (<i>hh:mm:ss, dd.dd</i>), where: <i>hh:mm:ss</i> is the time for that data point in hours, minutes, and seconds. <i>dd.dd</i> 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, <code>getparticle ()</code> failure).
Missed Reset	Number of backhaul packets missed because of <code>xBufferRing</code> 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 <i>stateReasons.html</i> file: • If you installed MWTM in the default directory, <i>/opt</i>, then the file is located at <i>/opt/CSCOs/gm/apache/share/htdocs/eventHelp</i> 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, page 6-32](#)
- [Descriptive Information, page 6-33](#)
- [Status Information, page 6-33](#)
- [Router Uptime Information, page 6-35](#)
- [Polling Information, page 6-35](#)
- [Threshold % Information, page 6-36](#)
- [IP Addresses for SNMP, page 6-37](#)

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 <i>stateReasons.html</i> file: • If you installed MWTM in the default directory, <i>/opt</i>, then the file is located at <i>/opt/CSCOs/gm/apache/share/htdocs/eventHelp</i> 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 <i>all</i> 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 <i>stateReasons.html</i> file: • If you installed MWTM in the default directory, <i>/opt</i>, then the file is located at <i>/opt/CSCOSgm/apache/share/htdocs/eventHelp</i> 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 <i>stateReasons.html</i> file: • If you installed MWTM in the default directory, <i>/opt</i>, then the file is located at <i>/opt/CSCOSgm/apache/share/htdocs/eventHelp</i> 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.



CHAPTER 7

Working with Interfaces

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

This section includes the following information:

- [Viewing Detailed Information for an Interface, page 7-1](#)
- [Attaching a Note to an Interface, page 7-13](#)
- [Viewing Notes for an Interface, page 7-14](#)
- [Deleting an Interface, page 7-14](#)
- [Ignoring an Interface, page 7-16](#)

Related Topics:

- [Changing MWTM Client Preference Settings, page 11-2](#)
- [Resizing, Sorting, and Hiding Table Columns, page 3-30](#)

Viewing Detailed Information for an Interface

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

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

To display detailed information for an interface, select the turner beside **Nodes** in the left pane of the MWTM Main Window. Then select the turner beside a specific node to display its interfaces. Finally, select an interface.

MWTM displays the Interface Details Window.

The Interface Details Window is composed of the following sections:

- [Interface Details: Right-Click Menu, page 7-2](#)
- [Interface Details: Configuration Details, page 7-4](#)
- [Interface Details: Notes, page 7-9](#)
- [Interface Details: Recent Events, page 7-10](#)

Related Topics:

- [Viewing Detailed Information for a Node, page 6-10](#)

Interface Details: Right-Click Menu

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

Menu Command	Description
Show In New Window	Opens the Interface Details Window for the selected interface in a new window.
Edit > Notes	Opens the Edit Notes Dialog for the selected interface. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Power User (Level 2) and higher.
Clear Event Icon	Deletes the event icon (orange triangle) from MWTM displays for the selected interface, for this MWTM client only. The actual events are not deleted from MWTM, only the event icon for the selected interface for this MWTM client. This option is grayed-out if the selected interface has no associated event icon.
Delete	Deletes the currently selected interface from the MWTM database. MWTM displays the Confirm Deletion dialog: - To delete the selected interface, click Yes. The interface is deleted from the MWTM database and the Confirm Deletion dialog is closed. - To retain the selected interface, click No. The interface is kept in the MWTM database and the Confirm Deletion dialog is closed. - 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.
Go to > Parent Node	Navigates to the Node Details window of the parent node.
Back > List of Windows	Navigates back to a window viewed in this session. MWTM maintains a list of up to 10 Back windows.

Menu Command	Description
Forward > List of Windows	Navigates forward to a window viewed in this session. MWTM maintains a list of up to 10 Forward windows.
View > Configuration Details	Displays the Configuration Details panel for the selected interface.
View > Notes	Displays the Notes panel for the selected interface. If there are no notes associated with the selected interface, this option is grayed-out.
View > Events	Displays the Recent Events panel for the selected interface and its associated network objects.
View > Center in Topo	Opens the Topology Window and displays the interface in the center of the topology map.
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 interface.
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 interface.
Event History > Network Status Metrics	Displays the MWTM Network Status Log for Metrics in a Web browser, with messages displayed for only the selected interface.
Ignore	Ignores the selected interface 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 interface 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.
Latest Reports > RAN Capacity Planning	Displays the RAN Capacity Planning Report for the interface, in a Web browser. This option is not available if the interface is in Unknown or Unmanaged status.
Latest Reports > RAN Statistics	Displays the RAN Backhaul 15 Minutes Statistics report associated with the interface, in a Web browser. This option is not available if the interface is in Unknown or Unmanaged status.

Interface Details: Configuration Details

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

- [Naming Information, page 7-4](#)
- [General Information, page 7-5](#)
- [Status Information, page 7-5](#)
- [RAN Information, page 7-9](#)

Naming Information

The Naming Information sub-section contains the following fields:

Field	Description
Name	Name of the interface.
Node	Name of the node to which the interface belongs.
Physical Address	Physical address of the interface.
IF Index	Interface index number.
IF Type	Interface type.
RAN Connection To	Node to which the interface is connected.

General Information

The General Information sub-section contains the following fields:

Field	Description
Maximum Packet Size	Maximum packet size on the interface, in bytes.
Speed (Bits/Sec)	Interface speed in bits per second.

Status Information

The Status Information sub-section contains the following fields:

Field	Description
Is Ignored	Indicates whether the interface is Ignored (that is, whether the interface is to be included when aggregating and displaying MWTM status information).
Admin Status	Displays the administrative status of the interface. Status can be: Unknown —Unknown administrative status Up —Administratively up Shutdown —Administratively down Testing —Administrator is testing the interface
Operational Status	Displays the operational status of the interface. Status can be: Unknown —Unknown operational status. Up —Interface is up. Down —Interface is down. Testing —Interface is in test mode. Dormant —Interface is dormant. Not Present —An interface component is missing. Lower Layer Down —An interface is down because of a lower-layer interface.

Field	Description
Connect State (for GSM Abis)	Displays the connection state of a GSM interface. States can be: Connected —The device is monitoring local and remote alarm status. Disconnected—The system ignores the local alarm status. The local transmitter on the short-haul is disabled. Capability messages are transmitted to the remote describing the provisioning. The system stays disconnected until the remote capabilities are known and the peer state is transitioned to connected. Send Connect —One or more attempts have been made to connect to remote peer. Receive Connect —The local-peer has received a connect request from the remote-peer. Connect Rejected —Connection was rejected. ACK Connect —The initial connect request was sent and acknowledged by remote-peer. The local-peer is now waiting for a connect request from the remote-peer. Check Connect —The local peer has reason to believe its remote peer has failed. Additional tests are being processed to verify peer's state.
Connect State (for UMTS Iub)	Displays the connection state of a UMTS interface. States can be: Initialized —The connection is starting initialization. Starting—The shorthaul interface is administratively active, but the backhaul interface is down. Closed—The backhaul interface is active, but the shorthaul is administratively closed. Stopped—Unable to connect to peer in specified time interval. Additional attempts will be tried based on peer request or restart timers. Closing—Connection closed by administration request. Stopping —Connection shut down by peer's Term-Request. Will transition to stopped state. Connect Sent —Connection request sent to peer. ACK Received —Connection request sent and acknowledgement has been received from peer. Now waiting for peer's connection request. ACK Sent —Connection request received and acknowledgement has been sent to peer. Connection request sent and waiting for peer's acknowledgement. Open —Connection open and available for traffic.

Field	Description
Local Receive Alarm State Local Transmit Alarm State Remote Receive Alarm State Remote Transmit Alarm State	Displays alarm states for UMTS Iub interface. States can be: Remote Alarm —Indicates a problem at the remote end. The alarm generated by the remote interface in the E1/T1 data stream is sent and no other action is required. No Alarm —No alarm is present. Local Alarm —Indicates local interface problem. The interface has not received synchronization from the GSM device. Device stops transmitting backhaul samples. Received Alarm —Indicates receive problem in the local device. The remote device stops transmitting backhaul data and indicates a blue alarm. Alarm State Unavailable —Indicates the alarm state is not available. This state only applies to the remote and occurs when the peer connection is inactive.
Redundancy State	Displays information about the GSM Abis or UMTS Iub interface redundancy state. States can be: Active—Active owner of interface. Standby—Active owner of interface.
Status	Current status of the interface. Possible values are: Active Discovering Down Polling Unknown Unmanaged Waiting Warning For detailed definitions of each status, see the “Status Definitions for Nodes” section on page A-4.

Field	Description
Last Status Change	Date and time of last change to status.
Status Reason	Reason for the current status of the interface. For a full list of possible reasons, see the <i>stateReasons.html</i> file: • If you installed MWTM in the default directory, <i>/opt</i>, then the file is located at <i>/opt/CSCOs/gm/apache/share/htdocs/eventHelp</i> 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.

RAN Information

**Note**

This sub-section appears only for configured RAN interfaces (GSM Abis and UMTS Iub interfaces).

The RAN Information sub-section contains the following fields:

Field	Description
Protocol	Protocol of the interface (GSM-Abis or UMTS-Iub).
Local IP Address	IP address of the local device.
Local Port	Local port used by the interface.
Remote IP Address	IP address of the remote (peer) device.
Remote Port	Remote port used by the interface.

Interface Details: Notes

The Interface Details: Notes section displays:

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

Interface Details: Recent Events

The Interface Details: Recent Events table displays all recent events associated with the interface, 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 the following columns: **Act** , **Category**, **Severity**, **Time**, and **Message**.

- 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 Interface 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.

Toolbar Button or Column	Description
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.
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.

Attaching a Note to an Interface

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

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

The Edit Notes Dialog for an Interface contains the following fields and buttons:

Field or Button	Description
Name	Name of the interface. You cannot edit this field.
Note Last Updated	Date and time the Notes field for this interface was last updated. If there is no note currently associated with this interface, this field displays the value Not Set . You cannot edit this field.
Notes	Notes to associate with this interface. In this field, you can enter any important information about the interface, such as a detailed description, its location, its service history, and so on.
Save	Saves changes you have made to the interface'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 interface tables for the annotated interface.
Cancel	Exits the dialog without saving any changes.
Help	Displays online help for the dialog.

Viewing Notes for an Interface

MWTM enables you to view any notes that have been associated with an interface.

To view a note for an interface, 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 interface.
- The date and time the notes associated with the interface were last updated, or the phrase **Not Set** if there are no notes associated with the interface.
- The phrase **No Notes** if there are no notes associated with the interface.

Related Topics:

- [Attaching a Note to an Interface, page 7-13](#)

Deleting an Interface

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

- [Deleting an Interface from Your Network, page 7-15](#)
- [Deleting an Interface from the MWTM Database, page 7-15](#)

Deleting an Interface from Your Network

If you physically delete a known interface 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.

Deleting an Interface from the MWTM Database

Typically, you delete an interface from the MWTM database because you have physically deleted the interface from your network. This is the most common reason for deleting an interface from the MWTM database.

If you have physically deleted an interface 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.

**Note**

If you delete an interface from the MWTM database, the interface is deleted for *all* MWTM clients and views connected to that MWTM server. If the interface is still configured on the router, it will re-appear on the MWTM at the next poll.

To delete an interface from the MWTM database, use one of the following procedures:

- Select an interface in a window, then select **Edit > Delete** from the MWTM Main Menu.
- Right-click an interface in a window, then select **Delete** in the right-click menu.

MWTM asks you to confirm the deletion:

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

Ignoring an Interface

You can instruct MWTM to ignore an interface. Setting interfaces to **Ignored** prevents known interface 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.

**Note**

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

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

To set an interface to **Ignored**, right-click the interface in the left panel, then select **Ignore** from the right-click menu.



CHAPTER 8

Viewing the Topology of the Network

In addition to tabular (text) views of your network, MWTM provides a topology (graphical) view of the objects in your network, including adjacent devices, and enables you to customize the view to meet your needs.

To view the topology of your network, use one of the following procedures:

- Select **View > Show Topology** from the MWTM Main Menu.
- Right-click an object, then select **View > Center in Topo** in the right-click menu.

MWTM displays the Topology Window.

The Topology Window displays tabular information about MWTM objects in the left pane and the graphical topology map in the right pane.

The Topology Window is composed of the following sections:

- [Topology Menu, page 8-2](#)
- [Topology Toolbar Buttons, page 8-2](#)
- [Topology View Table, page 8-5](#)
- [Topology New Objects Panel, page 8-7](#)
- [Topology Excluded Objects Panel, page 8-7](#)
- [Topology Map, page 8-7](#)

MWTM provides the following functions related to the topology map:

- [Creating a Custom Layout, page 8-14](#)
- [Finding an Object, page 8-15](#)
- [Using the Selection Dialog, page 8-16](#)
- [Scrolling in the Topology Map, page 8-16](#)
- [Centering the Topology Map on an Object, page 8-17](#)
- [Displaying Detailed Information About a Topology Map Element, page 8-17](#)
- [Displaying the Topology New Objects Panel, page 8-17](#)
- [Displaying the Topology Excluded Objects Panel, page 8-17](#)
- [Printing the Topology Map, page 8-17](#)
- [Saving the Topology Map as a JPEG File, page 8-18](#)
- [Selecting a Directory for the JPEG File, page 8-19](#)
- [Activating a Magnetic Grid on the Topology Map, page 8-20](#)
- [Specifying a Color for the Magnetic Grid, page 8-21](#)
- [Specifying a Background Color for the Topology Map, page 8-23](#)
- [Aligning Objects on the Topology Map, page 8-25](#)
- [Hiding and Redrawing Lines When Redrawing, page 8-26](#)
- [Hiding and Showing Lines When Redrawing, page 8-26](#)
- [Locking and Unlocking the Position of an Icon, page 8-26](#)
- [Turning Off Antialiasing to Improve Performance, page 8-27](#)
- [Saving the Topology Map, page 8-27](#)
- [Restoring the Topology Map, page 8-27](#)

Related Topics:

- [Diagnosing a Typical Network Problem, page 12-5](#)
- [Changing MWTM Client Preference Settings, page 11-2](#)
- [Working with Views, page 4-1](#)

Topology Menu

The Topology Window uses the MWTM Main Menu. See the [“Using the MWTM Main Menu” section on page 3-7](#) for detailed descriptions of the options it provides.

Topology Toolbar Buttons

The Topology Window contains the following toolbar buttons:

Button	Description
Close view tab	Closes the currently displayed view in the Topology Window. This option is grayed-out if the currently displayed view is the highest level parent view.
Open parent view	Opens the parent view of the currently displayed view in the Topology Window. This option is grayed-out if the currently displayed view is the highest level parent view.
Lay out nodes in a circle	Displays the map in a circular layout.
Lay out nodes in a spring	Displays the map in a spring layout. That is, nodes with the most links are drawn closer to the center of the map, while nodes with fewer links are drawn farther away. This is the default setting the first time the map is displayed. Note You can change how far apart nodes are spaced when MWTM draws the spring layout. For details, see the “Topology Settings” section on page 11-9 .
Zoom in by a factor of 200%	Makes the map twice as large.
Zoom out by a factor of 50%	Makes the map half as large.
Zoom by percentage	Zooms the map by a selected percentage. Either select a percentage from the drop-down list box, or enter a percentage and click Enter . Valid values are integers in the range 5 through 400.
Zoom in on an area	Zooms in on the selected area of the map. Click the button, then click in the topology map and drag a rectangle around the area you want to zoom in on. MWTM expands the selected area to fill the topology map.
Zoom to fit window	Adjusts the size of the map to fit in the window. This is the default setting the first time the map is displayed.
Find objects	Opens the Find Objects dialog, which enables you to find and highlight an object in the Topology Window.
Set magnetic grid properties	Opens the Magnetic Grid Settings dialog, which enables you to activate and deactivate the magnetic topology grid, and modifies how it is displayed. With the grid activated, when you move objects on the topology map they “snap” to align with the grid.
Align objects on map	Opens the Align Objects dialog, which enables you to align two or more objects on the topology map.

Button	Description
Node Dragging Optimizer	Turns the Node Dragging Optimizer on or off: - When the Node Dragging Optimizer is On, MWTM hides connection lines as you drag an object around the topology map. MWTM draws the linkset lines when you drop the object in its final position. This is the default setting. - When the Node Dragging Optimizer is Off, MWTM continually redraws connection lines as you drag an object around the topology map. This setting, with the Node Dragging Optimizer on or off, is saved automatically with your preferences.
Hiding/Showing Dangling Connections	Hides or shows nodes and lines that connect to objects that are not in the current view, called dangling connections: - When the Hiding Dangling Connections is set to Hide, MWTM hides dangling connections. This is the default setting. - When the Hiding Dangling Connections is set to Show, MWTM shows dangling connections, drawing the nodes and connections in shades of gray to distinguish them from actual objects in the current view. This setting, with the Hiding Dangling Connections set to Show or Hide, is <i>not</i> saved when you save the view. To include a dangling node and its connection in the current view, select the node, then select Include In View.
Lock position or Unlock position	Locks or unlocks the position of an icon on the topology map. Locking the position of an icon can be useful if you want to keep the icon in its position, and you want to make sure you do not move it inadvertently. Locked icons are not included in the circular or spring layouts. - To lock the position of an icon, select an unlocked icon, then select Lock position. - To unlock the position of an icon, select a locked icon, then select Unlock position. This is the default setting. This setting, with icon positions locked or unlocked, is saved automatically with your view.

Topology View Table

The topology view table in the left pane of the Topology Window displays information about the MWTM objects that are currently displayed in the topology map.

To display the topology view table, select the **Tables** tab in the left pane of the Topology Window. By default, this table is sorted by **Status**.

To redraw the topology map centered on a specific object, double-click the object in this table.

You cannot select more than one object at a time in this table.

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 only the **Type**, **Name**, **Node Name**, and **Status** columns in the topology view table.

- 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 topology view table contains the following columns:

Column	Description
Internal ID	Internal ID of the object. 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.
Type	Type of object: • MWRNode—A Mobile Wireless Router node • Node—Any interconnecting node that is not an MWR node • View—Custom view (if one exists)
Name	Name of the object.
Node	Name of the node associated with the object.
Notes	Indicates whether there is a note associated with the object.
Events	Indicates whether there is a recent event associated with the object. (Even if the server purges all of the events associated with the object, MWTM continues to display the event icon in this field.) During Discovery, MWTM might flag most objects with an event icon (orange triangle). If the event icons are too distracting, select Edit > Clear All Events from the MWTM Main Menu to remove them.
Last Status Change	Date and time that the status of the object last changed.

Column	Description
Status	Current status of the object. Possible values are: Active Unknown Unmanaged Warning For detailed definitions of each status, see the “MWTM Status Definitions” section on page A-1.
Status Reason	Reason for the current status of the object. For a full list of possible reasons, see the <i>stateReasons.html</i> file: • If you installed MWTM in the default directory, <i>/opt</i>, then the file is located at <i>/opt/CSCOsgm/apache/share/htdocs/eventHelp</i> 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.
Ignored	Indicates whether the object is to be included when aggregating and displaying MWTM status information: • Clear the checkbox to include the object. This is the default setting. • Select the checkbox to exclude the object. This field can be edited by users with authentication level Power User (Level 2) and higher.

Topology New Objects Panel

The topology New Objects panel in the left pane of the Topology Window displays graphical elements for newly discovered objects, based on the following criteria:

- If you are using an MWTM client with the DEFAULT view set, this panel never contains any objects. In the DEFAULT view, MWTM adds all newly discovered objects to the topology map as soon as they are discovered.
- If you are using an MWTM client with a custom view set, this panel contains all objects discovered since the Topology Window was opened in this session that have *not* been excluded in the Excluded from View table of the View Editor Window, or that are not in the current view.

To display the topology New Objects panel, select the **New Objects** tab in the left pane of the Topology Window, or click the “New!” icon in the bottom of the window.

To add a newly discovered object to the topology map, select one or more objects and drag them to the map while holding down the left mouse button.

To exclude a newly discovered object, use the View Editor Window. See the [“Creating a New View” section on page 4-31](#) for more details.

Topology Excluded Objects Panel

The topology Excluded Objects panel in the left pane of the Topology Window displays graphical elements for excluded objects. Excluded objects are objects that you have chosen not to manage, that you have moved to the Excluded from View table of the View Editor Window. (See the [“Creating a New View” section on page 4-31](#) for more information about excluding objects from views.)

To display the topology Excluded Objects panel, select the **Excluded Objects** tab in the left pane of the Topology Window.

To add an excluded object to the topology map, select the object and drag it to the map while holding down the left mouse button. When you do so, the object is no longer excluded, and it is removed from the Excluded from View table of the View Editor Window.

Topology Map

The topology map in the right pane of the Topology Window displays the objects and views in your network in an easy-to-read graphical format.

If you have defined custom views, you can view them in the topology map. MWTM displays a tab for each displayed view. Each tab displays a colored ball that indicates the current status of that view:

- **Active**
- **Warning**

For detailed definitions of each status, see the [“Status Definitions for Views” section on page A-4](#).

See the [“Creating a New View” section on page 4-31](#) for more information about excluding objects.

To see mouse over help popup, place the cursor over an object.



Note

You can turn off mouse over help. For details, see the [“Topology Settings” section on page 11-9](#).

To highlight an element in the topology view table or topology table in the left pane, click it:

- Click a node in the topology view table to display any associated interfaces in the topology table.
- Click a line, a diamond, or double-triangle to highlight the closest associated node in the topology view table. For example, if there is a line connecting node **mwtm-1941a** and node **mwtm-1941b**, and you click the line closer to node **mwtm-1941a**, then that node is highlighted in the topology view table.

To display detailed information about an element in the map, double-click it, then respond to MWTM's prompts:

- Double-click a node to display the Details Window for that node.
- Double-click a line, a diamond, or double-triangle, to display the Details Window for that interface.

To scroll around in the topology map, click anywhere in the map, then click the arrow, **Page Up**, and **Page Down** keys.

To redraw the topology map centered on a specific node or interface, double-click the node or interface in the topology view table.

To save the topology map as a JPEG file, use the Save as JPEG dialog. See the [“Saving the Topology Map as a JPEG File” section on page 8-18](#) for more details.

To activate or change the magnetic topology grid, which can help you align nodes when you move them, use the Magnetic Grid Settings dialog. See the [“Activating a Magnetic Grid on the Topology Map” section on page 8-20](#) for more details.

To align two or more objects on the topology map, use the Align Objects dialog. See the [“Aligning Objects on the Topology Map” section on page 8-25](#) for more details.

To hide connections to objects that are not in the current view (called dangling connections), click the **Hiding/Showing Dangling Connections** button to set it to **Hide**. To show dangling connections, click the **Hiding/Showing Dangling Connections** button to set it to **Show**. MWTM draws the nodes in shades of gray to distinguish them from actual objects in the current view. This setting, with the Hiding Dangling Connections set to **Show** or **Hide**, is not saved.

To include a dangling connection in the current view, right-click the connection and select **Include In View**.

To lock the position of an icon on the topology map, select an unlocked icon, then select **Lock position**. Locking the position of an icon can be useful if you want to keep the icon in its position, and you want to make sure you do not move it inadvertently. Locked icons are not included in the circular or spring layouts.

To unlock the position of an icon on the topology map, select a locked icon, then select **Unlock position**.

-

The color of a graphical element indicates its current status. For detailed definitions of each status, see the [“MWTM Status Definitions” section on page A-1](#).

A note icon in the upper left corner of an element means a user has attached a descriptive string to the element.

An event icon (orange triangle) in the upper right corner of an element means there is a recent event associated with the element.

The topology map also provides right-click menus for elements. For more information, see the following sections:

- [Topology Right-Click Menu: Map, page 8-9](#)
- [Topology Right-Click Menu: View, page 8-10](#)

Topology Right-Click Menu: Map

The Topology Window provides a subset of the MWTM Main Menu as a right-click menu. To see this menu for a map, right-click in a blank area of the topology map. The topology map right-click menu provides the following options:

Menu Command	Description
Zoom In (Ctrl=)	Makes the map twice as large.
Zoom Out (Ctrl-- or Ctrl-Minus)	Makes the map half as large.
Zoom Area	Zooms in on the selected area of the map.
Zoom Fit	Adjusts the size of the map to fit in the window. This is the default setting the first time the map is displayed.
Layout > Circular	Displays the map in a circular layout.
Layout > Spring	Displays the map in a spring layout. That is, nodes with the most links are drawn closer to the center of the map, while nodes with fewer links are drawn farther away. This is the default setting the first time the map is displayed.
Find	Opens the Find Objects dialog, which enables you to find and highlight an object in the Topology Window.
Restore Positions	Restores the view to the last saved view.
Save As JPEG (Ctrl-J)	Opens the Save as JPEG dialog, enabling you to save the topology map to a JPEG file.
Magnetic Grid	Opens the Magnetic Grid Settings dialog.
Change Background Color	Opens the Select Background Color dialog, which enables you to select a color for the background of the topology map.
Align	Opens the Align Objects dialog, which enables you to align two or more objects on the topology map.
Create Subview	Opens the View Editor Window, which enables you to select a new view to display in the Topology Window.
Open Parent View	Opens the parent view of the currently displayed view in the Topology Window. This option is grayed-out if the currently displayed view is the highest level parent view.
Close View	Closes the currently displayed view in the Topology Window. This option is grayed-out if the currently displayed view is the highest level parent view.

Topology Right-Click Menu: View

The Topology Window provides a subset of the MWTM Main Menu as a right-click menu. To see this menu for a view, select a view in the topology map or topology view table, then click the right mouse button. The topology view right-click menu provides the following options:

Menu Command	Description
Edit > Properties	Opens the Edit Properties Dialog for the selected view. 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 view. 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 view, for this MWTM client only. The actual events are not deleted from MWTM, only the event icon for the selected view for this MWTM client. This option is grayed-out if the selected view has no associated event icon.

Menu Command	Description
Delete	Deletes the currently selected view from the MWTM database. MWTM displays the Confirm Deletion dialog: - To delete the selected view, click Yes. The view is deleted from the MWTM database and the Confirm Deletion dialog is closed. - To retain the selected view, click No. The view is kept in the MWTM database and the Confirm Deletion dialog is closed. - 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 window for the selected view.
View > Notes	Displays the Notes dialog for the selected view. If there are no notes associated with the selected view, this option is grayed-out.
View > Events	Displays the Recent Events table for the selected view and its associated objects.
View > Center in Topo	Opens the Topology Window, with the display zoomed to center on the selected view. If more than one view contains the selected view, MWTM prompts you to choose one of the views.
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 view 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 view 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.
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.
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.

Menu Command	Description
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 interfaces. Normal Poll retains all interfaces associated with polled nodes, even interfaces 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.

Creating a Custom Layout

MWTM enables you to create a custom layout for the topology map. To do so, move the nodes around, grouping them or isolating them to meet your needs.

To move a single node, click the left mouse button to select the node in the map and, while holding down the left mouse button, move the mouse to move the node to its new position.

To move more than one node at the same time, use the following procedure:

-
Step 1	Press and hold down the Shift key on your keyboard.
Step 2	Still holding down Shift , click the left mouse button to select the nodes you want to move in the map.
Step 3	Still holding down Shift , select one of the nodes you want to move and hold down the left mouse button.
Step 4	Still holding down both Shift and the left mouse button, move the mouse to move the nodes to their new position. The moved nodes keep their positions relative to each other.
Step 5	Release both Shift and the left mouse button.
-

When you are satisfied with the new topology map layout, select **File > Save View** from the MWTM Main Menu. MWTM saves the changes you have made to the network view, including any changes you have made to the topology map layout.

Finding an Object

Some topology maps are so large and complex that it can be difficult to find a specific object.

If the object is listed in the tables in the left pane of the Topology Window, simply select the object, and MWTM highlights it in the topology map.

If the object is *not* listed in the tables in the left pane of the Topology Window, click the **Find objects** (binoculars) button in the Topology Window, or select **Edit > Find** from the MWTM Main Menu. MWTM displays the Find Objects dialog, which enables you to find and highlight an object in the Topology Window.

The Find Objects dialog contains the following fields and buttons:

Field or Button	Description
Search string	Character string for which MWTM is to search.
OK	Launches the search. - If no matching object is found, MWTM displays an appropriate message. - If exactly one object is found that matches the Search string, MWTM highlights the object in the Tables panel of the Topology Window, and zooms in on the selected object in the topology map. - If more than one object is found that matches the Search string, MWTM displays the Choose dialog, enabling you to select from a list of the found objects. See the “Using the Selection Dialog” section on page 8-16 for further details.
Cancel	Exits the Find Objects dialog without launching the search.

Using the Selection Dialog

If more than one object is found that matches the **Search string** in the Find Objects dialog, MWTM displays the Selection Dialog.

The Selection Dialog contains the following field and buttons:

Field or Button	Description
Select one in list	Type, Name or Status of the found objects. Select the object you want to find.
Select	Highlights the selected object in the left pane of the Topology Window, and zooms in on the selected object in the topology map.
Cancel	Closes the Selection Dialog without selecting an object.

Related Topics:

- [Finding an Object, page 8-15](#)

Scrolling in the Topology Map

To scroll around in the topology map, use one of the following procedures:

- Use the scroll bar with your mouse.
- Click anywhere in the map, then click the arrow, **Page Up**, and **Page Down** keys on your keyboard.

Centering the Topology Map on an Object

To redraw the topology map centered on a specific node, double-click the object in a table in the left pane of the window.

Displaying Detailed Information About a Topology Map Element

To display detailed information about an element in the map, double-click it, then respond to MWTM prompts:

- Double-click a node to display the MWTM Main window details for that object.
- Double-click a single line, or a diamond, circle, or arrowhead at the end of a single line, to display the MWTM Main window details for that interface.

Displaying the Topology New Objects Panel

To display the topology New Objects panel, select the **New Objects** tab in the left pane, or click the “New!” icon in the bottom of the window. The topology New Objects panel displays graphical elements for newly discovered objects, based on the following criteria:

- If you are using an MWTM client with the DEFAULT view set, this panel never contains any objects. In the DEFAULT view, MWTM adds all newly discovered objects to the topology map as soon as they are discovered.
- If you are using an MWTM client with a custom view set, this panel contains all objects discovered since the Topology Window was opened in this session that have *not* been excluded in the Excluded from View table of the View Editor Window, or that are not in the current view.
- To add a newly discovered object to the topology map, select one or more objects in the topology New Objects panel and drag them to the map while holding down the left mouse button.
- To exclude a newly discovered object from the topology New Objects panel, see the [“Creating a New View” section on page 4-31](#).

Displaying the Topology Excluded Objects Panel

To display the topology Excluded Objects panel, select the **Excluded Objects** tab in the left pane. The topology Excluded Objects panel displays graphical elements for excluded objects. Excluded objects are objects that you have chosen not to manage, that you have moved to the Excluded from View table of the View Editor Window. (See the [“Creating a New View” section on page 4-31](#) for more information about excluding objects from views.)

To add an excluded object to the topology map, select the object and drag it to the map while holding down the left mouse button. When you do so, the object is no longer excluded, and it is removed from the Excluded from View table of the View Editor Window.

Printing the Topology Map

To print the topology map, see the [“Printing MWTM Windows” section on page 3-31](#).

Saving the Topology Map as a JPEG File

MWTM enables you to save the topology map to a JPEG file. You can save the entire topology map, or just the current window.

To save the topology map to a JPEG file, select **Topology Tools > Save as JPEG** from the MWTM Main Menu.

MWTM displays the Save as JPEG dialog.

The Save as JPEG dialog contains the following fields and buttons:

Field or Button	Description
All	Saves the entire topology map as a JPEG file. The default setting is for this checkbox to be selected.
Current Window	Saves just the portion of the topology map displayed in the current window as a JPEG file. The default setting is for this checkbox to be cleared (that is, save the entire map, not just the current window).
Quality	Specifies the quality of the JPEG file, from 0 (lowest quality) to 1.0 (highest quality). The default setting is 0.7, which is sufficient for most JPEG files.
Max. Size	Specifies the size of the JPEG file, in pixels. Choose a value from the drop-down list box. The valid range is 400 pixels to 2400 pixels. The default value is 400 pixels, which is sufficient for most JPEG files.
Name	Enter a name for the JPEG file, or accept the default filename, <i>out.jpg</i>. The default directory for the JPEG file is the directory in which you installed the MWTM client: • In Solaris/Linux, the default installation directory for the MWTM client is <i>/opt/CSCOsgmClient</i>. • In Windows, the default installation directory for the MWTM client is <i>C:\Program Files\SGMClient\</i>. • If you installed the MWTM client in a different directory, then the installation directory is located in that directory. If you do not want to save the JPEG file to the default directory, click Browse to select a different directory.
Browse	Opens the Save dialog for a topology map, which enables you to specify or select a name when you save the JPEG file. If you do not want to save the JPEG file to the default directory, click Browse to select a different directory.
Save	Saves the JPEG file and closes the Save as JPEG dialog.
Cancel	Closes the Save as JPEG dialog without saving the JPEG file.

Selecting a Directory for the JPEG File

MWTM enables you to specify or select a name or directory when you save a topology map to a JPEG file. You can save the entire topology map, or just the current window.

To specify a name or directory for the JPEG file, click **Browse** in the Save as JPEG dialog.

MWTM displays the Save dialog for a topology map.

The Save dialog for a topology map contains the following fields and buttons:

Field or Button	Description
Save In	Enables you to select the directory in which you want to save the topology map JPEG file. Either accept the default directory, or select a new directory from the drop-down list box.
File Name	Enter a name for the JPEG file, or select a file from those listed in the Save In field.
Files of Type	Specifies the type of file to save, and displays all files of that type in the selected directory. Select a file type from the drop-down list box: All files—Displays all files in the selected directory, and saves the topology map file as a JPEG file. jpg files—Displays only JPEG files in the selected directory, and saves the topology map file as a JPEG file. This is the default value.
Up One Level	Displays the sub-folders and files that are in the folder that is up one level from the currently displayed folder.
Desktop	Displays the sub-folders and files that are on your workstation desktop.
Create New Folder	Creates a new sub-folder in the currently displayed folder.
List	Displays only icons for sub-folders and files.
Details	Displays detailed information for sub-folders and files, including their size, type, date they were last modified, and so on.
Save	Saves the file and closes the Save dialog for a topology map. When you are satisfied with the settings, click Save . MWTM closes the Save dialog for a topology map and populates the Name field in the Save as JPEG dialog with the new name and directory.
Cancel	Closes the Save dialog for a topology map without saving the file.

Related Topics:

- [Saving the Topology Map as a JPEG File, page 8-18](#)

Activating a Magnetic Grid on the Topology Map

MWTM enables you to activate the magnetic topology grid, and change how it is displayed. With the grid activated, when you move objects on the topology map they “snap” to align with the grid.



Magnetic grid settings are *not* saved when you save the view.

To activate or change the magnetic topology grid, select **Topology Tools > Magnetic Grid** from the MWTM Main Menu. MWTM displays the Magnetic Grid Settings dialog.

The Magnetic Grid Settings dialog contains the following fields and buttons:

Field or Button	Description
Grid Activated	Specifies whether the magnetic topology grid is activated: - To activate the grid, select this checkbox. - To deactivate the grid, clear this checkbox. This is the default setting.
Display Grid	Specifies whether the grid is to be displayed on the topology map: - To display the grid, select this checkbox. This is the default setting. - To hide the grid, clear this checkbox. If Grid Activated is not selected, this checkbox is grayed-out.
Grid Spacing	Specifies the spacing between lines on the grid, in pixels. To specify the spacing between lines on the grid, in pixels, select the Grid Activated checkbox, then select a Grid Spacing level. The valid range is 0 pixels to 150 pixels. The default setting is 50 pixels, which is sufficient for most topology maps.
Grid Color	Opens the Select Grid Color dialog. To specify a color for the grid, select the Grid Activated checkbox, then click Change Color in the Grid Color field. MWTM opens the Select Grid Color dialog.
OK	Sets the new grid settings and closes the Magnetic Grid Settings dialog. When you are satisfied with the magnetic grid settings, click OK.
Cancel	Closes the Magnetic Grid Settings dialog without changing any settings.

Specifying a Color for the Magnetic Grid

MWTM enables you to customize the color of the magnetic topology grid.

**Note**

The grid color is *not* saved when you save the view.

To specify a color for the grid, select the **Grid Activated** checkbox in the Magnetic Grid Settings dialog, then click **Select** in the **Grid Color** field.

MWTM opens the Select Grid Color dialog.

The Select Grid Color dialog is composed of the following sections:

- [Swatches Panel \(Recommended\), page 8-21](#)
- [HSB Panel, page 8-21](#)
- [RGB Panel, page 8-22](#)
- [Select Grid Color Field and Buttons, page 8-22](#)

Related Topics:

- [Activating a Magnetic Grid on the Topology Map, page 8-20](#)

Swatches Panel (Recommended)

The Swatches panel of the Select Grid Color dialog enables you to select a grid color from a set of color swatches. This is the recommended method for selecting a grid color.

To display the Swatches panel, click the **Swatches** tab in the Select Grid Color dialog.

To select a grid color, select a swatch. The selected color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**.

HSB Panel

The HSB panel of the Select Grid Color dialog enables you to select a grid color based on color hue, saturation, and brightness (HSB).

To display the HSB panel, click the **HSB** tab in the Select Grid Color dialog.

To select a grid color, use one of the following procedures:

- Select a color range on the vertical color bar, then select a specific color by moving the cursor around on the color square.
- Enter specific values in the hue (**H**), saturation (**S**), and brightness (**B**) fields.

The selected color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**.

RGB Panel

The RGB panel of the Select Grid Color dialog enables you to select a grid color based on the red, green, and blue (RGB) content of the color.

To display the RGB panel, click the **RGB** tab in the Select Grid Color dialog.

To select a grid color, select values for the **Red**, **Green**, and **Blue** fields. The selected color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**.

Select Grid Color Field and Buttons

The Select Grid Color dialog contains the following field and buttons:

Field	Description
Preview	Displays a preview of the current selected grid color. Whichever method you choose to select a grid color, the selected color is displayed in the Preview field. When you are satisfied with the color, click OK .
OK	Sets the grid color as shown in the Preview field, and closes the Select Grid Color dialog.
Cancel	Closes the Select Grid Color dialog without selecting a grid color.
Reset	Resets the grid color to its initial setting.

Specifying a Background Color for the Topology Map

MWTM enables you to customize the background color of the topology map.

**Note**

The background color is *not* saved when you save the view.

To specify a background color for the topology map, right-click in a blank area of the topology map, then select **Change Background Color** from the right-click menu.

The Select Background Color dialog is composed of the following sections:

- [Swatches Panel \(Recommended\), page 8-23](#)
- [HSB Panel, page 8-24](#)
- [RGB Panel, page 8-24](#)
- [Select Background Color Field and Buttons, page 8-25](#)

Swatches Panel (Recommended)

The Swatches panel of the Select Background Color dialog enables you to select a background color from a set of color swatches. This is the recommended method for selecting a background color.

To display the Swatches panel, click the **Swatches** tab in the Select Background Color dialog.

To select a background color, select a swatch. The selected color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**.

HSB Panel

The HSB panel of the Select Background Color dialog enables you to select a background color based on color hue, saturation, and brightness (HSB).

To display the HSB panel, click the **HSB** tab in the Select Background Color dialog.

To select a grid color, use one of the following procedures:

- Select a color range on the vertical color bar, then select a specific color by moving the cursor around on the color square.
- Enter specific values in the hue (**H**), saturation (**S**), and brightness (**B**) fields.

The selected color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**.

RGB Panel

The RGB panel of the Select Background Color dialog enables you to select a background color based on the red, green, and blue (RGB) content of the color.

To display the RGB panel, click the **RGB** tab in the Select Background Color dialog.

To select a background color, select values for the **Red**, **Green**, and **Blue** fields. The selected color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**.

Select Background Color Field and Buttons

The Select Background Color dialog contains the following field and buttons:

Field	Description
Preview	Displays a preview of the current selected background color. Whichever method you choose to select a background color, the selected color is displayed in the Preview field. When you are satisfied with the color, click OK .
OK	Sets the background color as shown in the Preview field, and closes the Select Background Color dialog.
Cancel	Closes the Select Background Color dialog without selecting a background color.
Reset	Resets the background color to its initial setting.

Aligning Objects on the Topology Map



Note

To un-align objects, simply drag and drop the object to move it on the topology map.

MWTM enables you to align two or more objects on the topology map. You can align the objects based on their left, right, top, or bottom edges, or you can center them in the map. The alignment is saved when you save the view.

To align objects, select the objects you want to align, then select **Topology Tools > Align** from the MWTM Main Menu. MWTM displays MWTM opens the Align Dialog.

The Align Dialog contains the following field and buttons:

Field	Description
Vertically: None	Does not align the selected objects vertically.
Vertically: Left	Aligns the selected objects vertically, aligned with the left-most edge of the left-most selected object.
Vertically: Center	Aligns the selected objects vertically, with centers aligned.
Vertically: Right	Aligns the selected objects vertically, aligned with the right-most edge of the right-most selected object.
Vertically: Side by side	Aligns the selected objects vertically, aligned side-by-side, with no horizontal space between the objects. (There might still be vertical space between the objects.)
Horizontally: None	Does not align the selected objects horizontally.
Horizontally: Top	Aligns the selected objects horizontally, aligned with the top-most edge of the top-most selected object.
Horizontally: Center	Aligns the selected objects horizontally, with centers aligned.

Field	Description
Horizontally: Bottom	Aligns the selected objects horizontally, aligned with the bottom-most edge of the bottom-most selected object.
Horizontally: Side by side	Aligns the selected objects horizontally, aligned side-by-side, with no vertical space between the objects. (There might still be horizontal space between the objects.)
Apply	Aligns the selected objects and keeps the Align Dialog open, enabling you to continue aligning objects.
OK	Aligns the selected objects and closes the Align Dialog.
Cancel	Closes the Align Dialog. Changes you applied are saved; other changes are not saved.
Help	Opens the Help window for this object.

Hiding and Redrawing Lines When Redrawing

MWTM enables you to hide lines as you drag an object around the topology map, then draw the link lines when you drop the object in its final position. To do so, click the **Node Dragging Optimizer** button to turn it on. This is the default setting.

To have MWTM continually redraw lines as you drag an object around the topology map, click the **Node Dragging Optimizer** button to turn it off.

This setting, with the Node Dragging Optimizer on or off, is saved automatically with your preferences.

Hiding and Showing Lines When Redrawing

MTWM enables you to hide lines that connect to objects that are not in the current view, called dangling connections. To do so, click the **Hiding/Showing Dangling Connections** button to set it to **Hide**. This is the default setting.

To show dangling connections, click the **Hiding/Showing Dangling Connections** button to set it to **Show**. MWTM draws the lines in shades of gray to distinguish them from actual objects in the current view.

This setting, with the Hiding Dangling Connections set to **Show** or **Hide**, is *not* saved when you save the view.

To include a dangling connection in the current view, right-click the signaling point and select **Include In View**.

Locking and Unlocking the Position of an Icon

MWTM enables you to lock the position of an icon on the topology map. Locking the position of an icon can be useful if you want to keep the icon in its position, and you want to make sure you do not move it inadvertently. Locked icons are not included in the circular or spring layouts.

- To lock the position of an icon on the topology map, right-click an unlocked icon, then select **Lock Position**.

- To unlock the position of an icon on the topology map, right-click a locked icon, then select **Unlock Position**. This is the default setting.

This setting, with icon positions locked or unlocked, is saved when you save the view.

Turning Off Antialiasing to Improve Performance

Antialiasing, which is on by default, improves the appearance of the icons and connections in the topology map. However, antialiasing can impact the performance of the MWTM client on a remote workstation (that is, a Solaris/Linux workstation using **xhost**, or a Windows workstation using an X-Window system emulator such as eXceed or Reflection X).

MWTM enables you to turn off antialiasing to improve the performance of the MWTM client on a remote workstation. To do so, select the **X Performance Enhancer (AntiAliasing Off)** checkbox in the Topology settings in the Preferences window. For more information, see the [“Topology Settings” section on page 11-9](#).

To turn antialiasing back on, clear the checkbox.

Keep in mind that performance is always better if you access MWTM by installing the MWTM client on the remote workstation.

Saving the Topology Map

When you are ready to close the Topology Window, select **File > Save View** from the MWTM Main Menu. MWTM prompts you to save any changes you made to the network view, including any changes you have made to the topology map layout, and closes the window.

For more information, see the [“Closing the View Editor Window” section on page 4-39](#).

Restoring the Topology Map

MWTM enables you to restore the topology map to the way it looked in the last saved view. To do so, select **Topology Tools > Restore Positions** from the MWTM Main Menu. MWTM restores the view.



CHAPTER 9

Working with MWTM Statistics Reports

Once every hour, MWTM gathers critical information from all known network objects. MWTM then uses that information to calculate statistics, and generates reports based on those statistics.

MWTM enables you to:

- View and export detailed RAN utilization statistics summary reports.
- Create, view, and export custom statistics reports.
- Change the way MWTM displays information in reports.

By default, MWTM stores all report data in the database.

Viewing RAN Backhaul Utilization Statistics Report

MWTM enables you to view the RAN Backhaul Utilization statistics report. You can also export the report.

To view the report, select **RAN Backhaul Utilization** from the MWTM Server Home Page.

The following table describes the additional menu options provided by the RAN Backhaul Utilization Statistics page:

Menu Command	Description
Home	Displays the MWTM Server Home Page.
RAN Backhaul Utilization	Displays the RAN Backhaul Utilization Statistics page.
RAN Data Export	Exports the RAN Backhaul Utilization summary data (for capacity planning) or the 15-minute statistics data in Excel file format. Displays a File Download window to open the export file or save it to your computer.
Help	Displays the MWTM online help system.

The RAN Backhaul Utilization Statistics Report provides statistical data in two formats:

- [Capacity Planning Report](#)—Summary data that is derived from the raw data and provides summaries of GSM and UMTS traffic utilization on the backhaul links. This data can be displayed on a yearly, monthly, daily, and hourly basis and can be used for capacity planning.

- [View 15 Minutes Statistics Report](#)—Raw backhaul performance data collected in 15 minute intervals that can be displayed on a yearly, monthly, daily, or hourly basis. This data can be used for detailed analysis of traffic utilization on the backhaul links.

The RAN Backhaul Utilization Statistics Report table displays the following information:

Field or Column	Description
Title	Title of the MWTM report and the name of the server.
Node	The node from which the data is collected. Clicking on the node name displays the summary data for the selected year for use in capacity planning.
Capacity Planning: Year	Displays the summary data for the selected year for use in capacity planning.
Capacity Planning: Month	Displays the summary data for the selected month for use in capacity planning.
Capacity Planning: Day	Displays the summary data for the selected day for use in capacity planning.
Capacity Planning: Hour	Displays the summary data for the selected hour for use in capacity planning.
View 15 Minutes Statistics: Year	Displays raw data collected in 15-minute intervals for the selected year.
View 15 Minutes Statistics: Month	Displays raw data collected in 15-minute intervals for the selected month.
View 15 Minutes Statistics: Day	Displays raw data collected in 15-minute intervals for the selected day.
View 15 Minutes Statistics: Hour	Displays raw data collected in 15-minute intervals for the selected hour.

Capacity Planning Report

The Capacity Planning Report table has two sections:

- [Capacity Planning Section](#)—Displays summary data for all traffic, GSM traffic, and UMTS traffic on the backhaul interface.
- [Backhaul Utilization Statistics Section](#)—Displays summary data for a specific traffic protocol (GSM, UMTS, or All) on the backhaul interface.

Capacity Planning Section

The Capacity Planning section is at the top of the Capacity Planning report and displays the following information:

Field or Column	Description
Title	Title of the MWTM report, the name of the server, the name of the node, and whether the report is yearly, monthly, daily, or hourly.
Protocol: Interface	The name of the backhaul interface for which statistics are displayed.
Protocol: Direction	The direction of the traffic (send or receive) on the backhaul interface.
Protocol: Available Bandwidth (KBits/sec)	The maximum available bandwidth on the backhaul interface.
All	Click this link to display the Backhaul Utilization Statistics Section of the report for <i>all</i> protocols (GSM and UMTS).
All: Peak Traffic (KBits/sec)	The peak traffic for all protocols on the backhaul interface.
All: % Peak Utilization	The percentage of peak traffic utilization for all protocols on the backhaul interface.
GSM	Click this link to display the Backhaul Utilization Statistics Section of the report for GSM traffic.
GSM: Peak Traffic (KBits/sec)	The peak GSM traffic on the backhaul interface.
GSM: % Peak Utilization	The percentage of peak GSM traffic utilization on the backhaul interface.
UMTS	Click this link to display the Backhaul Utilization Statistics Section of the report for UMTS traffic.
UMTS: Peak Traffic (KBits/sec)	The peak UMTS traffic on the backhaul interface.
UMTS: % Peak Utilization	The percentage of peak UMTS traffic utilization on the backhaul interface.

Backhaul Utilization Statistics Section

The Backhaul Utilization Statistics section follows the Capacity Planning section of the Capacity Planning report and displays the following information:

Field or Column	Description
Interface	The name of the backhaul interface for which statistics are displayed.
Protocol	The protocol of the traffic on the backhaul interface. This value can be GSM , UMTS , or All .
Backhaul Utilization	Displays 10 backhaul utilization percentage ranges from 00-09% to 90-100%. Used with the Time in Range data, you can determine the length of time during which the backhaul utilization is between 0 and 9%, or between 10 and 19%, and so on.
Send: Time in Range	The length of time in which send traffic falls into a specific percentage range.
Send: % Time in Range	The percentage of the total time in which send traffic falls into a specific percentage range.

Field or Column	Description
Receive: Time in Range	The length of time in which receive traffic falls into a specific percentage range.
Receive: % Time in Range	The percentage of the total time in which receive traffic falls into a specific percentage range.
Peak Utilization (%)	The percentage of time that is utilized by peak traffic on the backhaul interface for send and receive traffic.
Peak Timestamp	The timestamp (date and time) when the peak traffic occurred on the backhaul interface.

View 15 Minutes Statistics Report

The View 15 Minutes Statistics Report displays the following information:

Field or Column	Description
Title	Title of the MWTM report, the name of the server, the name of the node, and whether the report is yearly, monthly, daily, or hourly.
Node	The node from which the data is collected.
Interface	The name of the backhaul interface for which statistics are displayed.
Protocol	The protocol of the traffic (GSM Abis, UMTS Iub, or All) on the backhaul interface.
Direction	The direction of the traffic (receive or transmit) on the backhaul interface.
Percentage Ranges	Ten backhaul utilization percentage ranges from 00-09% to 90-100%.
Peak Util	The percentage of peak traffic utilization on the backhaul interface.
Peak Timestamp	The timestamp (date and time) when the peak traffic occurred on the backhaul interface.
Bandwidth (KBits/sec)	The maximum available bandwidth on the backhaul interface.



CHAPTER 10

Configuring MWTM Security

This chapter provides the following information about configuring MWTM security and limiting access to MWTM:

- [Configuring MWTM User-Based Access, page 10-1](#)
- [Implementing SSL Support in MWTM \(Solaris Only\), page 10-22](#)
- [Limiting MWTM Client Access to the MWTM Server \(Server Only\), page 10-32](#)

Configuring MWTM User-Based Access

MWTM enables you to control who is allowed to do what in MWTM, beyond simply specifying root and non-root users. MWTM calls this ability User-Based Access.

User-Based Access provides multi-level password-protected access to MWTM features. Each user can have a unique user name and password. Each user can also be assigned to one of five levels of access, which control the list of MWTM features accessible by that user.

To configure MWTM User-Based Access, perform the tasks in the following sections. Required and optional tasks are indicated.

- [Implementing MWTM User-Based Access \(Server Only\), page 10-2](#) (Required)
- [Creating Secure Passwords, page 10-5](#) (Required)
- [Configuring MWTM User Authentication Levels \(Server Only\), page 10-6](#) (Required)
- [Automatically Disabling Users and Passwords \(Server Only\), page 10-8](#) (Optional)
- [Manually Disabling Users and Passwords \(Server Only\), page 10-11](#) (Optional)
- [Enabling and Changing Users and Passwords \(Server Only\), page 10-13](#) (Optional)
- [Displaying a Message of the Day \(Server Only\), page 10-15](#) (Optional)
- [Manually Synchronizing Local MWTM Passwords \(Server Only\), page 10-17](#) (Optional)
- [Listing All Currently Defined Users \(Server Only\), page 10-17](#) (Optional)
- [Displaying the Contents of the System Security Log \(Server Only\), page 10-18](#) (Optional)
- [Restoring Security-Related MWTM Data \(Server Only\), page 10-19](#) (Optional)
- [Disabling MWTM User-Based Access \(Server Only\), page 10-19](#) (Optional)
- [Specifying a Super User \(Server Only\), page 10-19](#) (Optional)

Implementing MWTM User-Based Access (Server Only)

Before you can access MWTM's full suite of security commands, you must enable MWTM User-Based Access, configure the type of security authentication you want to use, and begin adding users to your authentication lists.

To implement MWTM User-Based Access, use the following procedure:

Step 1 Log in as the root user, as described in the [“Becoming the Root User \(Server Only\)”](#) section on page 3-3, or as a super user, as described in the [“Specifying a Super User \(Server Only\)”](#) section on page 10-19.

Step 2 Enter the following commands:

```
# cd /opt/CSCOsgm/bin  
  
# ./mwtm useraccess enable
```

MWTM User-Based Access is enabled the next time you restart the MWTM server.

Step 3 If you have already configured the type of MWTM security authentication you want to use, skip to [Step 4](#).

Otherwise, configure the type of MWTM security authentication you want to use:

- *Local authentication* allows you to create user accounts and passwords local to the MWTM system. When using this method, you can use MWTM User-Based Access commands manage user names, passwords, and access levels.

To enable local authentication, enter the following command:

```
# ./mwtm authtype local
```

- *Solaris/Linux authentication* uses standard Solaris/Linux-based user accounts and passwords, as specified in the `/etc/nsswitch.conf` file. Authentication can be provided by the local `/etc/passwd` file or from a distributed Network Information Services (NIS) system. You can use all MWTM User-Based Access commands except the following commands:

- **mwtm disablepass**
- **mwtm passwordage**
- **mwtm userpass**

You must use Solaris/Linux commands, such as **passwd**, to manage passwords.

Users also cannot change their passwords using the MWTM client. Instead, they must manage their passwords on the external authentication servers, using Solaris/Linux commands, such as **passwd**.

All new passwords take effect the next time MWTM automatically synchronizes local MWTM passwords with Solaris/Linux, or you can manually synchronize passwords at any time using the **mwtm syncusers** command.

In addition, if you have enabled Solaris/Linux authentication, you must be logged in as the root user, not as a super user, to use the following MWTM commands:

- **mwtm adduser**
- **mwtm disableuser**
- **mwtm enableuser**
- **mwtm updateuser**

To enable Solaris/Linux authentication, enter one of the following commands:

```
# ./mwtm authtype solaris
```

or

```
# ./mwtm authtype linux
```

depending upon which platform your MWTM server is running.

See the [“MWTM Command Reference” section on page C-1](#) for more information on the use of each of the above MWTM commands.

Step 4 To add a user to your MWTM User-Based Access authentication list, use the following command:

```
# ./mwtm adduser username
```

where *username* is the name of the user.



Note

If **mwtm authtype** is set to **solaris** or **linux**, you must be logged in as the root user, not as a super user, to enter this command.

MWTM also prompts you for the authentication level for the user. Valid levels are:

- **1**—Basic User
- **2**—Power User
- **3**—Network Operator
- **4**—Network Administrator
- **5**—System Administrator

For more information about authentication levels, see the [“Configuring MWTM User Authentication Levels \(Server Only\)” section on page 10-6](#).

If **mwtm authtype** is set to **local**, MWTM also issues the following prompts:

- MWTM prompts you for the user's password. When setting the password, follow the rules and considerations in the [“Creating Secure Passwords” section on page 10-5](#).
- MWTM asks whether you want to force the user to change the password at the next login. The default is not to force the user to change the password.

(Whenever a user needs to change a password, MWTM issues an appropriate message and prompts for the user name and new password.)

**Note**

If **mwtm authtype** is set to **solaris** or **linux**, users cannot change their passwords using the MWTM client. Instead, they must manage their passwords on the external authentication servers, using Solaris/Linux commands, such as **passwd**. All new passwords take effect the next time MWTM automatically synchronizes local MWTM passwords with Solaris/Linux, or you can manually synchronize passwords at any time using the **mwtm syncusers** command. See the [“mwtm syncusers” section on page C-67](#) for more information.

At this point, you have implemented your basic MWTM User-Based Access. Users must now log in before using the MWTM client and MWTM Web-based functions. Use the remaining procedures in this section to customize your MWTM security system.

**Note**

After you implement MWTM User-Based Access, if a user logs in on one MWTM client, then logs in on a second MWTM client, MWTM closes the first client and records the event in the system security log.

Creating Secure Passwords

When setting passwords in MWTM, keep in mind the following rules and considerations:

- The password must be at least 6 characters, up to an unlimited number of characters. However, passwords longer than 15 characters are not recommended.
- The password cannot be identical to the user name.
- The new password cannot be the same as the old password.
- MWTM does not allow users to switch back-and-forth between two passwords.
- The password cannot be a common word. MWTM uses the dictionary located at `/usr/lib/share/dict/words` to determine whether a word is common. To override the MWTM dictionary, change the `DICT_FILE` entry in the *System.properties* file:
 - To disable the MWTM dictionary and allow common words, change the `DICT_FILE` entry to:

`DICT_FILE=/dev/null`

- To use a custom dictionary, change the `DICT_FILE` entry to:

`DICT_FILE=/new-dictionary`

where *new-dictionary* is the path and filename of the custom dictionary file, such as `/users/rolive/words`. Each line in the custom dictionary must contain a single word, with no leading or trailing spaces.

Configuring MWTM User Authentication Levels (Server Only)

This section describes the user authentication levels in MWTM, and the MWTM functions and Web displays available at each level:

- [Basic User \(Level 1\) Access, page 10-6](#)
- [Power User \(Level 2\) Access, page 10-7](#)
- [Network Operator \(Level 3\) Access, page 10-7](#)
- [Network Administrator \(Level 4\) Access, page 10-7](#)
- [System Administrator \(Level 5\) Access, page 10-8](#)

The authentication level that includes a function is the *lowest* level with access to that function. The function is also available to all higher authentication levels. For example, a System Administrator also has access to all Network Administrator functions.

Authentication levels are based on the function to be performed, not on the target object. Therefore, if a user can perform a function on one MWTM object (such as deleting a node), the user can perform the same function on all similar MWTM objects.

**Note**

Access to MWTM information and downloads on Cisco.com is already protected by Cisco.com, and is not protected by MWTM.

To configure the authentication level for a user, use the **mwtm adduser** command, as described in the [“Implementing MWTM User-Based Access \(Server Only\)” section on page 10-2](#), or the **mwtm updateuser** or **mwtm newlevel** command, as described in the [“Enabling and Changing Users and Passwords \(Server Only\)” section on page 10-13](#).

Basic User (Level 1) Access

Basic Users can view MWTM data, load MWTM files, and use MWTM drill-down menus.

Basic Users have access to the following MWTM functions:

- Connecting to a new server
- Applying changes to views
- Loading the DEFAULT view and existing views, but not saving them
- Editing, loading, and applying preferences files, but not saving them
- Viewing and manipulating the topology map, and saving it as a JPEG, but not saving icon locations
- Viewing network objects, events, details, and notes
- Viewing the MWTM home page
- Loading existing event filters, but not saving them
- Printing MWTM windows
- Launching CiscoWorks

Basic Users have access to the following MWTM Web displays:

- Server Home Page
- System README
- Network Status

- System Data Files
 - Notes
 - Views
 - Preferences
- Viewing MWTM documentation
- Downloading client software

Power User (Level 2) Access

Power Users have access to all Basic User functions.

Power Users can change some aspects of the way MWTM works.

Power Users have access to the following MWTM functions:

- Editing network objects, events, and views
- Unignoring network objects and views
- Saving preferences files, event filters, and views
- Acknowledging events
- Viewing MWR real-time data and charts
- Viewing the event configuration, but not editing it

Power Users have access to the following MWTM Web displays:

- System Status, excluding User Accounts and System Troubleshooting
- Network Statistics Reports

Network Operator (Level 3) Access

Network Operators have access to all Basic User and Power User functions.

Network Operators can make changes to MWTM network files.

Network Operators have access to the following MWTM functions:

- Ignoring network objects and views
- Polling nodes
- Telnetting to the MWR

Network Administrator (Level 4) Access

Network Administrators have access to all Basic User, Power User, and Network Operator functions.

Network Administrators have access to all MWTM client functions.

Network Administrators have access to the following MWTM functions:

- SNMP configuration
- Network Discovery
- Deleting network objects
- Managing and unmanaging nodes

- Using the Deployment Wizard

Network Administrators have access to the following MWTM Web displays:

- System Data Files: Discovery Seeds

System Administrator (Level 5) Access

System Administrators have access to all Basic User, Power User, Network Operator, and Network Administrator functions.

System Administrators have access to all functions in MWTM.

System Administrators have access to the following MWTM Web displays:

- System Messages and Logs
- System Status, including User Accounts and System Troubleshooting
- Trap Configuration, including SNMP configuration information
- System Information
 - System Command Log
 - System Console Log
 - System Event Automation Log
 - System Install Log
 - System Process Services
 - System Properties
 - System Root Variables
 - System Security Log
 - System Web Access Log
 - System Web Error Log

Automatically Disabling Users and Passwords (Server Only)

After you have implemented the basic MWTM User-Based Access security system, you can customize the system to automatically disable users and passwords when certain conditions are met.

To automatically disable users and passwords, use the following procedures:

-
- Step 1** Log in as the root user, as described in the [“Becoming the Root User \(Server Only\)”](#) section on page 3-3, or as a super user, as described in the [“Specifying a Super User \(Server Only\)”](#) section on page 10-19.
- Step 2** Enter the following command:
- ```
cd /opt/CSCOs/gm/bin
```
- Step 3** (Optional) You can configure MWTM to generate an alarm after a specified number of unsuccessful login attempts by a user. To do so, enter the following command:
- ```
# ./mwtm badloginalarm number-of-attempts
```


where *number-of-attempts* is the number of unsuccessful login attempts allowed before MWTM generates an alarm.

The valid range is 1 unsuccessful attempt to an unlimited number of unsuccessful attempts. The default value is 5 unsuccessful attempts.

To disable this function (that is, to prevent MWTM from automatically generating an alarm after unsuccessful login attempts), enter the following command:

```
# ./mwtm badloginalarm clear
```

- Step 4** (Optional) You can configure MWTM to disable a user's security authentication automatically after a specified number of unsuccessful login attempts. To do so, enter the following command:

```
# ./mwtm badlogindisable number-of-attempts
```

where *number-of-attempts* is the number of unsuccessful login attempts allowed before MWTM disables the user's authentication. MWTM does not delete the user from the authentication list, MWTM only disables the user's authentication.

The valid range is 1 unsuccessful attempt to an unlimited number of unsuccessful attempts. The default value is 10 unsuccessful attempts.

To re-enable the user's authentication, use the **mwtm enableuser** command.

To disable this function (that is, to prevent MWTM from automatically disabling a user's authentication after unsuccessful login attempts), enter the following command:

```
# ./mwtm badlogindisable clear
```

- Step 5** (Optional) MWTM keeps track of the date and time each user last logged in. You can configure MWTM to disable a user's security authentication automatically after a specified number of days of inactivity. To do so, enter the following command:

```
# ./mwtm inactiveuserdays number-of-days
```

where *number-of-days* is the number of days a user can be inactive before MWTM disables the user's authentication. MWTM does not delete the user from the authentication list, MWTM only disables the user's authentication.

The valid range is 1 day to an unlimited number of days. There is no default setting.

To re-enable the user's authentication, use the **mwtm enableuser** command.

This function is disabled by default. If you do not specify the **mwtm inactiveuserdays** command, user accounts are never disabled as a result of inactivity.

If you have enabled this function and you want to disable it (that is, to prevent MWTM from automatically disabling user accounts as a result of inactivity), enter the following command:

```
# ./mwtm inactiveuserdays clear
```

- Step 6** (Optional) If **mwtm authtype** is set to **local**, you can configure MWTM to force users to change their passwords after a specified number of days.

To configure MWTM to force users to change their passwords after a specified number of days, enter the following command:

```
# ./mwtm passwordage number-of-days
```

where *number-of-days* is the number of days allowed before users must change their passwords.

The valid range is 1 day to an unlimited number of days. There is no default setting.

This function is disabled by default. If you do not specify the **mwtm passwordage** command, users never need to change their passwords.

If you have enabled this function and you want to disable it (that is, prevent MWTM from forcing users to change passwords), enter the following command:

```
# ./mwtm passwordage clear
```



Note If **mwtm authtype** is set to **solaris** or **linux**, you cannot use the **mwtm passwordage** command. Instead, you must manage passwords on the external authentication servers.

Step 7 (Optional) You can configure MWTM to disconnect an MWTM client automatically after a specified number of minutes of inactivity. To do so, enter the following command:

```
# ./mwtm clitimeout number-of-minutes
```

where *number-of-minutes* is the number of minutes an MWTM client can be inactive before MWTM disconnects the client.

The valid range is 1 minute to an unlimited number of minutes. There is no default value.

This function is disabled by default. If you do not specify the **mwtm clitimeout** command, clients are never disconnected as a result of inactivity.

If you have enabled this function and you want to disable it (that is, never disconnect a client as a result of inactivity), enter the following command:

```
# ./mwtm clitimeout clear
```

Manually Disabling Users and Passwords (Server Only)

As described in the “[Automatically Disabling Users and Passwords \(Server Only\)](#)” section on page 10-8, you can customize MWTM to automatically disable users and passwords when certain conditions are met. However, you can also manually disable MWTM User-Based Access users and passwords when the need arises. To do so, use the following procedures:

Step 1 Log in as the root user, as described in the “[Becoming the Root User \(Server Only\)](#)” section on page 3-3, or as a super user, as described in the “[Specifying a Super User \(Server Only\)](#)” section on page 10-19.

Step 2 Enter the following command:

```
# cd /opt/CSCOsgrm/bin
```

Step 3 (Optional) To delete a user entirely from the MWTM User-Based Access authentication list, enter the following command:

```
# ./mwtm deluser username
```

where *username* is the name of the user.

If you later decide to add the user back to the authentication list, you must use the **mwtm adduser** command.

Step 4 (Optional) If **mwtm authtype** is set to **local**, you can disable a user’s password. To do so, enter the following command:

```
# ./mwtm disablepass username
```

where *username* is the name of the user. MWTM does not delete the user from the authentication list, MWTM only disables the user’s password.



Note If **mwtm authtype** is set to **solaris** or **linux**, you cannot use the **mwtm disablepass** command. Instead, you must manage passwords on the external authentication servers.

The user must change his password the next time he logs in.

You can also re-enable the user's authentication with the same password, or with a new password:

- To re-enable the user's authentication with the same password as before, use the **mwtm enableuser** command.
- To re-enable the user's authentication with a new password, use the **mwtm userpass** command.

Step 5 (Optional) To disable a user's authentication, but not the user's password, use the following command:

```
# ./mwtm disableuser username
```

where *username* is the name of the user.



Note If **mwtm authtype** is set to **solaris** or **linux**, you must be logged in as the root user, not as a super user, to enter this command.

MWTM does not delete the user from the authentication list, MWTM only disables the user's authentication. The user cannot log in until you re-enable the user's authentication:

- To re-enable the user's authentication with the same password as before, use the **mwtm enableuser** command.
 - To re-enable the user's authentication with a new password, use the **mwtm userpass** command.
-

Enabling and Changing Users and Passwords (Server Only)

Of course, MWTM also enables you to re-enable users and passwords, and change user accounts. To enable and change users and passwords, use the following procedures:

Step 1 Log in as the root user, as described in the “[Becoming the Root User \(Server Only\)](#)” section on page 3-3, or as a super user, as described in the “[Specifying a Super User \(Server Only\)](#)” section on page 10-19.

Step 2 Enter the following command:

```
# cd /opt/CSCOsgm/bin
```

Step 3 (Optional) To re-enable a user’s authentication, which had been disabled either automatically by MWTM or by a super user, enter the following command:

```
# ./mwtm enableuser username
```

where *username* is the name of the user. MWTM re-enables the user’s authentication with the same password as before.



Note If **mwtm authtype** is set to **solaris** or **linux**, you must be logged in as the root user, not as a super user, to enter this command.

Step 4 (Optional) If **mwtm authtype** is set to **local**, you can change a user’s password, or re-enable the user’s authentication with a new password, if the user’s authentication had been disabled either automatically by MWTM or by a super user. To change a password or to re-enable a user’s authentication with a new password, enter the following command:

```
# ./mwtm userpass username
```

where *username* is the name of the user.

MWTM prompts you for the new password. When setting the password, follow the rules and considerations in the “[Creating Secure Passwords](#)” section on page 10-5.

If the user’s authentication has also been disabled, MWTM re-enables the user’s authentication with the new password.



Note If **mwtm authtype** is set to **solaris** or **linux**, you cannot use the **mwtm userpass** command. Instead, you must manage passwords on the external authentication servers.

Step 5 (Optional) To change a user’s authentication level and password, enter the following command:

```
# ./mwtm updateuser username
```

where *username* is the name of the user.



Note If **mwtm authtype** is set to **solaris** or **linux**, you must be logged in as the root user, not as a super user, to enter this command.

MWTM prompts you for the new authentication level. Valid levels are:

- 1—Basic User

- 2—Power User
- 3—Network Operator
- 4—Network Administrator
- 5—System Administrator

For more information about authentication levels, see the [“Configuring MWTM User Authentication Levels \(Server Only\)”](#) section on page 10-6.

If **mwtm authtype** is set to **local**, MWTM also prompts you for the user’s new password. When setting the password, follow the rules and considerations in the [“Creating Secure Passwords”](#) section on page 10-5.

Step 6 (Optional) To change a user's authentication level, but not the user's password, enter the following command:

```
# ./mwtm newlevel username
```

where *username* is the name of the user.

MWTM prompts you for the new authentication level. Valid levels are:

- 1—Basic User
- 2—Power User
- 3—Network Operator
- 4—Network Administrator
- 5—System Administrator

For more information about authentication levels, see the [“Configuring MWTM User Authentication Levels \(Server Only\)” section on page 10-6](#).

Displaying a Message of the Day (Server Only)

MWTM enables you to display a user-specified MWTM system notice called the message of the day . You can use the message of the day to inform users of important changes or events in the MWTM system. The message of the day also gives users an opportunity to exit the MWTM client before launching.

If the message of the day is enabled, it is displayed whenever a user attempts to launch an MWTM client:

- If the user accepts the message, the client launches.
- If the user declines the message, the client does not launch.

To display the Message of the Day dialog, use one of the following procedures:

- Launch the MWTM client. If there is a message of the day, the Message of the Day dialog is displayed.
- Select **View > Message of the Day** from the MWTM Main Menu.

- Select the MWTM server name in the bottom right corner of the MWTM Main Window.
- MWTM displays the Message of the Day dialog

The Message of the Day dialog contains the following fields and buttons:

Field or Button	Description
Message of the Day Last Updated	Date and time the message of the day was last updated. If there is no message of the day, MWTM displays Unknown .
Message Field	Text of the message of the day. If there is no message of the day, MWTM displays There is no message of the day .
Accept	Closes the Message of the Day dialog and launches the client. If you do not click Accept , you cannot launch the client. This button is available when there is a message of the day and you launch the MWTM client.
Decline	Closes the Message of the Day dialog and exits the client. This button is available when there is a message of the day and you launch the MWTM client.
OK	Closes the Message of the Day dialog without exiting the client. This button is available if you displayed the Message of the Day dialog by selecting View > Message of the Day from the MWTM Main Menu.

If you want to configure MWTM to display a message of the day, you must first enable the function. To do so, log in as the root user, as described in the [“Becoming the Root User \(Server Only\)”](#) section on page 3-3, or as a super user, as described in the [“Specifying a Super User \(Server Only\)”](#) section on page 10-19, then enter the following commands:

```
# cd /opt/CSCOsgm/bin
```

```
# ./mwtm motd enable
```

MWTM displays the following prompt:

Enter location of the message of the day file: [/opt/CSCOsgm/etc/motd]

To accept the default value, press **Enter**; or type a different location and press **Enter**. MWTM displays the following messages:

Setting Message of the Day File to: [/opt/CSCOsgm/etc/motd]

Message of the Day File set to: [/opt/CSCOsgm/etc/motd]

MWTM server must be restarted for changes to take effect.

Initially, the file is blank; enter the following command to specify the message text:

```
# ./mwtm motd edit
```

You can also use the **mwtm motd edit** command at any time to change the text of the message of the day.

To display the contents of the message of the day file, enter the following command:


```
# ./mwtm motd cat
```

To disable this function (that is, to stop displaying the message of the day whenever a user attempts to launch an MWTM client), enter the following command:

```
# ./mwtm motd disable
```

Manually Synchronizing Local MWTM Passwords (Server Only)

If **mwtm authtype** is set to **solaris** or **linux**, MWTM automatically synchronizes local MWTM passwords with the operating system at 1:30 AM each night. However, you can also manually synchronize passwords at any time. To do so, log in as the root user, as described in the [“Becoming the Root User \(Server Only\)”](#) section on page 3-3, then enter the following commands:

```
# cd /opt/CSCOsgm/bin
```

```
# ./mwtm syncusers
```

MWTM synchronizes the passwords with Solaris.

Listing All Currently Defined Users (Server Only)

You can list all currently defined users in the MWTM User-Based Access authentication list. To do so, log in as the root user, as described in the [“Becoming the Root User \(Server Only\)”](#) section on page 3-3, or as a super user, as described in the [“Specifying a Super User \(Server Only\)”](#) section on page 10-19, then enter the following commands:

```
# cd /opt/CSCOsgm/bin
```

```
# ./mwtm listusers
```

MWTM displays the following information for each user:

- User name
- Last time the user logged in
- User's authentication access level
- User's current authentication status, such as **Account Enabled** or **Password Disabled**

To list information for only a specific user, enter the following command:

```
# ./mwtm listusers username
```

where *username* is the name of the user.



Note

You can also view user account information on the MWTM User Accounts Web page. For more information, see the [“Viewing MWTM User Account Information” section on page 13-44](#).

Displaying the Contents of the System Security Log (Server Only)

You can display the contents of the system security log with PAGER. To do so, log in as the root user, as described in the [“Becoming the Root User \(Server Only\)” section on page 3-3](#), or as a super user, as described in the [“Specifying a Super User \(Server Only\)” section on page 10-19](#), then enter the following commands:

```
# cd /opt/CSCOsgm/bin
```

```
# ./mwtm seclog
```

The following security events are recorded in the log:

- All changes to system security, including adding users
- Login attempts, whether successful or unsuccessful, and logoffs
- Attempts to switch to another user's account, whether successful or unsuccessful
- Attempts to access files or resources of higher authentication level
- Access to all privileged files and processes
- Operating system configuration changes and program changes, at the Solaris level
- MWTM restarts
- Failures of computers, programs, communications, and operations, at the Solaris level

To clear the log and restart the server, enter the following command:

```
# ./mwtm seclog clear
```

The default path and filename for the system security log file is `/opt/CSCOsgm/logs/sgmSecurityLog.txt`. If you installed MWTM in a directory other than `/opt`, then the system security log file is located in that directory.



Note

You can also view the system security log on the MWTM System Security Log Web page. For more information, see the [“Viewing the MWTM System Security Log” section on page 13-41](#).

Restoring Security-Related MWTM Data (Server Only)

If you inadvertently delete your user accounts, or make other unwanted changes to your mwtm security information, mwtm enables you to restore the security-related parts of the mwtm data files from the previous night's backup.

To restore the files, log in as the root user, as described in the [“Becoming the Root User \(Server Only\)” section on page 3-3](#), then enter the following commands:

```
# cd /opt/CSCOsgm/bin
# ./mwtm restore security
```

mwtm restores the files.

Disabling MWTM User-Based Access (Server Only)

For some reason, you might want to completely disable MWTM User-Based Access. To do so, log in as the root user, as described in the [“Becoming the Root User \(Server Only\)” section on page 3-3](#), or as a super user, as described in the [“Specifying a Super User \(Server Only\)” section on page 10-19](#), then enter the following commands:

```
# cd /opt/CSCOsgm/bin
# ./mwtm useraccess disable
```

MWTM User-Based Access is disabled the next time you restart the MWTM server, using the following command:

```
# ./mwtm restart
```

Specifying a Super User (Server Only)

MWTM enables you to specify one or more *super users*. A super user can perform most functions that otherwise require the user to be logged in as the root user. (The root user can still perform those functions, too.) If you specify a super user, the server also runs as the super user and not as the root user.



Caution

As a super user, you can adversely affect your operating environment if you are unaware of the effects of the commands you use. If you are a relatively inexperienced UNIX user, limit your activities as a super user to the tasks described in this document.

To specify a super user, log in as the root user, as described in the [“Becoming the Root User \(Server Only\)” section on page 3-3](#), then enter the following commands:

```
# cd /opt/CSCOsgm/bin
# ./mwtm superuser username
```

where *username* is the name of the user.

When you specify a super user, keep in mind the following considerations:

- The user must exist in the local */etc/passwd* file. You cannot specify a user that is defined in a distributed Network Information Services (NIS) system.
- The super user does not have access to all MWTM commands. You must still be logged in as the root user to enter the following commands:
 - **mwtm backup**
 - **mwtm browserpath**
 - **mwtm certgui**
 - **mwtm certtool**
 - **mwtm clean**
 - **mwtm cleanall**
 - **mwtm cleandb**
 - **mwtm cw2ksetup**
 - **mwtm evilstop**
 - **mwtm jspport**
 - **mwtm keytool**
 - **mwtm killclients**
 - **mwtm reboot**
 - **mwtm restore**
 - **mwtm restoreprops**
 - **mwtm setpath**, if you are specifying a *username*
 - **mwtm ssl**
 - **mwtm sslstatus**
 - **mwtm stopclients**
 - **mwtm superuser**
 - **mwtm syncusers**
 - **mwtm telnetpath**
 - **mwtm trapsetup**
 - **mwtm uninstall**

- **mwtm webport**
 - **mwtm xtermpath**
- If **mwtm authtype** is set to **solaris**, you must still be logged in as the root user to enter the following commands:
 - **mwtm adduser**
 - **mwtm disableuser**
 - **mwtm enableuser**
 - **mwtm updateuser**
- If the SNMP trap port number on the MWTM server is less than 1024, you cannot use the **mwtm superuser** command. To correct this situation, you must specify a new SNMP trap port number that is greater than 1024:
 - To change the SNMP trap port number in the RAN-O devices in your network, use the **snmp-server host** command. By default, MWTM listens for traps from trap multiplexing devices and NMS applications on port 44750, so that is a good port number to choose. The SNMP trap port number must be the same on all RAN-O devices in your network.
 - See the description of the **snmp-server host** command in the “RAN-O Requirements” section of the *Cisco Signaling Gateway Manager Installation Guide* for more information.
 - Use the **mwtm trapsetup** command to change the SNMP trap port number in the MWTM server to match the port number in the RAN-O devices in your network. See the [“mwtm trapsetup” section on page C-69](#) for more information.

Implementing SSL Support in MWTM (Solaris Only)

You can implement Secure Sockets Layer (SSL) support in your MWTM system. When you do so, MWTM uses secure sockets to encrypt all communication between the MWTM clients and server.

This section includes the following information:

- [Enabling SSL Support in MWTM, page 10-22](#)
- [Downloading the MWTM Server's Self-Signed SSL Certificate, page 10-24](#)
- [Launching the MWTM Certificate Tool for SSL, page 10-26](#)
- [Importing an SSL Certificate to an MWTM Client, page 10-26](#)
- [Exporting an SSL Certificate, page 10-28](#)
- [Viewing Detailed Information About an SSL Certificate, page 10-29](#)
- [Managing SSL Support in MWTM, page 10-30](#)
- [Disabling SSL Support in MWTM, page 10-32](#)

Enabling SSL Support in MWTM

To enable SSL support in MWTM, perform the following tasks:

Step 1 Obtain the SSL-enabled version of MWTM.

Due to US government restrictions on the export of SSL-enabled software, Cisco provides two versions of MWTM: Basic MWTM, which does not provide SSL support, and SSL-enabled MWTM, which does.

To obtain SSL-enabled MWTM, you must contact Cisco TAC or your Cisco Account Team. They will help you apply for an export licence and download and install SSL-enabled MWTM.

Step 2 Install an SSL key/certificate pair in MWTM, using one of the following procedures:

- To install a new SSL key and a self-signed certificate, generate the key and certificate by logging in as the root user on the MWTM server and entering the **mwtm keytool genkey** command.

MWTM stops the MWTM server and issues the following prompts:

```
Country Name (2 letter code) []:
State or Province Name (full name) []:
Locality Name (eg, city) []:
Organization Name (eg, company) []:
Organizational Unit Name (eg, section) []:
Common Name (your hostname) []:
Email Address []:
```

Enter the requested information.

MWTM generates the following files:

- `/opt/CSCOs/gm/etc/ssl/server.key` is the MWTM server's private key. Ensure that unauthorized personnel cannot access this key.
- `/opt/CSCOs/gm/etc/ssl/server.cer` is the self-signed SSL certificate.
- `/opt/CSCOs/gm/etc/ssl/server.csr` is a certificate signing request (CSR). It is not used if you are using a self-signed SSL certificate.
- To install a new SSL key and a CA-signed certificate, generate the key and a CSR by logging in as the root user on the MWTM server and entering the **mwtm keytool genkey** command.

MWTM stops the MWTM server and issues the following prompts:

```
Country Name (2 letter code) []:
State or Province Name (full name) []:
Locality Name (eg, city) []:
Organization Name (eg, company) []:
Organizational Unit Name (eg, section) []:
Common Name (your hostname) []:
Email Address []:
```

Enter the requested information.

MWTM generates the following files:

- `/opt/CSCOs/gm/etc/ssl/server.key` is the MWTM server's private key. Ensure that unauthorized personnel cannot access this key.
- `/opt/CSCOs/gm/etc/ssl/server.csr` is a CSR.
- `/opt/CSCOs/gm/etc/ssl/server.cer` is the self-signed SSL certificate. It is not used if you are using a CA-signed SSL certificate; the CA-signed certificate overrides the self-signed certificate.

Print the CSR in X.509 format, by logging in as the root user on the MWTM server and entering the **mwtm keytool print_csr** command.

Send the CSR to a certificate authority (CA) to be signed.

After the CA signs the certificate, log in as the root user on the MWTM server and enter the following command:

```
# ./mwtm keytool import_cert cert_filename
```

where *cert_filename* is the name of the signed certificate.

MWTM stops the MWTM server and imports the certificate in X.509 format.

- To use an existing signed key/certificate pair, log in as the root user on the MWTM server and enter the following command:

```
# ./mwtm keytool import_key key_filename cert_filename
```

where *key_filename* is the name of the existing SSL key and *cert_filename* is the name of the existing signed certificate.

MWTM stops the MWTM server and imports the SSL key in OpenSSL format and the signed SSL certificate in X.509 format.

- Step 3** Enable SSL support in MWTM, by logging in as the root user on the MWTM server and entering the **`mwtm ssl enable`** command.
- Step 4** Set up the MWTM client-side SSL certificate trust relationship, by downloading and importing the self-signed or CA-signed certificate on every remote MWTM client, Windows as well as Solaris, that connects to the MWTM server.
- (Self-signed certificate only) Download the self-signed certificate (*server.cer*), using the procedure in the [“Downloading the MWTM Server’s Self-Signed SSL Certificate”](#) section on page 10-24.
 - Import the self-signed or CA-signed certificate, using the procedure in the [“Importing an SSL Certificate to an MWTM Client”](#) section on page 10-26.
- Step 5** Restart the MWTM client.
-

The MWTM clients can now connect to the MWTM server using SSL. All communication between the server and clients is encrypted.

If an MWTM client that is not SSL-enabled attempts to connect to an SSL-enabled MWTM server, MWTM displays an appropriate warning message and opens the MWTM client download page. The user can then download and install a new MWTM client to use to connect to that MWTM server.

If the client is SSL-enabled but does not have the correct certificate, MWTM displays an appropriate warning message and opens the MWTM Server SSL Certificate page. The user can then download the signed SSL certificate in X.509 format to the client.

Downloading the MWTM Server’s Self-Signed SSL Certificate

If you have implemented Secure Sockets Layer (SSL) support in your MWTM system, you can download the MWTM server’s signed SSL certificate to all remote MWTM clients that connect to the server using SSL.

To download the certificate from the MWTM Server SSL Certificate page, use the following procedure on each remote MWTM client:

- Step 1** Use one of the following procedures to access the MWTM Server Home Page:
- Select **View > MWTM Server > Home Page** from the MWTM Main Menu.
 - Enter the following URL in a Web browser:
- ```
https://server_name:1774
```



where *server\_name* is the name or IP address of the server on which the MWTM server is running and 1774 is the Web port being using by MWTM. (1774 is the default port number.) If you do not know the name or Web port of the MWTM Web Server, contact the system administrator who installed the MWTM server software.

MWTM displays the MWTM Server Home page.

- Step 2** Select **Server SSL Certificate** from the MWTM Server Home Page. MWTM displays the MWTM Server SSL Certificate page.
- Step 3** Right-click **Download MWTM Server SSL Certificate**.

- Step 4** Select **Save Link As** from the right-click menu.
- Step 5** Select a directory in which to save the certificate (*server.cer*), and click **Save**. MWTM downloads the *server.cer* file into the specified directory.

## Launching the MWTM Certificate Tool for SSL

If you have implemented Secure Sockets Layer (SSL) support in your MWTM system, you can launch the MWTM Certificate Tool for SSL. The MWTM Certificate Tool dialog lists all SSL certificates that have been imported by the MWTM client, and enables you to import, export, and display detailed information about SSL certificates.

To launch the MWTM SSL Certificate Tool, use one of the following procedures:

- In Solaris, log in as the root user and enter the following commands:

```
cd /opt/CSCOsgm/bin
```

```
./mwtm certgui
```

See the “[mwtm certgui](#)” section on page C-9 for more information.

- In Windows, select **Start > Programs > Cisco MWTM Client > MWTM SSL Certificate Tool**.

MWTM displays the MWTM Certificate Tool dialog

The MWTM Certificate Tool dialog displays the following information about each SSL certificate:

| Field or Button        | Description                                                                                                                           |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <b>Issued to</b>       | Host name of the MWTM server to which the SSL certificate was issued.                                                                 |
| <b>Issued by</b>       | Certificate authority (CA) that issued the SSL certificate.<br>Self-signed SSL certificates display the host name of the MWTM server. |
| <b>Expiration Date</b> | Date on which the SSL certificate expires.                                                                                            |
| <b>Import</b>          | Displays the Open dialog for an SSL certificate, which enables you to import SSL certificates.                                        |
| <b>Export</b>          | Displays the Save dialog for an SSL certificate, which enables you to export the selected SSL certificate.                            |
| <b>Remove</b>          | Removes the selected SSL certificate from the table.                                                                                  |
| <b>Details</b>         | Displays the Certificate Information dialog, which provides detailed information about the selected certificate.                      |
| <b>Exit</b>            | Closes the MWTM Certificate Tool dialog.                                                                                              |
| <b>Help</b>            | Displays online help for the current window.                                                                                          |

## Importing an SSL Certificate to an MWTM Client

If you have implemented Secure Sockets Layer (SSL) support in your MWTM system, you can import the MWTM server’s self-signed SSL certificate, or a CA-signed SSL certificate, to all remote MWTM clients that connect to the server using SSL.

To import an SSL certificate, launch the MWTM SSL Certificate Tool, as described in the [“Launching the MWTM Certificate Tool for SSL”](#) section on page 10-26, then click **Import**. MWTM displays the Open dialog for SSL certificates

Use the Open dialog to locate the SSL certificate that you want to import. The Open dialog for an SSL certificate provides the following fields and buttons:

| Field or Button          | Description                                                                                                                                                                                                                                                                        |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Look In</b>           | Enables you to select the directory in which you want to find the SSL certificate. Either accept the default directory, or select a new directory from the drop-down list box.<br><br>For a self-signed certificate, locate the directory in which you downloaded the certificate. |
| <b>File Name</b>         | Enter a name for the SSL certificate, or select a file from those listed in the <b>Open</b> field. MWTM displays the name of the certificate in the <b>File Name</b> field.                                                                                                        |
| <b>Files of Type</b>     | Specifies the type of file to display, and displays all files of that type in the selected directory. For SSL certificates, this field displays <b>All files</b> , which means files of all types are displayed in the table.                                                      |
| <b>Up One Level</b>      | Displays the sub-folders and files that are in the folder that is up one level from the currently displayed folder.                                                                                                                                                                |
| <b>Desktop</b>           | Displays the sub-folders and files that are on your workstation desktop.                                                                                                                                                                                                           |
| <b>Create New Folder</b> | Creates a new sub-folder in the displayed folder.                                                                                                                                                                                                                                  |
| <b>List</b>              | Displays only icons for sub-folders and files.                                                                                                                                                                                                                                     |
| <b>Details</b>           | Displays detailed information for sub-folders and files, including their size, type, date they were last modified, and so on.                                                                                                                                                      |
| <b>Open</b>              | Imports the file, closes the Open dialog for an SSL certificate, and populates the MWTM Certificate Tool dialog with the SSL certificate's information.                                                                                                                            |
| <b>Cancel</b>            | Closes the Open dialog for an SSL certificate without importing the file.                                                                                                                                                                                                          |

**Related Topics:**

- [Launching the MWTM Certificate Tool for SSL, page 10-26](#)

## Exporting an SSL Certificate

If you have implemented Secure Sockets Layer (SSL) support in your MWTM system, you can export SSL certificates that have been imported to the MWTM client.

To export an SSL certificate, launch the MWTM SSL Certificate Tool, as described in the [“Launching the MWTM Certificate Tool for SSL” section on page 10-26](#), select a certificate from the list, then click **Export**. MWTM displays the Save dialog for SSL certificates

Use the Save dialog to export the SSL certificate to another directory. The Save dialog for an SSL certificate provides the fields and buttons:

| Field or Button          | Description                                                                                                                                                                                                                                                                        |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Save In</b>           | Enables you to select the directory in which you want to save the SSL certificate. Either accept the default directory, or select a new directory from the drop-down list box.<br><br>For a self-signed certificate, locate the directory in which you downloaded the certificate. |
| <b>File Name</b>         | Enter a name for the SSL certificate, or select a file from those listed in the <b>Save In</b> field. MWTM displays the name of the certificate in the <b>File Name</b> field.                                                                                                     |
| <b>Files of Type</b>     | Specifies the type of file to save, and displays all files of that type in the selected directory. For SSL certificates, this field displays <b>All files</b> , which means files of all types are displayed in the table.                                                         |
| <b>Up One Level</b>      | Displays the sub-folders and files that are in the folder that is up one level from the currently displayed folder.                                                                                                                                                                |
| <b>Desktop</b>           | Displays the sub-folders and files that are on your workstation desktop.                                                                                                                                                                                                           |
| <b>Create New Folder</b> | Creates a new sub-folder in the displayed folder.                                                                                                                                                                                                                                  |
| <b>List</b>              | Displays only icons for sub-folders and files.                                                                                                                                                                                                                                     |
| <b>Details</b>           | Displays detailed information for sub-folders and files, including their size, type, date they were last modified, and so on.                                                                                                                                                      |
| <b>Save</b>              | Saves the file, closes the Save dialog for an SSL certificate, and returns to the MWTM Certificate Tool dialog. Click <b>Exit</b> to close the MWTM Certificate Tool dialog and export the self-signed SSL certificate in X.509 format.                                            |
| <b>Cancel</b>            | Closes the Save dialog for an SSL certificate without saving the file.                                                                                                                                                                                                             |

### Related Topics:

- [Launching the MWTM Certificate Tool for SSL, page 10-26](#)

## Viewing Detailed Information About an SSL Certificate

If you have implemented Secure Sockets Layer (SSL) support in your MWTM system, you can view detailed information about SSL certificates that have been imported to the MWTM client.

To view detailed information about an SSL certificate, use one of the following procedures:

- Click the “locked padlock” symbol in the bottom left corner of any MWTM window.
- Launch the MWTM SSL Certificate Tool, as described in the [“Launching the MWTM Certificate Tool for SSL” section on page 10-26](#), select an SSL certificate from the list and click **Details**.

MWTM displays the Certificate Information dialog

The Certificate Information dialog displays the following detailed information for the selected SSL certificate:

| Field or Button            | Description                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Subject</b>             | Device to which the SSL certificate was issued.<br><br>The <b>Subject</b> field always includes the Common Name (CN) of the subject, which must match the fully qualified host name of your MWTM server, such as <b>mwtm-sun8.cisco.com</b> .<br><br>The <b>Subject</b> field might also contain other information, such as the Country (C), Organizational Unit (OU), or Organization (O) of the subject. |
| <b>Issuer</b>              | CA that issued the SSL certificate.<br><br>The <b>Issuer</b> field might include the Common Name (CN) of the issuer, as well as the Country (C), Organizational Unit (OU), or Organization (O) of the issuer.                                                                                                                                                                                              |
| <b>Version</b>             | Version of the SSL certificate, such as <b>V1</b> .                                                                                                                                                                                                                                                                                                                                                        |
| <b>Serial number</b>       | Serial number associated with the SSL certificate.                                                                                                                                                                                                                                                                                                                                                         |
| <b>Signature algorithm</b> | Asymmetric algorithm used to ensure that the digital signature is secure, such as <b>MD5withRSA</b> .                                                                                                                                                                                                                                                                                                      |
| <b>Valid from</b>          | Date and time on which the SSL certificate was created or became valid.                                                                                                                                                                                                                                                                                                                                    |
| <b>Valid to</b>            | Date and time on which the SSL certificate expires.                                                                                                                                                                                                                                                                                                                                                        |
| <b>Public key</b>          | Public key associated with the SSL certificate, used for encryption and for verifying signatures.                                                                                                                                                                                                                                                                                                          |
| <b>OK</b>                  | Closes the Certificate Information dialog.<br><br>When you are ready to close the dialog, click <b>OK</b> . MWTM closes the Certificate Information dialog. If necessary, click <b>Exit</b> to close the MWTM Certificate Tool dialog.                                                                                                                                                                     |

**Related Topics:**

- [Launching the MWTM Certificate Tool for SSL, page 10-26](#)

## Managing SSL Support in MWTM

MWTM enables you to perform the following tasks to make it easier to manage SSL support in MWTM:

- To display the current status of SSL support in MWTM, including whether SSL support is enabled or disabled and which SSL keys and certificates exist, use either the **mwtm ssl status** or **mwtm sslstatus** command.
- To print the MWTM server's SSL certificate in X.509 format, use the **mwtm keytool print\_crt** command.
- To list the SSL key/certificate pair on the MWTM server, use the **mwtm keytool list** command.
- To list all SSL certificates on the MWTM client, launch the MWTM SSL Certificate Tool. MWTM lists each imported certificate, including to whom the certificate was issued, who issued the certificate, and when the certificate expires.

See the [“MWTM Command Reference” section on page C-1](#) for more information on the use of these commands.

See the [“Importing an SSL Certificate to an MWTM Client” section on page 10-26](#) for more information on launching the MWTM SSL Certificate Tool.

## Disabling SSL Support in MWTM

MWTM enables you to disable SSL support in MWTM, and to remove SSL keys and certificates from the MWTM server and clients:

- To disable SSL support in MWTM, use the **mwtm ssl disable** command.  
See the [“mwtm ssl” section on page C-57](#) for more information.
- To remove all SSL keys and certificates from the MWTM server, use the **mwtm keytool clear** command. MWTM stops the MWTM server, if necessary, and removes the keys and certificates. Before restarting the server, you must either generate new SSL keys using the **mwtm keytool genkey** command, or you must completely disable SSL using the **mwtm ssl disable** command.

See the [“MWTM Command Reference” section on page C-1](#) for more information on the use of these commands.

- To remove an SSL certificate from the MWTM client, launch the MWTM SSL Certificate Tool. MWTM lists each imported certificate. Select the certificate you want to remove, and click **Remove**. MWTM deletes the certificate from the list.

See the [“Importing an SSL Certificate to an MWTM Client” section on page 10-26](#) for more information on launching the MWTM SSL Certificate Tool.

## Limiting MWTM Client Access to the MWTM Server (Server Only)

By default, when you first install MWTM, all MWTM client IP addresses are allowed to connect to the MWTM server. However, MWTM enables you to limit client access to the server by creating and maintaining the *ipaccess.conf* file.

You can create the *ipaccess.conf* file and populate it with a list of MWTM client IP addresses that can connect to the MWTM server. MWTM allows connections from only those clients, plus the local host. If the file exists but is empty, MWTM allows connections only from the local host. (MWTM always allows connections from the local host.)

When you first install MWTM, the *ipaccess.conf* file does not exist and MWTM allows all client IP addresses to connect to the MWTM server. To create the *ipaccess.conf* file and work with the list of allowed client IP addresses, use the following procedure:

- 
- Step 1** Log in as the root user, as described in the [“Becoming the Root User \(Server Only\)” section on page 3-3](#), or as a super user, as described in the [“Specifying a Super User \(Server Only\)” section on page 10-19](#).
- Step 2** Enter the following command:
- ```
# cd /opt/CSCOs/gm/bin
```
- Step 3** Create the *ipaccess.conf* file:
- To create the *ipaccess.conf* file and add a client IP address to the list, enter the following command:
- ```
./mwtm ipaccess add
```
- To create the *ipaccess.conf* file and open the file to edit it directly, enter the following command:



### # ./mwtm ipaccess edit

The default directory for the file is located in the MWTM installation directory:

- If you installed MWTM in the default directory, */opt*, then the default directory is */opt/CSCOsgrm/etc*.
- If you installed MWTM in a different directory, then the default directory is located in that directory.

In the *ipaccess.conf* file, begin all comment lines with a pound sign (#).

All other lines in the file are MWTM client IP addresses, with one address per line.

Wildcards (\*) are allowed, as are ranges (for example, 1-100). For example, the address \*.\*.\*.\* allows all clients to connect to the MWTM server.

After you create the *ipaccess.conf* file, you can use the full set of **mwtm ipaccess** keywords to work with the file:

- **clear**—Remove all client IP addresses from the *ipaccess.conf* file, and allow connections from any MWTM client IP address.
- **list**—List all client IP addresses currently in the *ipaccess.conf* file. If no client IP addresses are listed (that is, the list is empty), connections from any MWTM client IP address are allowed.
- **rem**—Remove the specified client IP address from the *ipaccess.conf* file.
- **sample**—Print out a sample *ipaccess.conf* file.

See the “[mwtm ipaccess](#)” section on page C-23 for more information.

---

Any changes you make to the *ipaccess.conf* file take effect when you restart the MWTM server.

MWTM also enables you to limit the IP addresses that can send traps to the server by creating and maintaining the *trapaccess.conf* file. For more information, see the “[Limiting Traps by IP Address \(Server Only\)](#)” section on page 11-29.





# CHAPTER 11

## Configuring MWTM for Your Network

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This chapter provides the following information about configuring MWTM to better suit your needs:

- [Importing SNMP Community Names from CiscoWorks \(Solaris Only\), page 11-2](#)
- [Retaining Unknown Objects from the MWTM Database \(Server Only\), page 11-2](#)
- [Changing MWTM Client Preference Settings, page 11-2](#)
- [Changing MWTM System Poller Settings, page 11-24](#)
- [Changing the Message Display, page 11-27](#)
- [Enabling SNMP Traps \(Server Only\), page 11-27](#)
- [Limiting Traps by IP Address \(Server Only\), page 11-29](#)
- [Setting the DISPLAY Variable \(Client Only\), page 11-30](#)
- [Backing Up or Restoring MWTM Files \(Server Only\), page 11-31](#)
- [Removing MWTM Data from the MWTM Server, page 11-32](#)
- [Configuring a Backup MWTM Server \(Server Only\), page 11-33](#)
- [Configuring MWTM with IOS Server Load Balancing, page 11-34](#)
- [Configuring an MWTM Client Connection Timer, page 11-35](#)
- [Telnetting to a Router, page 11-36](#)

## Importing SNMP Community Names from CiscoWorks (Solaris Only)

MWTM enables you to store all SNMP community names in a single database in CiscoWorks Resource Manager Essentials (RME), and to export those names for use by MWTM.

To export the database from CiscoWorks RME to MWTM, use the following procedure:

- 
- Step 1** Log into CiscoWorks and select **Common Services > Device and Credentials > Device Management**. Then click the **Export** button.
- Step 2** In the Device Export window, choose the device from the Device Selector panel. Then choose the following settings:
- File Name Field = mwtm**
- Format = CSV**
- Run Type = Immediate**
- Step 3** Click **OK**.
- CiscoWorks creates the `/opt/CSCOpX/objects/dmgt/mwtm` file in the default directory.
- Step 4** When you start the MWTM server, MWTM looks for this file. If the file exists, MWTM merges the file with its own community name database, the `/opt/CSCOsGm/etc/communities.conf` file.
- 

For more information about SNMP, refer to “Configuring SNMP Support” in the Cisco IOS Release 12.2 *Configuration Fundamentals Configuration Guide*, Part 3, System Management.

## Retaining Unknown Objects from the MWTM Database (Server Only)

By default, MWTM deletes all **Unknown** objects from the MWTM database after 7 days. To change the length of time unknown objects stay in the MWTM database, use the **`mwtm unknownage`** command. See the [“mwtm unknownage” section on page C-70](#) for more information.

This method requires you to be logged in as the root user or as a super user. See the [“Becoming the Root User \(Server Only\)” section on page 3-3](#) and the [“Specifying a Super User \(Server Only\)” section on page 10-19](#) for more information.

## Changing MWTM Client Preference Settings

When a user changes some aspect of the MWTM client, such as the size of a window or the order of columns in a window, MWTM makes note of the user’s preferences on the MWTM client and server. MWTM saves the user’s preferences to the MWTM server when the MWTM client exits.

Thereafter, whenever the user launches the MWTM client, MWTM searches for the user's MWTM preferences. If MWTM finds the user's preferences on the MWTM server, MWTM launches the MWTM client with those preferences. Otherwise, MWTM launches the MWTM client with the default MWTM preferences file.

In addition to the user preferences that are automatically saved, MWTM enables you to change many GUI, data, topology, and table settings that affect the way MWTM presents its information.

**Note**

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Anyone who uses this MWTM client can change its preference settings, and the changes affect all views running on this client.

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This section includes the following information:

- [Displaying the Preferences Window, page 11-4](#)
- [Customizing the Color of Event Severities, page 11-17](#)
- [Customizing the Color of Chart Data Series, page 11-19](#)
- [Restoring Default Preference Settings, page 11-22](#)
- [Loading an Existing Preference Settings File, page 11-22](#)
- [Saving the Preference Settings File, page 11-23](#)

**Related Topics:**

- [Viewing the Topology of the Network, page 8-1](#)
- [Working with Events, page 5-1](#)
- [Working with Nodes, page 6-1](#)

## Displaying the Preferences Window

When you change overall MWTM preference settings, you must first display the Preferences window. The Preferences window enables you to change the way MWTM presents information.

To display the Preferences window, select **Edit > Preferences** from the MWTM Main Menu. MWTM displays the Preferences window.

The Preferences window is composed of the following sections:

- [Preferences Menu, page 11-4](#)
- [General GUI Settings, page 11-5](#)
- [Topology Settings, page 11-9](#)
- [Event Settings, page 11-10](#)
- [Charts Settings, page 11-14](#)
- [Status Settings, page 11-15](#)

**Related Topics:**

- [Working with Views, page 4-1](#)

## Preferences Menu

The menu on the Preferences window provides the following options:

| Menu Command                               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>File &gt; Load System Default Prefs</b> | Restores all preference settings to the original system default settings.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>File &gt; Load</b><br>(Ctrl-L)          | Loads an already existing set of preferences. MWTM prompts you for the name of the preferences file you want to load: <ul style="list-style-type: none"> <li>• Select the name of the preferences file, or accept the default filename, then click <b>OK</b> to load the preferences file.</li> <li>• Click <b>Cancel</b> to close the prompt window without loading a preferences file.</li> </ul>                                                                                                                                                                                                                                  |
| <b>File &gt; Save</b><br>(Ctrl-S)          | Saves the preference changes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>File &gt; Save As</b>                   | Opens the Save File Dialog: Preferences File List, which enables you to save the preferences file with a new name, or overwrite an existing preferences file.                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>File &gt; Close</b><br>(Ctrl-W)         | Closes the Preferences window.<br><br>To close the Preferences window at any time, click <b>File &gt; Close</b> . If you have changed any preferences, MWTM asks if you want to apply the changes before leaving the window: <ul style="list-style-type: none"> <li>• Click <b>Yes</b> to apply the changes and close the prompt window and the Preferences window.</li> <li>• Click <b>No</b> to close the prompt window and the Preferences window without applying or saving any changes.</li> <li>• Click <b>Cancel</b> to close the prompt window without applying any changes. The Preferences window remains open.</li> </ul> |
| <b>Help &gt; Topics</b><br>(F1)            | Displays the table of contents for the MWTM online help.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Help &gt; Window</b><br>(Shift-F1)      | Displays online help for the current window.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Help &gt; About</b><br>(F3)             | Displays build date, version, SSL support, and copyright information about the MWTM application.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

## General GUI Settings

The General GUI settings in the Preferences window enable you to change general display settings for MWTM, including which window to display first when starting MWTM, and whether to display values in bits or bytes.

To display the General GUI settings, select **General GUI** in the left pane of the Preferences window.

The General GUI settings contain the following sections:

- [Startup/Exit Settings, page 11-6](#)
- [General Display Settings, page 11-7](#)
- [Node Name Settings, page 11-8](#)
- [Poller Settings, page 11-8](#)
- [Repaint Priority, page 11-9](#)

## Startup/Exit Settings

Use the Startup/Exit Settings section of the General GUI settings to specify whether you want to display the Topology Window when you launch the MWTM client, and whether you want MWTM to prompt you for confirmation when you exit the MWTM client.



The Startup/Exit Settings section contains the following fields:

| Field                        | Description                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>MWTM: Topology Window</b> | Checkbox used to indicate whether the Topology Window is to be displayed when MWTM is started. The default setting for this checkbox is cleared.                                                                                                                                                                                                                                                                                  |
| <b>Confirm Exit</b>          | Checkbox used to indicate whether MWTM is to prompt you for confirmation when you exit the MWTM client. The default setting for this checkbox is selected.                                                                                                                                                                                                                                                                        |
| <b>Confirm Deletions</b>     | <p>Checkbox used to indicate whether MWTM is to prompt you for confirmation when you delete an object. The default setting for this checkbox is selected.</p> <p><b>Note</b> If you select the <b>Do not show this again</b> checkbox in a Confirm Deletion dialog, and you later decide you want MWTM to begin displaying the Confirm Deletion dialog again, you must select the <b>Confirm Deletions</b> checkbox to do so.</p> |

### General Display Settings

Use the General Display section of the General GUI settings to specify whether MWTM is to:

- Display node domain names.
- Show details in bits instead of bytes.
- Show receive and send utilizations as percentages.
- Show the point code mask in bits instead of dotted notation.

The General Display settings contain the following fields:

| Field                                        | Description                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Show Node Domain Names</b>                | Checkbox used to indicate whether MWTM is to show node domain names in its displays. The default setting for this checkbox is cleared (do not show node domain names).                                                                                                                                                                                                                                     |
| <b>Show Details in Bits Instead of Bytes</b> | <p>Checkbox used to indicate whether you want MWTM to display data and data rates in bits or bytes:</p> <ul style="list-style-type: none"> <li>• If you want MWTM to display data in bits, and data rates in bits per second, select this checkbox. This is the default setting.</li> <li>• If you want MWTM to display data in bytes, and data rates in bytes per second, clear this checkbox.</li> </ul> |
| <b>Show Utilization as Percentage</b>        | <p>Checkbox used to indicate whether you want MWTM to display receive and send utilization for linksets and links as a percentage or in Erlangs:</p> <ul style="list-style-type: none"> <li>• If you want MWTM to display utilization as a percentage, select this checkbox. This is the default setting.</li> <li>• If you want MWTM to display utilization in Erlangs, clear this checkbox.</li> </ul>   |

## Node Name Settings

Use the Node Name section of the General GUI settings to specify how MWTM is to display node names.

The Node Name settings contain the following radio buttons:

| Radio Buttons                  | Description                                                                                                                                                |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Show DNS or User-Defined Names | Radio button used to indicate whether MWTM is to identify nodes by their DNS or user-defined names. The default setting for this radio button is selected. |
| Show IP Addr in Name Field     | Radio button used to indicate whether MWTM is to identify nodes by their IP addresses. The default setting for this radio button is cleared.               |

## Poller Settings

Use the Poller section of the General GUI settings to change MWTM poller and counter settings.

The Poller settings contain the following fields and radio buttons:

| Field or Radio Button      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fast Poller Default (secs) | <p>Default interval, in seconds, for the fast poller. The valid range is 15 seconds to 60 seconds. The default setting is 15 settings.</p> <p>The fast poller is used in the MWTM Real-Time Statistics: CPU Statistics Window</p> <p>You can change the valid range and default setting in the <i>System.properties</i> file. For more information, see the <a href="#">“Changing MWTM System Poller Settings”</a> section on page 11-24.</p>                         |
| Slow Poller Default (secs) | <p>Default interval, in seconds, for the slow poller. The valid range is 60 seconds to 300 seconds. The default setting is 15 settings.</p> <p>The slow poller is used in all MWTM client windows except those listed above that use the fast poller.</p> <p>You can change the valid range and default setting in the <i>System.properties</i> file. For more information, see the <a href="#">“Changing MWTM System Poller Settings”</a> section on page 11-24.</p> |
| Show Counters Since Reboot | Radio button used to configure the MWTM client to clear all counters in MWTM Web pages whenever the ITP reboots. The default setting for this radio button is selected.                                                                                                                                                                                                                                                                                               |

| Field or Radio Button          | Description                                                                                                                                                                                |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Show Counters Since Last Poll  | Radio button used to configure the MWTM client to clear all counters whenever an MWTM Web page is polled. The default setting for this radio button is cleared.                            |
| Show Counters Since User Reset | Radio button used to configure the MWTM client to clear all MWTM counters whenever the user resets the counters on an MWTM Web page. The default setting for this radio button is cleared. |

## Repaint Priority

Use the Repaint Priority section of the General GUI settings to balance the responsiveness versus efficiency of the MWTM client. This setting controls how quickly the MWTM client repaints its displays.

The Repaint Priority section contains the following sliding control:

| Field            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Repaint Priority | <p>Balances the MWTM client's responsiveness versus efficiency. The valid range is 0 through 10, with 0 representing a high repaint priority (high responsiveness, low efficiency) and 10 representing a high communication priority (high efficiency, low responsiveness):</p> <ul style="list-style-type: none"><li>• Slide the selector toward <b>High Repaint Priority</b> if you want to maximize repainting (responsiveness) over communication (efficiency).</li><li>• Slide the selector toward <b>High Comm. Priority</b> if you want to maximize communication (efficiency) over repainting (responsiveness).</li><li>• The default setting is 2 (the third mark from the left).</li></ul> |

## Topology Settings

Use the Topology settings in the Preferences window to change default settings for the Topology Window.

To display the Topology settings, select **Topology** in the left pane of the Preferences window.

The Topology settings contain the following fields:

| Field                                            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Spring Layout Spacing Factor (1-10)</b>       | <p>Indicates how far apart nodes are to be spaced when MWTM draws the Spring Layout topology map. Valid values are 1 through 10, with 1 being closer together and 10 being farther apart. The default spacing factor is 5.</p> <p>Even if you apply preferences and close the Preferences window, the new spacing factor is not reflected in the topology map until you select <b>Topology Tools &gt; Layout &gt; Spring</b>, or click the <b>Spring Layout</b> button.</p>                                                                                                                                                                                                                                                                                                                                             |
| <b>Show Mouse Overs</b>                          | <p>Checkbox used to specify whether mouse over popups are enabled in topology maps. The default setting for this checkbox is selected.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Draw Connections When Dragging Node</b>       | <p>Checkbox used to specify whether MWTM is to draw connection lines in the topology map as you move nodes:</p> <ul style="list-style-type: none"> <li>• If you want MWTM to draw the associated connection lines dynamically as you move a node, select this checkbox.</li> <li>• If you do not want MWTM to draw the associated connection lines until after you have finished moving a node, clear this checkbox. This is the default setting.</li> </ul>                                                                                                                                                                                                                                                                                                                                                            |
| <b>X Performance Enhancer (AntiAliasing Off)</b> | <p>Checkbox used to specify whether antialiasing is on in the topology map. Antialiasing, which is on by default, improves the appearance of the icons and connections in the map.</p> <p>However, antialiasing can impact the performance of the MWTM client on a remote workstation (that is, a Solaris/Linux workstation using <b>xhost</b>, or a Windows workstation using an X-Window system emulator such as eXceed or Reflection X).</p> <ul style="list-style-type: none"> <li>• If you want to turn on antialiasing in the topology map, clear this checkbox. This is the default setting.</li> <li>• If you want to turn off antialiasing, select this checkbox.</li> </ul> <p>Keep in mind that performance is always better if you access MWTM by installing the MWTM client on the remote workstation.</p> |

## Event Settings

Use the Event settings in the Preferences window to change the default background color for each type of event, to specify whether to display acknowledged events, and to specify the types of event MWTM is to display in the Event tables, including the category and severity of event, whether the event is acknowledged, and other properties.

To display the Event settings, select **Events** in the left pane of the Preferences window.

The Event settings contain the following sections:

- [Event Colors, page 11-11](#)
- [Categories, page 11-11](#)
- [Severities, page 11-13](#)
- [Other, page 11-14](#)

## Event Colors

The Event Colors section of the Event settings contains the following fields and buttons:

| Field                | Description                                                                                 |
|----------------------|---------------------------------------------------------------------------------------------|
| <b>Informational</b> | Indicates the background color for <b>Informational</b> events. The default color is white. |
| <b>Normal</b>        | Indicates the background color for <b>Normal</b> events. The default color is light green.  |
| <b>Indeterminate</b> | Indicates the background color for <b>Indeterminate</b> events. The default color is cyan.  |
| <b>Warning</b>       | Indicates the background color for <b>Warning</b> events. The default color is blue.        |
| <b>Critical</b>      | Indicates the background color for <b>Critical</b> events. The default color is red.        |
| <b>Major</b>         | Indicates the background color for <b>Major</b> events. The default color is orange.        |
| <b>Minor</b>         | Indicates the background color for <b>Minor</b> events. The default color is yellow.        |

## Event Time Format

The Event Time Format section of the Event settings contains the following buttons:

| Button                | Description                                                                                           |
|-----------------------|-------------------------------------------------------------------------------------------------------|
| <b>12 hour format</b> | Select this radio button to configure event time stamps using 12 hour format (for example, 07:10:09). |
| <b>24 hour format</b> | Select this radio button to configure event time stamps using 24 hour format (for example, 19:10:09). |

## Event Date Format

The Event Date Format section of the Event settings contains the following fields and buttons:

| Button             | Description                                                                                                    |
|--------------------|----------------------------------------------------------------------------------------------------------------|
| <b>Month first</b> | Select this radio button to configure event date stamps with the month appearing first (for example, 8/16/05). |
| <b>Day first</b>   | Select this radio button to configure event date stamps with the day appearing first (for example, 16/8/05).   |

## Categories

Use the Categories section of the Event settings to specify which event categories you want to display in the Event Window.

The Categories section contains the following default fields and buttons:

| Field or Button     | Description                                                                                                                                       |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Status</b>       | Checkbox used to indicate whether Status events are to be displayed in the Event Window. The default setting for this checkbox is selected.       |
| <b>Trap</b>         | Checkbox used to indicate whether Trap events are to be displayed in the Event Window. The default setting for this checkbox is selected.         |
| <b>Create</b>       | Checkbox used to indicate whether Create events are to be displayed in the Event Window. The default setting for this checkbox is selected.       |
| <b>Delete</b>       | Checkbox used to indicate whether Delete events are to be displayed in the Event Window. The default setting for this checkbox is selected.       |
| <b>Discover</b>     | Checkbox used to indicate whether Discover events are to be displayed in the Event Window. The default setting for this checkbox is selected.     |
| <b>Edit</b>         | Checkbox used to indicate whether Edit events are to be displayed in the Event Window. The default setting for this checkbox is selected.         |
| <b>Ignore</b>       | Checkbox used to indicate whether Ignore events are to be displayed in the Event Window. The default setting for this checkbox is selected.       |
| <b>Login</b>        | Checkbox used to indicate whether Login events are to be displayed in the Event Window. The default setting for this checkbox is selected.        |
| <b>LoginDisable</b> | Checkbox used to indicate whether LoginDisable events are to be displayed in the Event Window. The default setting for this checkbox is selected. |
| <b>LoginFail</b>    | Checkbox used to indicate whether LoginFail events are to be displayed in the Event Window. The default setting for this checkbox is selected.    |
| <b>Logout</b>       | Checkbox used to indicate whether Logout events are to be displayed in the Event Window. The default setting for this checkbox is selected.       |
| <b>OverWrite</b>    | Checkbox used to indicate whether OverWrite events are to be displayed in the Event Window. The default setting for this checkbox is selected.    |
| <b>Poll</b>         | Checkbox used to indicate whether Poll events are to be displayed in the Event Window. The default setting for this checkbox is selected.         |
| <b>Purge</b>        | Checkbox used to indicate whether Purge events are to be displayed in the Event Window. The default setting for this checkbox is selected.        |
| <b>Select All</b>   | Selects all event category checkboxes.                                                                                                            |
| <b>Deselect All</b> | Clears all event category checkboxes.                                                                                                             |

**Note**

These are the default categories; there might be additional categories, as defined by the MWTM system administrator. For information about custom categories, see the [“Changing Event Categories” section on page 5-23](#).

## Severities

Use the Severities section of the Event settings to specify which event severities you want to display in the Event Window.

The Severities section contains the following default fields.

| Field                | Description                                                                                                                                                    |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Informational</b> | Checkbox used to indicate whether events of severity Informational are to be displayed in the Event Window. The default setting for this checkbox is selected. |
| <b>Normal</b>        | Checkbox used to indicate whether events of severity Normal are to be displayed in the Event Window. The default setting for this checkbox is selected.        |
| <b>Indeterminate</b> | Checkbox used to indicate whether events of severity Indeterminate are to be displayed in the Event Window. The default setting for this checkbox is selected. |
| <b>Warning</b>       | Checkbox used to indicate whether events of severity Warning are to be displayed in the Event Window. The default setting for this checkbox is selected.       |
| <b>Critical</b>      | Checkbox used to indicate whether events of severity Critical are to be displayed in the Event Window. The default setting for this checkbox is selected.      |
| <b>Major</b>         | Checkbox used to indicate whether events of severity Major are to be displayed in the Event Window. The default setting for this checkbox is selected.         |
| <b>Minor</b>         | Checkbox used to indicate whether events of severity Minor are to be displayed in the Event Window. The default setting for this checkbox is selected.         |

**Note**

These are the default severities; there might be additional severities, as defined by the MWTM system administrator. For information about custom severities, see the [“Changing Event Severities and Colors” section on page 5-24](#).

## Other

Use the Other section of the Event settings to further define the event filter for the Event Window. These settings are applied to all event displays in the current view.

The Other section contains the following fields:

| Field                    | Description                                                                                                                                                                                                                                                                                                                                          |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Acknowledged</b>      | Checkbox used to indicate whether only acknowledged events are to be displayed in the Event Window. The default setting for this checkbox is cleared.                                                                                                                                                                                                |
| <b>Unacknowledged</b>    | Checkbox used to indicate whether only unacknowledged events are to be displayed in the Event Window. The default setting for this checkbox is selected.                                                                                                                                                                                             |
| <b>Time Before</b>       | Checkbox used to indicate whether only events logged by MWTM prior to a specified date and time are to be displayed in the Event Window. The default setting for this checkbox is cleared.                                                                                                                                                           |
| <b>Time Before Field</b> | Specifies the date and time prior to which events logged by MWTM are to be displayed in the Event Window. This field is grayed-out unless the <b>Time Before</b> checkbox is selected.                                                                                                                                                               |
| <b>Time After</b>        | Checkbox used to indicate whether only events logged by MWTM after a specified date and time are to be displayed in the Event Window. The default setting for this checkbox is cleared.                                                                                                                                                              |
| <b>Time After Field</b>  | Specifies the date and time after which events logged by MWTM are to be displayed in the Event Window. This field is grayed-out unless the <b>Time After</b> checkbox is selected.                                                                                                                                                                   |
| <b>Message Contains</b>  | Checkbox used to indicate whether only events that contain the specified message text are to be displayed in the Event Window. The default setting for this checkbox is cleared.                                                                                                                                                                     |
| <b>Match Case</b>        | Checkbox used to indicate whether only events that match the case of the text in the <b>Message Contains</b> field are to be displayed in the Event Window. This field is grayed-out unless the <b>Message Contains</b> checkbox is selected. If the <b>Message Contains</b> checkbox is selected, the default setting for this checkbox is cleared. |

## Charts Settings

Use the Charts settings in the Preferences window to change default settings for the elements in real-time data charts.

To display the Charts settings, select **Charts** in the left pane of the Preferences window.

The Charts settings contain the following fields and button:



| Field or Button     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Series</b>       | <p>Indicates the time series being defined. A time series is a set of data collected sequentially at a fixed interval of time.</p> <p>The default values for series are:</p> <ul style="list-style-type: none"> <li>• <b>Series 0:</b> Dot, Solid, Red</li> <li>• <b>Series 1:</b> Box, Solid, Green</li> <li>• <b>Series 2:</b> Triangle, Solid, Blue</li> <li>• <b>Series 3:</b> Diamond, Solid, Black</li> <li>• <b>Series 4:</b> Star, Solid, Pink</li> <li>• <b>Series 5:</b> Cross, Solid, Orange</li> <li>• <b>Series 6:</b> Circle, Solid, Gray</li> <li>• <b>Series 7:</b> Square, Solid, Light Green</li> <li>• <b>Series 8:</b> Vertical Line, Solid, Red</li> <li>• <b>Series 9:</b> Horizontal Line, Solid, Green</li> <li>• <b>Series 10:</b> Dot, Solid, Blue</li> <li>• <b>Series 11:</b> Box, Solid, Black</li> <li>• <b>Series 12:</b> Triangle, Solid, Pink</li> <li>• <b>Series 13:</b> Diamond, Solid, Orange</li> <li>• <b>Series 14:</b> Star, Solid, Gray</li> <li>• <b>Series 15:</b> Cross, Solid, Light Green</li> <li>• <b>Series 16:</b> Circle, Solid, Red</li> </ul> |
| <b>Symbol Style</b> | Drop-down list box used to define the symbol associated with a series. To change the symbol for a series, select a new value: Dot, Box, Triangle, Diamond, Star, Vertical Bar, Horizontal Line, Cross, or Circle.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Line Style</b>   | Drop-down list box used to define the style of line that connects data points in the chart. To change the line style for a series, select a new value: Solid, Long Dash, Long-Short-Long (LSL) Dash, Short Dash, Dash Dot, or None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Color</b>        | Indicates the current color for the series.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Change Color</b> | Opens the Select Series Color dialog, which enables you to select a color for a series. For more details, see the <a href="#">“Customizing the Color of Chart Data Series” section on page 11-19</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

## Status Settings

MWTM enables you to customize the order in which status settings are sorted, as well as the color of each status setting.

When you change the sort order or the color of a status setting, most MWTM client windows reflect the new sort order or color immediately. All other windows reflect the new sort order or color at the next poll.

When you change the color of a status, most MWTM client windows reflect the new color immediately. All other windows reflect the new color at the next poll.

To display the Status settings, select **Status** in the left pane of the Preferences window.

The Status settings contain the following fields and button:

| Field or Button          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Status Sort Order</b> | Indicates the status setting being defined. The default status sort order and colors are: <ul style="list-style-type: none"> <li>• <b>None:</b> Black</li> <li>• <b>Unknown:</b> Red</li> <li>• <b>Unavailable:</b> Red</li> <li>• <b>Inactive:</b> Red</li> <li>• <b>Failed:</b> Red</li> <li>• <b>Down:</b> Red</li> <li>• <b>Blocked:</b> Red</li> <li>• <b>Pending:</b> Red</li> <li>• <b>Warning:</b> Yellow</li> <li>• <b>Shutdown:</b> Blue</li> <li>• <b>Discovering:</b> Cyan</li> <li>• <b>Polling:</b> Cyan</li> <li>• <b>Waiting:</b> Gray</li> <li>• <b>Unmanaged:</b> Gray</li> <li>• <b>Active:</b> Green</li> </ul> |
| <b>Move Up</b>           | Moves the selected status setting up in the <b>Status Sort Order</b> list.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Change Color</b>      | Opens the Select Status Color dialog, which enables you to select a color for a status. For more details, see the <a href="#">“Customizing the Color of Chart Data Series”</a> section on page 11-19.                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Move Down</b>         | Moves the selected status setting down in the <b>Status Sort Order</b> list.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Color</b>             | Indicates the current color for the Series.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Change Color</b>      | Opens the Select Series Color dialog, which enables you to select a color for a Series. For more details, see the <a href="#">“Customizing the Color of Status Settings”</a> section on page 11-21.                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Reset Order</b>       | Restores the status settings to the default sort order.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Reset Colors</b>      | Restores the status settings to the default colors.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

## Customizing the Color of Event Severities

MWTM enables you to customize the color of event severities.

To customize event severity colors, select **Events** in the left pane of the Preferences window, then click **Change Color** in the Event Colors section. MWTM displays the Select Event Color dialog.

The Select Event Color dialog is composed of the following sections:

- [Swatches Panel \(Recommended\)](#), page 11-18
- [HSB Panel](#), page 11-18

- [RGB Panel, page 11-18](#)
- [Select Event Color Field and Buttons, page 11-18](#)

**Related Topics:**

- [Event Settings, page 11-10](#)

## Swatches Panel (Recommended)

The Swatches panel of the Select Event Color dialog enables you to select an event severity color from a set of color swatches. This is the recommended method for selecting an event severity color.

To display the Swatches panel, click the **Swatches** tab in the Select Event Color dialog.

To select an event severity color, select a swatch. The selected color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**.

## HSB Panel

The HSB panel of the Select Event Color dialog enables you to select an event severity color based on color hue, saturation, and brightness (HSB).

To display the HSB panel, click the **HSB** tab in the Select Event Color dialog.

To select an event severity color, use one of the following procedures:

- Select a color range on the vertical color bar, then select a specific color by moving the cursor around on the color square.
- Enter specific values in the hue (**H**), saturation (**S**), and brightness (**B**) fields.

The selected severity color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**.

## RGB Panel

The RGB panel of the Select Event Color dialog enables you to select an event severity color based on the red, green, and blue (RGB) content of the color.

To display the RGB panel, click the **RGB** tab in the Select Event Color dialog.

To select an event severity color, select values for the **Red**, **Green**, and **Blue** fields. The selected color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**.

## Select Event Color Field and Buttons

The Select Event Color dialog contains the following field and buttons:

| Field or Button | Description                                                                                                                                                                                                                                              |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Preview</b>  | Displays a preview of the current selected event severity color.<br>Whichever method you choose to select an event severity color, the selected color is displayed in the <b>Preview</b> field. When you are satisfied with the color, click <b>OK</b> . |
| <b>OK</b>       | Sets the event severity color as shown in the <b>Preview</b> field, and closes the Select Event Color dialog.                                                                                                                                            |
| <b>Cancel</b>   | Closes the Select Event Color dialog without selecting an event severity color.                                                                                                                                                                          |
| <b>Reset</b>    | Resets the event severity color to its initial setting.                                                                                                                                                                                                  |

## Customizing the Color of Chart Data Series

MWTM enables you to customize the color of series in real-time data charts.

To customize series colors, select **Charts** in the left pane of the Preferences window, then click **Change Color** in the Series Colors section. MWTM displays the Select Series Color dialog.

The Select Series Color dialog is composed of the following sections:

- [Swatches Panel \(Recommended\), page 11-19](#)
- [HSB Panel, page 11-19](#)
- [RGB Panel, page 11-20](#)
- [Select Series Color Field and Buttons, page 11-20](#)

### Related Topics:

- [Charts Settings, page 11-14](#)

### Swatches Panel (Recommended)

The Swatches panel of the Select Series Color dialog enables you to select a series color from a set of color swatches. This is the recommended method for selecting a series color.

To display the Swatches panel, click the **Swatches** tab in the Select Series Color dialog.

To select a series color, select a swatch. The selected color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**.

### HSB Panel

The HSB panel of the Select Series Color dialog enables you to select a series color based on color hue, saturation, and brightness (HSB).

To display the HSB panel, click the **HSB** tab in the Select Series Color dialog.

To select a series color, use one of the following procedures:

- Select a color range on the vertical color bar, then select a specific color by moving the cursor around on the color square.
- Enter specific values in the hue (**H**), saturation (**S**), and brightness (**B**) fields.

The selected color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**.

## RGB Panel

The RGB panel of the Select Series Color dialog enables you to select a series color based on the red, green, and blue (RGB) content of the color.

To display the RGB panel, click the **RGB** tab in the Select Series Color dialog.

To select a series color, select values for the **Red**, **Green**, and **Blue** fields. The selected color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**.

## Select Series Color Field and Buttons

The Select Series Color dialog contains the following field and buttons:

| Field or Button | Description                                                                                                                                                                                                                                 |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Preview</b>  | Displays a preview of the current selected series color.<br><br>Whichever method you choose to select a series color, the selected color is displayed in the <b>Preview</b> field. When you are satisfied with the color, click <b>OK</b> . |
| <b>OK</b>       | Sets the series color as shown in the <b>Preview</b> field, and closes the Select Series Color dialog.                                                                                                                                      |
| <b>Cancel</b>   | Closes the Select Series Color dialog without selecting a series color.                                                                                                                                                                     |
| <b>Reset</b>    | Resets the series color to its initial setting.                                                                                                                                                                                             |

## Customizing the Color of Status Settings

MWTM enables you to customize the color of status settings in the MWTM client.

To customize status setting colors, select **Status** in the left pane of the Preferences window, select a status setting, then click **Change Color**. MWTM displays the Select Status Color dialog.

The Select Status Color dialog is composed of the following sections:

- [Swatches Panel \(Recommended\), page 11-21](#)
- [HSB Panel, page 11-21](#)
- [RGB Panel, page 11-22](#)
- [Select Status Color Field and Buttons, page 11-22](#)

### Related Topics:

- [Status Settings, page 11-15](#)

### Swatches Panel (Recommended)

The Swatches panel of the Select Status Color dialog enables you to select a status color from a set of color swatches. This is the recommended method for selecting a status color.

To display the Swatches panel, click the **Swatches** tab in the Select Status Color dialog.

To select a status color, select a swatch. The selected color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**.

### HSB Panel

The HSB panel of the Select Status Color dialog enables you to select a status color based on color hue, saturation, and brightness (HSB).

To display the HSB panel, click the **HSB** tab in the Select Status Color dialog.

To select a status color, use one of the following procedures:

- Select a color range on the vertical color bar, then select a specific color by moving the cursor around on the color square.
- Enter specific values in the hue (**H**), saturation (**S**), and brightness (**B**) fields.

The selected color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**.

## RGB Panel

The RGB panel of the Select Status Color dialog enables you to select a status color based on the red, green, and blue (RGB) content of the color.

To display the RGB panel, click the **RGB** tab in the Select Status Color dialog.

To select a status color, select values for the **Red**, **Green**, and **Blue** fields. The selected color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**.

## Select Status Color Field and Buttons

The Select Status Color dialog contains the following field and buttons:

| Field or Button | Description                                                                                                                                                                                                                                 |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Preview</b>  | Displays a preview of the current selected status color.<br><br>Whichever method you choose to select a status color, the selected color is displayed in the <b>Preview</b> field. When you are satisfied with the color, click <b>OK</b> . |
| <b>OK</b>       | Sets the status color as shown in the <b>Preview</b> field, and closes the Select Status Color dialog.                                                                                                                                      |
| <b>Cancel</b>   | Closes the Select Status Color dialog without selecting a status color.                                                                                                                                                                     |
| <b>Reset</b>    | Resets the status color to its initial setting.                                                                                                                                                                                             |

## Restoring Default Preference Settings

If you decide you do not like your modified preference settings, MWTM enables you to restore all preference settings to the original system default settings. To do so, display the Preferences window, as described in [“Displaying the Preferences Window” section on page 11-4](#), then select the **File > Load System Default Prefs** menu option. MWTM restores the default settings.

## Loading an Existing Preference Settings File

MWTM enables you to load an existing preference settings file. To do so, display the Preferences window, as described in [“Displaying the Preferences Window” section on page 11-4](#), then select the **File > Load** menu option. MWTM displays the Load File Dialog: Preferences File List dialog.

The Load File Dialog: Preferences File List enables you to load a specific preferences file, change the list of preferences files, and select one preferences file to be loaded automatically when the MWTM client is started.

The Load File Dialog: Preferences File List contains the following fields and buttons:



| Field or Button                                      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type                                                 | Icon indicating whether the item in the table is a file or a folder.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Name                                                 | Name of the preferences file or folder.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Last Modified                                        | Date and time the preferences file or folder was last modified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Size (bytes)                                         | Size of the preferences file or folder, in bytes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Number of Files<br>(displayed in bottom left corner) | Total number of preferences files and folders.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| OK                                                   | <p>Loads the selected preferences file and closes the dialog.</p> <p>To load a preference settings file, double-click it in the list, select it in the list and click <b>OK</b>, or enter the name of the file and click <b>OK</b>. MWTM loads the preference settings file, closes the Load File Dialog: Preferences File List dialog, and returns to the Preferences window.</p> <p>To save any changes you made to the list of files, click <b>OK</b>. MWTM saves the changes, closes the Load File Dialog: Preferences File List dialog, and returns to the Preferences window.</p> |
| Delete                                               | <p>Deletes the selected file from the preferences file list.</p> <p>Select a file and click <b>Delete</b>. MWTM issues an informational message containing the name and location of the deleted file.</p>                                                                                                                                                                                                                                                                                                                                                                               |
| Cancel                                               | Closes the dialog without loading a preference settings file or saving any changes to the preferences file list.                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Help                                                 | Displays online help for the dialog.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

**Related Topics:**

- [Changing MWTM Client Preference Settings, page 11-2](#)

## Saving the Preference Settings File

MWTM enables you to save a specific preferences file, change the list of preferences files, and select one preferences file to be loaded automatically when the MWTM client is started.

When you are satisfied with any changes you have made to your preference settings, select **File > Save As** from the Preferences window. MWTM displays the Save File Dialog: Preferences File List dialog.

The Save File Dialog: Preferences File List contains the following fields and buttons:

| Field or Button | Description                                                          |
|-----------------|----------------------------------------------------------------------|
| Type            | Icon indicating whether the item in the table is a file or a folder. |
| Name            | Name of the preferences file or folder.                              |
| Last Modified   | Date and time the preferences file or folder was last modified.      |
| Size (bytes)    | Size of the preferences file or folder, in bytes.                    |

| Field or Button                                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Filename</b>                                             | <p>Name by which you want to save the preferences file.</p> <p>To save the preference settings file with a new name, use one of the following procedures:</p> <ul style="list-style-type: none"> <li>To save the file with a completely new name, enter the new name and click <b>OK</b>.</li> <li>To save the file with an existing name, overwriting an old preference settings file, select the name in the list and click <b>OK</b>.</li> </ul> <p>MWTM saves the preference settings file with the new name, closes the Save File Dialog: Preferences File List dialog, and returns to the Preferences window.</p> <p>If you create a new preferences file name, you can use any letters, numbers, or characters in the name that are allowed by your operating system. However, if you include any spaces in the new name, MWTM converts those spaces to dashes. For example, MWTM saves file “a b c” as “a-b-c”.</p> |
| <b>Number of Files</b><br>(displayed in bottom left corner) | Total number of preferences files and folders.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>OK</b>                                                   | Saves any changes you made to your preferences, or to the list of preference files, and closes the dialog.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Delete</b>                                               | Deletes the selected file from the preferences file list. MWTM issues an informational message containing the name and location of the deleted file.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Cancel</b>                                               | Closes the dialog without saving the preference settings file or any changes to the preference settings file list.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Help</b>                                                 | Displays online help for the dialog.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

**Related Topics:**

- [Changing MWTM Client Preference Settings, page 11-2](#)

## Changing MWTM System Poller Settings

MWTM provides three pollers for use in the MWTM client GUI and Web pages: a fast poller, a slow poller, and a status refresh poller. Each poller has default minimum, maximum, and default settings, but MWTM also enables you to change those settings. To do so, use the following procedure:

- 
- Step 1** Edit the *System.properties* file:
- If you installed MWTM in the default directory, */opt*, then the location of the *System.properties* file is */opt/CSCOsgm/properties/System.properties*.
  - If you installed MWTM in a different directory, then the *System.properties* file is located in that directory.
- Step 2** To change fast poller settings, change one or more of the following lines in the file:

**# Fast poller default polling interval in seconds**

**FAST\_POLLER\_DEFAULT = 15**

**# Fast poller minimum polling interval in seconds**

**FAST\_POLLER\_MIN = 15**

**# Fast poller maximum polling interval in seconds**

**FAST\_POLLER\_MAX = 60**

For example, to change the fast poller default to 30 seconds, change the **DEFAULT** line to:

**FAST\_POLLER\_DEFAULT = 30**

**Step 3** To change slow poller settings, change one or more of the following lines in the file:

```
Slow poller default polling interval in seconds
SLOW_POLLER_DEFAULT = 60

Slow poller minimum polling interval in seconds
SLOW_POLLER_MIN = 60

Slow poller maximum polling interval in seconds
SLOW_POLLER_MAX = 300
```

For example, to change the slow poller default to 180 seconds, change the **DEFAULT** line to:

```
SLOW_POLLER_DEFAULT = 180
```

**Step 4** To change status refresh poller settings, change one or more of the following lines in the file:

```
Status refresh default interval in seconds
STATE_REFRESH_DEFAULT = 180

Status refresh minimum interval in seconds
STATE_REFRESH_MIN = 180

Status refresh maximum interval in seconds
STATE_REFRESH_MAX = 900
```

For example, to change the status refresh poller default to 300 seconds, change the **DEFAULT** line to:

```
STATE_REFRESH_DEFAULT = 300
```

**Step 5** Save your changes and restart the MWTM server.

---

Any changes you make take effect when you restart the MWTM server, and are reflected throughout the MWTM client GUI and Web pages at that time.

For each of these pollers, keep the following considerations in mind:

- If you set the minimum interval for a poller to less than 0 seconds, MWTM overrides that setting and resets the minimum interval to 0 seconds.
- If you set the maximum interval for a poller to less than the minimum interval, MWTM overrides that setting and resets the maximum interval to be equal to the minimum interval.
- If you set the default interval for a poller to less than the minimum interval, MWTM overrides that setting and resets the default interval to be equal to the minimum interval.
- If you set the default interval for a poller to more than the maximum interval, MWTM overrides that setting and resets the default interval to be equal to the maximum interval.

# Changing the Message Display

The following sections provide information about changing the way MWTM displays and stores messages:

- [Changing the Location of MWTM Message Log Files, page 11-27](#)
- [Changing the Size of the MWTM Message Log File, page 11-27](#)
- [Changing the Time Mode for Dates in Log Files, page 11-27](#)
- [Changing the Age of the MWTM Message Log Files, page 11-27](#)

## Changing the Location of MWTM Message Log Files

By default, all MWTM system message log files are located on the MWTM server at `/opt/CSCOsqm/logs`. To change the location of the system message log directory, use the **mwtm msglogdir** command. See the “[mwtm msglogdir](#)” section on [page C-32](#) for more information.

## Changing the Size of the MWTM Message Log File

To change the size of the message log file, use the **mwtm msglogsize** command. See the “[mwtm msglogsize](#)” section on [page C-32](#) for more information.

## Changing the Time Mode for Dates in Log Files

To change the time mode for dates in log files, use the **mwtm logtimemode** command. See the “[mwtm logtimemode](#)” section on [page C-27](#) for more information.

## Changing the Age of the MWTM Message Log Files

To change the number of days MWTM archives system message log files before deleting them from the MWTM server, use the **mwtm msglogage** command. See the “[mwtm msglogage](#)” section on [page C-31](#) for more information.

## Enabling SNMP Traps (Server Only)

By default, MWTM cannot receive SNMP traps. To use SNMP traps with MWTM, you must first configure MWTM to receive traps.

### Related Topics:

- [Integrating MWTM with Other Products, page 3-35](#)
- [Viewing Network Status Information for MWTM, page 13-3](#)

To view the current trap reception configuration for MWTM, use the following procedure:

---

**Step 1** Log in as the root user, as described in the “[Becoming the Root User \(Server Only\)](#)” section on page 3-3, or as a super user, as described in the “[Specifying a Super User \(Server Only\)](#)” section on page 10-19.

**Step 2** Enter the following commands:

```
cd /opt/CSCOs/gm/bin
```

```
./mwtm trapstatus
```

MWTM displays the current trap reception configuration for MWTM, including:

- SNMP trap integration type:
    - **native**—MWTM receives traps natively on a UDP port.
    - **hpov**—MWTM receives traps using HP OpenView.
  - For **native**, MWTM also displays the UDP port number on which MWTM receives traps natively.
  - For **hpov**, MWTM also displays the location of the HP OpenView home directory.
  - Whether the trap listener is enabled or not.
- 

To configure MWTM to receive traps, using the following procedure:

---

**Step 1** Log in as the root user, as described in the “[Becoming the Root User \(Server Only\)](#)” section on page 3-3, or as a super user, as described in the “[Specifying a Super User \(Server Only\)](#)” section on page 10-19.

**Step 2** Enter the following commands:

```
cd /opt/CSCOs/gm/bin
```

```
./mwtm trapsetup
```

MWTM displays the following message and prompt:

**The MWTM server must also be stopped to perform this operation.**

**Do you wish to continue? [n]**

**Step 3** Type **y** and press **Enter**. MWTM stops the MWTM server and displays the following prompt:

**Would you like to configure MWTM to receive SNMP traps? [yes]**

**Step 4** Press **Enter**. MWTM displays the following message and prompt:

**MWTM can receive traps natively on a UDP port or receive traps via integration with HP OpenView.**

**Enter SNMP trap integration type: native or hpov? [native]**

- If you want MWTM to receive traps natively, press **Enter**. The MWTM installation program displays the following messages and prompt:

**MWTM can receive traps natively on the standard UDP port number 162 or on any other UDP port chosen. If another application is already bound to the SNMP standard trap reception port of 162, an alternate port number for MWTM must be specified.**

**UDP port number 44750 is the default alternate port.**

**Enter trap port number? [162]**

By default, network elements send traps to port 162. To accept the default value, press **Enter**.

If your network elements have been configured to send traps to a different port, type that port number and press **Enter**.

By default, MWTM listens for traps from trap multiplexing devices and NMS applications on port 44750. If you want MWTM to monitor that port, and port 162 is not available on the MWTM server device, type **44750** and press **Enter**.

If trap multiplexing devices and NMS applications in your network have been configured to send traps to a different port, type that port number and press **Enter**.

If you are a super user, you must specify a port number that is greater than 1024, then press **Enter**.

Do not enter a non-numeric port number. If you do, you are prompted to enter a numeric port number.

When you select an SNMP trap port number for the MWTM server, make sure your routers use the same SNMP trap port number. See the description of the **snmp-server host** command in the “RAN-O Requirements” section of the *Cisco Mobile Wireless Transport Manager Installation Guide* for more information.

- If you want MWTM to receive traps using HP OpenView, type **hpov** and press **Enter**. The MWTM installation program displays the following prompt:

**Please enter location of HP OpenView home directory: [/opt/OV]**

To accept the default value, press **Enter**; or type a different location and press **Enter**.

**Step 5** MWTM confirms your choices and restarts the MWTM server.

---

You can change all aspects of MWTM event processing, including the size of the MWTM event database, the maximum length of time MWTM is to retain events, and the default severity and color associated with each type of event. If a new trap becomes available that is of interest to MWTM, you can add it to the MWTM event database, enabling MWTM to recognize and process the new trap. For more information about changing MWTM event processing, see the [“Changing the Way MWTM Processes Events” section on page 5-17](#).

## Limiting Traps by IP Address (Server Only)

By default, when you first install MWTM, all IP addresses are allowed to send traps to the MWTM server. However, MWTM enables you to limit the IP addresses that can send traps to the server by creating and maintaining the *trapaccess.conf* file.

You can create the *trapaccess.conf* file and populate it with a list of IP addresses that can send traps to the MWTM server. MWTM receives traps from only those IP addresses, plus the local host. If the file exists but is empty, MWTM receives traps only from the local host. (MWTM always receives traps from the local host.)

When you first install MWTM, the *trapaccess.conf* file does not exist and MWTM allows all IP addresses to send traps to the MWTM server.

To create the *trapaccess.conf* file and work with the list of allowed IP addresses, use the following procedure:

**Step 1** Log in as the root user, as described in the “[Becoming the Root User \(Server Only\)](#)” section on page 3-3, or as a super user, as described in the “[Specifying a Super User \(Server Only\)](#)” section on page 10-19.

**Step 2** Enter the following command:

```
cd /opt/CSCOsgm/bin
```

**Step 3** Create the *trapaccess.conf* file:

- To create the *trapaccess.conf* file and add a client IP address to the list, enter the following command:

```
./mwtm trapaccess add
```

```
Enter address to add: 1.2.3.4
IP Address 1.2.3.4 added.
MWTM server must be restarted for changes to take effect.
Use the following command to restart the server:
 mwtm restart
#
```

- To create the *trapaccess.conf* file and open the file to edit it directly, enter the following command:

```
./mwtm trapaccess edit
```

The default directory for the file is located in the MWTM installation directory:

- If you installed MWTM in the default directory, */opt*, then the default directory is */opt/CSCOsgm/etc*.
- If you installed MWTM in a different directory, then the default directory is located in that directory.

In the *trapaccess.conf* file, begin all comment lines with a pound sign (#).

All other lines in the file are MWTM client IP addresses, with one address per line.

Wildcards (\*) are allowed, as are ranges (for example, 1-100). For example, the address \*.\*.\*.\* allows all clients to send traps to the MWTM server.

After you create the *trapaccess.conf* file, you can use the full set of **mwtm trapaccess** keywords to work with the file. See the “[mwtm trapaccess](#)” section on page C-68 for more details.

Any changes you make to the *trapaccess.conf* file take effect when you restart the MWTM server.

## Setting the DISPLAY Variable (Client Only)

The DISPLAY variable is set as part of your login environment on Solaris/Linux. However, if you Telnet into a remote workstation, you must set the DISPLAY variable to local display. To do so, enter the following command:

```
setenv DISPLAY local_ws:0.0
```

where *local\_ws* is your local workstation.



If your shell does not support the **setenv** command, enter the following command:

```
export DISPLAY=local_ws:0.0
```

## Backing Up or Restoring MWTM Files (Server Only)

MWTM automatically backs up all MWTM data files to the MWTM installation directory at 1:30 AM each night.

To change the time at which MWTM automatically backs up files, log in as the root user and change the *root crontab* file.

To manually back up the MWTM data files at any time, log in as the root user, as described in the [“Becoming the Root User \(Server Only\)” section on page 3-3](#), and enter the following commands:

```
cd /opt/CSCOsgm/bin
```

```
./mwtm backup
```

MWTM backs up the data files in the installation directory.

If you installed MWTM in the default directory, */opt*, then the default backup directory is also */opt*. If you installed MWTM in a different directory, then the default backup directory is that directory.

To change the directory in which MWTM stores its nightly backup files, log in as the root user, as described in the [“Becoming the Root User \(Server Only\)” section on page 3-3](#), or as a super user, as described in the [“Specifying a Super User \(Server Only\)” section on page 10-19](#), then enter the following commands:

```
cd /opt/CSCOsgm/bin
```

```
./mwtm backupdir directory
```

where *directory* is the new backup directory. If the new directory does not exist, MWTM does not change the directory, and issues an appropriate message.

To restore the MWTM data files from the previous night’s backup, log in as the root user, as described in the [“Becoming the Root User \(Server Only\)” section on page 3-3](#), and enter the following commands:

```
cd /opt/CSCOsgm/bin
```

```
./mwtm restore
```

MWTM restores the data files.



### Warning

---

**Do not interrupt this command. Doing so can corrupt your MWTM data files.**

---

The **mwtm restore** command provides optional keywords that enable you to restore only selected MWTM data files, such as log files, report files, or security files. For more information, see the [“mwtm restore” section on page C-41](#).

## Removing MWTM Data from the MWTM Server

There might be times when you want to remove all MWTM data from the MWTM server, without uninstalling the product. There are two ways to do this, both of which restore the MWTM server to a “clean” state, such as would exist after a new installation of MWTM.

To remove all MWTM data from the MWTM server, **excluding** message log files, backup files, and report files, log in as the root user, as described in the [“Becoming the Root User \(Server Only\)” section on page 3-3](#), then enter the following commands:

```
cd /opt/CSCOsgm/bin
```

```
./mwtm clean
```

Data removed includes all MWTM data, notes, preferences, security settings, seed files, event filters, report control files, and views, as well as any user-created files stored in MWTM directories.

To remove all MWTM data from the MWTM server, including all view files, notes associated with objects, and event filters and preferences, **excluding** message log files, backup files, report files, configuration settings, and security settings, log in as the root user, as described in the [“Becoming the Root User \(Server Only\)” section on page 3-3](#), then enter the following commands:

```
cd /opt/CSCOsgm/bin
```

```
./mwtm cleandb
```

This command restores the MWTM server to a “clean” state, such as would exist after a new installation of MWTM, except for the presence of the retained files. Data removed includes all MWTM data, notes, preferences, route files, and views, as well as any user-created files stored in MWTM directories.

To remove all MWTM data from the MWTM server, **including** message log files, backup files, and report files, log in as the root user, as described in the [“Becoming the Root User \(Server Only\)”](#) section on page 3-3, then enter the following commands:

```
cd /opt/CSCOsgm/bin
```

```
./mwtm cleanall
```

Data removed includes all MWTM data, notes, preferences, security settings, seed files, event filters, report control files, views, message log files, backup files, and report files, as well as any user-created files stored in MWTM directories.

## Configuring a Backup MWTM Server (Server Only)

MWTM enables you to configure a second MWTM server as a backup for the primary MWTM server. For best results, Cisco recommends that you configure the primary server and the backup server as backups for each other.

To configure a backup MWTM server, use the following procedure:

---

**Step 1** Log in as the root user, as described in the [“Becoming the Root User \(Server Only\)”](#) section on page 3-3, or as a super user, as described in the [“Specifying a Super User \(Server Only\)”](#) section on page 10-19.

**Step 2** Enter the following commands:

```
cd /opt/CSCOsgm/bin
```

```
./mwtm secondaryserver hostname naming-port
```

where:

- *hostname* is the optional name of the host on which the backup MWTM server is installed.
- *naming-port* is the optional MWTM Naming Server port number for the backup MWTM server. The default port number is 44742.



---

**Note** If you use the **mwtm secondaryserver** command to configure a backup MWTM server, but the primary MWTM server fails before you launch the MWTM client, then the MWTM client has no knowledge of the backup server.

---

**Step 3** (Optional) To list the backup MWTM server that has been configured for this primary MWTM server, enter the following commands:

```
cd /opt/CSCOsgm/bin
```

```
./mwtm secondaryserver list
```

---

## Configuring MWTM with IOS Server Load Balancing

If a network failure causes MWTM to fail, you can no longer monitor your network. You can solve this potential problem by configuring a backup MWTM server, as detailed in the [“Configuring a Backup MWTM Server \(Server Only\)” section on page 11-33](#). However, this solution requires a connection to the backup MWTM server, which might not mirror exactly the primary MWTM server.

A better solution is to use IOS Server Load Balancing (IOS SLB), which provides transparent failover of the MWTM client connection.

Use the following procedure to configure MWTM with IOS SLB:

- 
- Step 1** Make sure you have the following required hardware and software:
- Solaris/Linux server with at least two network interface cards (NICs)
  - Cisco 7204VXR or 7206VXR series router
  - IOS SLB release 12.1(11b)E or later
  - MWTM release 5.0 or later
- Step 2** Configure the Solaris/Linux server with at least two active NICs.

- Step 3** Configure a routing protocol on the Solaris/Linux server, such that if one network interface fails, the other interfaces can still contact the monitored networks and the MWTM client:
- Run **in.routed** on the Solaris/Linux server, with two RIP-based routers on two separate networks providing routing tables for the server. Refer to the **in.routed** man page for more information on this configuration.
  - Use the GateD routing software developed by NextHop Technologies. Refer to the following URL for more information:  
<http://www.gated.org>
- Step 4** Configure the Cisco 7204VXR or 7206VXR series router, with the Solaris/Linux server network interfaces configured as real servers in the server farm. Refer to the IOS SLB feature module for more information on configuring the IOS SLB router.
- Step 5** Configure a virtual interface, **lo0:1** with the Internet address that matches the virtual IP address configured on the IOS SLB router:
- ```
ifconfig lo0:1 addif ip-address
```
- Step 6** Install MWTM.
- Step 7** Edit the `/opt/CSCOs/gm/properties/System.properties` file, and replace the **SERVER NAME** variable with the DNS entry that matches the virtual IP address configured on the IOS SLB router. Save your changes and restart the MWTM server.
- Step 8** Configure your MWTM clients to match the same DNS entry.
- Step 9** Your configuration is complete.
-

Keep in mind the following considerations:

- Failover of the MWTM client is transparent to the user. There are no additional changes needed at that end.
- A failure of either interface, or of the surrounding networks, might cause the MWTM client to hang for a short period, depending on the convergence of the routing protocol used by the MWTM server. For example, with RIP, the MWTM client might hang for up to two minutes while RIP converges after a network failure. Faster protocols might result in shorter MWTM client hang times.

Configuring an MWTM Client Connection Timer

MWTM enables you to specify how long an MWTM client is to wait for the MWTM server before exiting.

To configure an MWTM client connection timer, use the following procedure:

- Step 1** Log in as the root user, as described in the “[Becoming the Root User \(Server Only\)](#)” section on page 3-3, or as a super user, as described in the “[Specifying a Super User \(Server Only\)](#)” section on page 10-19.
- Step 2** Enter the following commands:
- ```
cd /opt/CSCOs/gm/bin

./mwtm cliconntimer number-of-seconds
```

where *number-of-seconds* is the time the MWTM client is to wait for a message from the MWTM server before exiting. The valid range is 10 seconds to an unlimited number of seconds. The default value is 60 seconds.

If the timer expires, the client pings the server and takes the following action:

- If the server responds to the ping, the client reconnects to the server.
- If the server does not respond to the ping, but there is a backup server configured, the client connects to the backup server.
- If the server does not respond to the ping, and there is no backup server configured, the client stops.

The timer takes effect when you restart the MWTM server.

**Step 3** (Optional) To restore the default timeout of 60 seconds, enter the following command:

```
./mwtm cliconntimer clear
```

The timer is reset to 60 seconds when you restart the MWTM server.

## Telnetting to a Router

MWTM enables you to link to a router using Telnet.

To Telnet to a router, right-click a node in a window, then select **Router > Telnet to** from the right-click menu.



### Note

If your client workstation does not have network access to the IP address of the router (that is, if the router is behind a firewall or NAT device), you might be unable to Telnet to the router.

To specify the path to the Telnet application to use for Telnet sessions on the MWTM client, as well as any special parameters to pass to the Telnet application, use the **mwtm telnetpath** command.

To manage a Telnet proxy, use the **mwtm tnproxy** command.

See the [“MWTM Command Reference” section on page C-1](#) for more information on the use of these commands.



## CHAPTER 12

# Troubleshooting MWTM and the Network

---

This chapter provides the following information for troubleshooting basic MWTM and network problems:

- [Clearing a Locked-Up MWTM Display, page 12-2](#)
- [Investigating Data Problems, page 12-2](#)
- [Understanding MWTM Client Start Error Messages, page 12-2](#)
- [Checking MWTM Server Start Processes, page 12-3](#)
- [Viewing the MWTM Troubleshooting Log, page 12-4](#)
- [Viewing MWTM Data on the Web, page 12-4](#)
- [Viewing Detailed Troubleshooting Instructions for Events, page 12-4](#)
- [Diagnosing a Typical Network Problem, page 12-5](#)

## Clearing a Locked-Up MWTM Display

In MWTM, events might cause message popups to remain in the background of your display, preventing you from interacting with other windows. If you suspect that your display has locked up, perform the following tasks:

- Make sure you are running MWTM on a supported operating system. For details on supported operating systems, see Chapter 1, “Preparing to Install MWTM” in the *Cisco Mobile Wireless Transport Manager Installation Guide*.
- Minimize windows and look for an MWTM message popup in the background.

## Investigating Data Problems

If you suspect that there are problems with the data that MWTM is displaying, perform the following tasks:

- Enter equivalent **show** commands on the router. Is the data the same as that displayed by MWTM?
- Send SNMP queries to the nodes. Do all queries complete?

The results of these tasks can help you distinguish between a router problem and an MWTM problem.

## Understanding MWTM Client Start Error Messages

If you encounter one of the following errors upon starting the MWTM client, follow the procedures below:

- DataModelMediatorService: Could not find service in RMI registry or the RMI Registry may be down.
- DemandPollerManagerService: Could not find service in RMI registry or the RMI registry may be down. Check the MWTM server and make sure it is running.

## Data Model Mediator Service Error

If you have received the following message: “DataModelMediatorService: Could not find service in RMI registry or the RMI Registry may be down” either you have specified an incorrect port number when installing MWTM, or the server or RMI registry is unavailable.

To correct this problem, use the following procedure:

- 
- |               |                                                                                                                   |
|---------------|-------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | Verify that you specified a correct port number.                                                                  |
| <b>Step 2</b> | Enter the <b>mwtm status</b> command on the server to determine the status of all MWTM servers on the local host. |
| <b>Step 3</b> | Enter the <b>mwtm restart</b> command to restart any servers that are not running.                                |
-



## Demand Poller Manager Service Error

If you have received the following message: “DemandPollerManagerService: Could not find service in RMI registry or the RMI registry may be down. Check the MWTM server and make sure it is running” one or more of the MWTM server processes may not have started.

To diagnose and correct this problem, use the following procedure:

- 
- Step 1** Enter the **mwtm status** command on the server to determine the status of all MWTM processes. Check the output to see if the `sgmDataServer` and `sgmTrapReceiver` processes do not appear in the Ready state. They may appear as follows:
- | PROCESS                      | STATE    | PID  | Last Message                       |
|------------------------------|----------|------|------------------------------------|
| <code>sgmDataServer</code>   | Starting | 2586 | Starting EventModelMediatorService |
| <code>sgmMsgLogServer</code> | Ready    | 2551 | Running                            |
| <code>sgmTrapReceiver</code> | Initial  |      |                                    |
- Step 2** If the processes are not all in a Ready state, search the following log file `/opt/CSCOSgm/logs/messageLog.txt` for the following error message:
- A `java.IO.EOFException` was encountered against the `persisted.server.data` file.
- Step 3** Enter the **mwtm cleandb** command on the server, which will restore the `persisted.server.data` file to a valid state. The output should now show all processes running, as follows:
- | PROCESS                      | STATE | PID  | Last Message |
|------------------------------|-------|------|--------------|
| <code>sgmDataServer</code>   | Ready | 2586 | Running      |
| <code>sgmMsgLogServer</code> | Ready | 2551 | Running      |
| <code>sgmTrapReceiver</code> | Ready | 2600 | Running      |
- Step 4** Start the MWTM client, then re-discover the network (for details, see [Chapter 2, “Discovering Your RAN-O Networks Using MWTM.”](#))
- 

## Checking MWTM Server Start Processes

When you run the **mwtm start** command, normal output appears as follows:

| PROCESS                      | STATE | PID  | Last Message |
|------------------------------|-------|------|--------------|
| <code>sgmDataServer</code>   | Ready | 2586 | Running      |
| <code>sgmMsgLogServer</code> | Ready | 2551 | Running      |
| <code>sgmTrapReceiver</code> | Ready | 2600 | Running      |

If the `sgmDataServer` and `sgmTrapReceiver` process do not appear in the Ready state, see the [“Demand Poller Manager Service Error”](#) section on page 12-3 for details on fixing this issue.

## Viewing the MWTM Troubleshooting Log

MWTM stores troubleshooting information in the `/opt/CSCOs/gm/tmp/cisco_sgm_tshoot.log` file on the MWTM server. This log, which is updated each time the MWTM Server Troubleshooting page is accessed or the `mwtm tac` command is run, contains information that might be requested by Cisco customer support personnel.

If you want to view the MWTM troubleshooting log, Cisco strongly recommends that you do so in a Web browser. To view the log in a Web browser, select **System Troubleshooting** from the MWTM Server Home Page.

You can also view the log from the command line, but this method displays the entire log, which can contain thousands of lines of output, line-by-line on your workstation screen. Therefore, Cisco strongly recommends that you view the log from the Web, as indicated above. However, if you are viewing the log at the request of the Cisco Technical Assistance Center (TAC), it is best to view the log from the command line.

To view the log from the command line:

---

**Step 1** Log in as the root user, as described in the [“Becoming the Root User \(Server Only\)”](#) section on page 3-3, or as a super user, as described in the [“Specifying a Super User \(Server Only\)”](#) section on page 10-19.

**Step 2** Enter the following commands:

```
cd /opt/CSCOs/gm/bin
```

```
./mwtm tac
```

This command might take a minute or more to complete. When it completes, MWTM displays the following message and prompt:

```
Output is in /opt/CSCOs/gm/tmp/cisco_sgm_tshoot.log
```

```
Would you like to view it? [y]
```

**Step 3** Press **Enter**. MWTM displays the contents of the `/opt/CSCOs/gm/tmp/cisco_sgm_tshoot.log` file.

---

## Viewing MWTM Data on the Web

MWTM provides an enormous amount of Web-based troubleshooting information. From the MWTM Server Home Page, you can access many Web pages containing MWTM data, including server status, network status, installation logs, message logs, product documentation, and other important troubleshooting information about MWTM. For full details, see the [“Accessing MWTM Data from a Web Browser”](#) section on page 13-1.

## Viewing Detailed Troubleshooting Instructions for Events

MWTM provides extensive type-specific help and troubleshooting instructions for events. To see help and troubleshooting instructions for an event, right-click the event and select **Help for Event**.

You can also provide your own enterprise-specific instructions to operators in the event help. For more information, see the [“Changing the Way MWTM Processes Events” section on page 5-17](#).

## Diagnosing a Typical Network Problem

When you use MWTM to diagnose a problem in a RAN-O network, follow these basic steps:

1. Monitor the network using the MWTM Main Window and the Topology Window. For example, an object in the topology map that changes color from green to yellow or red indicates a problem in the network.
2. Use MWTM windows, especially the Details window, to begin investigating the problem.
3. As you identify the source of the problem, examine the messages logged by MWTM for more detailed information about the sequence of events that led to the problem.
4. Telnet to the problematic router, if necessary.

The following real-life example provides detailed information about using MWTM to diagnose a problem in a RAN-O network:

- 
- Step 1** A network operator (we'll call him Joe) is using MWTM to monitor a RAN-O network. Joe has customized his view, limiting it to only those nodes for which he is responsible.
- (For more information about customizing views, see the [“Working with Views” section on page 4-1](#).)
- Step 2** In the topology map, Joe notices a node that has changed color from green to yellow. Yellow indicates a status of Warning, which means that one or more interfaces associated with that node is in Unknown or Warning status and is not flagged as Ignored.
- (For more information about node status, see the [“Node Table” section on page 6-8](#).)
- Step 3** Joe single-clicks the node in the topology map.
- MWTM highlights the node in the topology map and in the topology view table in the left pane of the Topology Window. With the node highlighted, Joe can easily see that the name of the node is BTS-1941a.
- MWTM also displays all associated interfaces in the topology Connections table.
- Joe clicks the node's name and the zoom button in the topology view table.
- MWTM redraws the topology map, centered on BTS-1941a, making it easier for Joe to see the relevant portion of the map.
- (For more information about the Topology Window and how to use it, see the [“Viewing the Topology of the Network” section on page 8-1](#).)
- Step 4** Joe notices that one of BTS-1941a's diamonds is red, indicating that the associated interface is either Unavailable or Unknown. Joe single-clicks the red diamond.
- MWTM highlights the connection in the topology map and in the topology Connections table. The table entry indicates that the connection is Unavailable.
- Step 5** Joe right-clicks the connection in the topology map and selects **View > Configuration Details** in the right-click menu.
- MWTM opens the Details window (in the main MWTM window), showing detailed information for the connection. In the Details window, detailed information for the selected connection is displayed in the Configuration Data section.

Immediately, Joe sees that the Operational Status is Down but notices that the Operational Status for E1 1/0 is Up.

- Step 6** Joe selects the Recent Events tab and notices that a Critical Alarm for E1 1/0 was recently added. Joe logs into the BTS-1941a device (right-click on device name and select **Router > Telnet To**) and runs the **show controller E1 1/0** command. He learns that the device recently loss physical connectivity.
- Step 7** Joe goes to the device and discovers that the cable is physically damaged. He replaces the cable and returns to the MWTM server.
- Step 8** Joe views the MWTM main window and observes that MWTM has already polled the device and changed the state color from yellow to green.
- Step 9** Joe looks at the MWTM topology window again and verifies the interface status has changed from yellow to green.
-



## CHAPTER 13

# Accessing MWTM Data from a Web Browser

---

This chapter provides information about accessing MWTM data from the MWTM Server Home Page, using a Web browser.

This chapter includes the following sections:

- [Accessing MWTM Data from the MWTM Server Home Page, page 13-1](#)
- [Changing MWTM Web Output \(Server Only\), page 13-3](#)
- [Viewing Network Status Information for MWTM, page 13-3](#)
- [Viewing MWTM System Messages, page 13-28](#)
- [Viewing Statistics Reports, page 13-42](#)
- [Viewing System Status Information for MWTM, page 13-42](#)
- [Viewing System Data Files for MWTM, page 13-47](#)
- [Viewing System Information for MWTM, page 13-48](#)
- [Viewing the MWTM Technical Documentation, page 13-49](#)
- [Downloading the MWTM Client from the Web, page 13-50](#)
- [Downloading the MWTM Server's SSL Certificate from the Web, page 13-50](#)
- [Accessing Software Updates and Additional Information, page 13-50](#)

## Accessing MWTM Data from the MWTM Server Home Page

From the MWTM Server Home Page, you can access many Web pages containing MWTM data, including server status, network status, installation logs, message logs, product documentation, Cisco.com, and other information about MWTM. You can also download the MWTM clients.

To access the MWTM Server Home page, use one of the following procedures:

- Select **View > MWTM Server > Home Page** from the MWTM Main Menu.
- Enter the following URL in a Web browser:

**http://server\_name:1774**

Where *server\_name* is the name or IP address of the server on which the MWTM server is running and 1774 is the Web port being using by MWTM. (1774 is the default port number.) If you do not know the name or Web port of the MWTM Web Server, contact the system administrator who installed the MWTM server software.

- Select **Home** from the menu bar of any of the MWTM Web pages.

The MWTM Server Home Page is displayed.

The rest of this chapter provides detailed information about the MWTM information you can access from the MWTM Server Home Page.

## Changing MWTM Web Output (Server Only)

MWTM enables you to change the following aspects of its Web output:

- To control how often, in seconds, MWTM updates certain Web output, use the **[mwtm weblogupdate](#)** command. The valid range is 1 second to an unlimited number of seconds. The default value is 300 seconds (5 minutes).
- To set the maximum number of rows for MWTM ASCII Web output, such as displays of detailed debugging information, use the **[mwtm maxascirows](#)** command. The valid range is 1 row to an unlimited number of rows. The default value is 6000 rows.
- To set the maximum number of rows for MWTM to search in the event history logs, use the **[mwtm maxevhist](#)** command. The event history logs are the current and archived MWTM network status logs for status change and SNMP trap messages. MWTM sends the results of the search to the Web browser, where the results are further limited by the setting of the **[mwtm maxhtmlrows](#)** command. The valid range is 1 row to an unlimited number of rows. The default value is 15000 rows.
- To set the maximum number of rows for MWTM HTML Web output, such as displays of statistics reports, status change messages, or SNMP trap messages, use the **[mwtm maxhtmlrows](#)** command. The valid range is 1 row to an unlimited number of rows. The default value is 200 rows.
- To specify whether MWTM is to show real node names or display names in Web pages, enter the **[mwtm webnames](#)** command:
  - To show the real DNS names of nodes, as discovered by MWTM, enter **[mwtm webnames real](#)**.
  - To show display names, enter **[mwtm webnames display](#)**. Display names are new names that you specify for nodes. This is the default setting. For more information about display names, see the “[Editing a Node](#)” section on page 6-42.
- To specify whether MWTM is to display send and receive utilization for interfaces as percentages or in Erlangs in Web pages, enter the **[mwtm webutil](#)** command:
  - To display utilization as a percentage, enter **[mwtm webutil percent](#)**. This is the default setting.
  - To show display utilization in Erlangs, enter **[mwtm webutil erlangs](#)**.

See the “[Working with MWTM Statistics Reports](#)” section on page 9-1 for more information on send and receive utilization for interfaces.

Each of these commands requires you to be logged in as the root user, as described in the “[Becoming the Root User \(Server Only\)](#)” section on page 3-3, or as a super user, as described in the “[Specifying a Super User \(Server Only\)](#)” section on page 10-19.

## Viewing Network Status Information for MWTM

You can view the following MWTM network status information from the MWTM Server Home Page:

- [Viewing Node Information Using a Web Browser](#), page 6-55
- [Viewing Status Change and SNMP Trap Messages](#), page 13-3
- [Viewing Network Status Metrics](#), page 13-20

## Viewing Status Change and SNMP Trap Messages

MWTM enables you to view the following status change and SNMP trap messages:

- [Viewing Status Change and SNMP Trap Messages for MWTM, page 13-5](#)
- [Viewing Status Change Messages for MWTM, page 13-10](#)
- [Viewing SNMP Trap Messages for MWTM, page 13-13](#)
- [Viewing All Archived Status Change and SNMP Trap Messages, page 13-17](#)
- [Viewing Archived Status Change and SNMP Trap Messages for a Specific Date, page 13-17](#)
- [Changing Network Status Message Colors, page 13-20](#)



## Viewing Status Change and SNMP Trap Messages for MWTM

The Network Status: Last X Status Change and Trap Messages page displays status change messages and SNMP trap messages in the MWTM network log.

To access the Network Status: Last X Status Change and Trap Messages page and display all status change and trap messages, use one of the following procedures:

- Select **View > Event History > Status and Trap Messages** from the MWTM Main Menu.
- Select **Status & SNMP Trap Messages** from the MWTM Server Home Page.

To access the Network Status: Last X Status Change and Trap Messages page and display status change and trap messages for a specific object, right-click the object in a window, then select **Event History > Status and Trap Messages** from the right-click menu.

MWTM displays the Network Status: Last X Status Change and Trap Messages page.

The Network Status: Last X Status Change and Trap Messages page is composed of the following sections:

- [Last Status Change and Trap Messages Menus, page 13-6](#)
- [Last Status Change and Trap Messages Table, page 13-8](#)

#### Related Topic

- [Viewing Status Change and SNMP Trap Messages for MWTM](#)

### Last Status Change and Trap Messages Menus

The Network Status: Last X Status Change and Trap Messages page provides additional menu options. These additional menu options enable you to filter the information displayed on the page, including displaying only messages of a specific type in the Last Status Change and Trap Messages table. (By default, MWTM displays status change and SNMP trap messages of all types in the table.) The following table describes the additional menu options provided by the Network Status: Last X Status Change and Trap Messages page:

| Menu Command                        | Description                                                                                                                                                                                                                                                                |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>10/Page</b>                      | Displays 10 rows in the table.                                                                                                                                                                                                                                             |
| <b>20/Page</b>                      | Displays 20 rows in the table.                                                                                                                                                                                                                                             |
| <b>50/Page</b>                      | Displays 50 rows in the table.                                                                                                                                                                                                                                             |
| <b>100/Page</b>                     | Displays 100 rows in the table.                                                                                                                                                                                                                                            |
| <b>300/Page</b>                     | Displays 300 rows in the table.                                                                                                                                                                                                                                            |
| <b>500/Page</b>                     | Displays 500 rows in the table.                                                                                                                                                                                                                                            |
| <b>Max/Page</b>                     | Displays up to 15,000 rows in the table.<br><b>Note</b> Depending on the number of rows, this could take up to 15 minutes.                                                                                                                                                 |
| <b>DefPrefs</b>                     | Resets the <b>/Page</b> preferences for this Web page to the default settings for the MWTM server.                                                                                                                                                                         |
| <b>Pause</b><br>or<br><b>Resume</b> | Pauses or resumes the table.<br>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. |
| <b>Critical</b>                     | Displays only critical messages. MWTM displays administrative messages with a red background.                                                                                                                                                                              |
| <b>Major</b>                        | Displays only major messages. MWTM displays warning messages with an orange background.                                                                                                                                                                                    |
| <b>Minor</b>                        | Displays only minor messages. MWTM displays normal messages with a yellow background.                                                                                                                                                                                      |
| <b>Warning</b>                      | Displays only warning messages. MWTM displays administrative messages with a blue background.                                                                                                                                                                              |
| <b>Informational</b>                | Displays only informational messages. MWTM displays error messages with an white background.                                                                                                                                                                               |

| Menu Command         | Description                                                                                                                                  |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Admin</b>         | Displays only administrative messages. MWTM displays administrative messages with a white background.                                        |
| <b>Error</b>         | Displays only error messages. MWTM displays administrative messages with a cyan background.                                                  |
| <b>Normal</b>        | Displays only normal messages. MWTM displays administrative messages with a green background.                                                |
| <b>Indeterminate</b> | Displays only messages that do not fall into one of the above classifications. MWTM displays indeterminate messages with a white background. |
| <b>All</b>           | Displays all status change and SNMP trap messages.                                                                                           |

## Last Status Change and Trap Messages Table

The list of messages displayed in the Last Status Change and Trap Messages table is continually refreshed as new messages are received.

- To pause the message display, select **Pause** from the menu bar.
- To resume the message display, select **Resume** from the menu bar.

The Last Status Change and Trap Messages table contains the following columns:

| Column                                      | Description                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Offset (in title)</b>                    | Displays the number of rows in the table, prior to the first displayed row. For example, if the first displayed row is 501, the <b>Offset</b> is 500.                                                                                                                                                                                                                                                                                   |
| <b>Severity (in header)</b>                 | Message severity currently being displayed.                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Update Interval (in header)</b>          | Time between automatic updates for the page.                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Timestamp (in header)</b>                | Date and time the information on the page was last updated by MWTM.                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Row</b>                                  | Unique number identifying each entry in the table. You cannot edit this field.                                                                                                                                                                                                                                                                                                                                                          |
| <b>Time</b>                                 | <p>Date and time the message was logged.</p> <p>To sort the messages by time, click the <b>Time</b> header.</p> <p>To see only messages for a specific date, click the <b>year/month/date</b> string in the timestamp.</p> <p>To see only messages for a specific hour, click the <b>hour</b> string in the timestamp.</p> <p>To see only messages for a specific hour and minute, click the <b>minute</b> string in the timestamp.</p> |
| <b>Type</b>                                 | <p>Type of message:</p> <ul style="list-style-type: none"> <li>• <b>Status</b>—Status change message</li> <li>• <b>Trap</b>—SNMP trap message</li> </ul> <p>To sort the messages by type, click the <b>Type</b> header.</p>                                                                                                                                                                                                             |
| <b>Message</b>                              | <p>Text of the message.</p> <p>To sort the messages alphabetically by message text, click the <b>Message</b> header.</p>                                                                                                                                                                                                                                                                                                                |
| <b>First (at bottom of table)</b>           | <p>Displays the first page of entries for the table.</p> <p>For example, if the table is sorted by <b>Time</b> in descending order, clicking this field displays the newest entries.</p> <p>You cannot click this field if the first page of entries is already displayed.</p>                                                                                                                                                          |
| <b>Previous (Rows) (at bottom of table)</b> | <p>Displays the previous page of entries for the table.</p> <p>You cannot click this field if the first page of entries is already displayed.</p>                                                                                                                                                                                                                                                                                       |
| <b>Next (Rows) (at bottom of table)</b>     | <p>Displays the next page of entries for the table.</p> <p>You cannot click this field if the last page of entries is already displayed.</p>                                                                                                                                                                                                                                                                                            |

| Column                                | Description                                                                                                                                                                                                                                                                  |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Last<br/>(at bottom of table)</b>  | <p>Displays the last page of entries for the table.</p> <p>For example, if the table is sorted by <b>Time</b> in descending order, clicking this field displays the oldest entries.</p> <p>You cannot click this field if the last page of entries is already displayed.</p> |
| <b>Total<br/>(at bottom of table)</b> | <p>Displays the total number of entries in the table.</p>                                                                                                                                                                                                                    |

## Viewing Status Change Messages for MWTM

The Network Status: Last X Status Change Messages page displays status change messages in the MWTM network log.

To access the Network Status: Last X Status Change Messages page and display all status change messages, use one of the following procedures:

- Select **View > Event History > Status Changes** from the MWTM Main Menu.
- Select **Status Change Messages** from the MWTM Server Home Page.

To access the Network Status: Last X Status Change Messages page and display status change messages for a specific object, right-click the object in a window, then select **Event History > Status Change Messages** from the right-click menu.

The Network Status: Last X Status Change Messages page is composed of the following sections:

- [Last Status Change Messages Menus, page 13-10](#)
- [Last Status Change Messages Table, page 13-12](#)

### Last Status Change Messages Menus

The Network Status: Last X Status Change Messages page provides additional menu options. These additional menu options enable you to filter the information displayed on the page, including displaying only messages of a specific type in the Last Status Change Messages table. (By default, MWTM displays status change messages of all types in the table.) The following table describes the additional menu options provided by the Network Status: Last X Status Change Messages page:

| Menu Command                        | Description                                                                                                                                                                                                                                                                |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>10/Page</b>                      | Displays 10 rows in the table.                                                                                                                                                                                                                                             |
| <b>20/Page</b>                      | Displays 20 rows in the table.                                                                                                                                                                                                                                             |
| <b>50/Page</b>                      | Displays 50 rows in the table.                                                                                                                                                                                                                                             |
| <b>100/Page</b>                     | Displays 100 rows in the table.                                                                                                                                                                                                                                            |
| <b>300/Page</b>                     | Displays 300 rows in the table.                                                                                                                                                                                                                                            |
| <b>500/Page</b>                     | Displays 500 rows in the table.                                                                                                                                                                                                                                            |
| <b>Max/Page</b>                     | Displays up to 15,000 rows in the table.<br><b>Note</b> Depending on the number of rows, this could take up to 15 minutes.                                                                                                                                                 |
| <b>DefPrefs</b>                     | Resets the / <b>Page</b> preferences for this Web page to the default settings for the MWTM server.                                                                                                                                                                        |
| <b>Pause</b><br>or<br><b>Resume</b> | Pauses or resumes the table.<br>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. |
| <b>Critical</b>                     | Displays only critical messages. MWTM displays administrative messages with a red background.                                                                                                                                                                              |
| <b>Major</b>                        | Displays only major messages. MWTM displays warning messages with an orange background.                                                                                                                                                                                    |
| <b>Minor</b>                        | Displays only minor messages. MWTM displays normal messages with a yellow background.                                                                                                                                                                                      |

| Menu Command         | Description                                                                                                                                  |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Warning</b>       | Displays only warning messages. MWTM displays administrative messages with a blue background.                                                |
| <b>Informational</b> | Displays only informational messages. MWTM displays error messages with an white background.                                                 |
| <b>Admin</b>         | Displays only administrative messages. MWTM displays administrative messages with a white background.                                        |
| <b>Error</b>         | Displays only error messages. MWTM displays administrative messages with a cyan background.                                                  |
| <b>Normal</b>        | Displays only normal messages. MWTM displays administrative messages with a green background.                                                |
| <b>Indeterminate</b> | Displays only messages that do not fall into one of the above classifications. MWTM displays indeterminate messages with a white background. |
| <b>All</b>           | Displays all status change and SNMP trap messages.                                                                                           |

## Last Status Change Messages Table

The list of messages displayed in the Last Status Change Messages table is continually refreshed as new messages are received.

- To pause the message display, select **Pause** from the menu bar.
- To resume the message display, select **Resume** from the menu bar.

The Last Status Change Messages table contains the following columns:

| Column                                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Offset</b><br>(in title)                    | Displays the number of rows in the table, prior to the first displayed row. For example, if the first displayed row is 501, the <b>Offset</b> is 500.                                                                                                                                                                                                                                                                                   |
| <b>Severity</b><br>(in header)                 | Message severity currently being displayed.                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Update Interval</b><br>(in header)          | Time between automatic updates for the page.                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Timestamp</b><br>(in header)                | Date and time the information on the page was last updated by MWTM.                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Row</b>                                     | Unique number identifying each entry in the table. You cannot edit this field.                                                                                                                                                                                                                                                                                                                                                          |
| <b>Time</b>                                    | <p>Date and time the message was logged.</p> <p>To sort the messages by time, click the <b>Time</b> header.</p> <p>To see only messages for a specific date, click the <b>year/month/date</b> string in the timestamp.</p> <p>To see only messages for a specific hour, click the <b>hour</b> string in the timestamp.</p> <p>To see only messages for a specific hour and minute, click the <b>minute</b> string in the timestamp.</p> |
| <b>Message</b>                                 | <p>Text of the message.</p> <p>To sort the messages alphabetically by message text, click the <b>Message</b> header.</p>                                                                                                                                                                                                                                                                                                                |
| <b>First</b><br>(at bottom of table)           | <p>Displays the first page of entries for the table.</p> <p>For example, if the table is sorted by <b>Time</b> in descending order, clicking this field displays the newest entries.</p> <p>You cannot click this field if the first page of entries is already displayed.</p>                                                                                                                                                          |
| <b>Previous (Rows)</b><br>(at bottom of table) | <p>Displays the previous page of entries for the table.</p> <p>You cannot click this field if the first page of entries is already displayed.</p>                                                                                                                                                                                                                                                                                       |
| <b>Next (Rows)</b><br>(at bottom of table)     | <p>Displays the next page of entries for the table.</p> <p>You cannot click this field if the last page of entries is already displayed.</p>                                                                                                                                                                                                                                                                                            |
| <b>Last</b><br>(at bottom of table)            | <p>Displays the last page of entries for the table.</p> <p>For example, if the table is sorted by <b>Time</b> in descending order, clicking this field displays the oldest entries.</p> <p>You cannot click this field if the last page of entries is already displayed.</p>                                                                                                                                                            |
| <b>Total</b><br>(at bottom of table)           | Displays the total number of entries in the table.                                                                                                                                                                                                                                                                                                                                                                                      |



## Viewing SNMP Trap Messages for MWTM

The Network Status: Last X SNMP Trap Messages page displays SNMP trap messages in the MWTM network log.

To access the Network Status: Last X SNMP Trap Messages page and display all SNMP trap messages, use one of the following procedures:

- Select **View > Event History > SNMP Trap Messages** from the MWTM Main Menu.
- Select **SNMP Trap Messages** from the MWTM Server Home Page.

To access the Network Status: Last X SNMP Trap Messages page and display SNMP trap messages for a specific object, right-click the object in a window, then select **Event History > SNMP Trap Messages** from the right-click menu.

The Network Status: Last X SNMP Trap Messages page is composed of the following sections:

- [Last SNMP Trap Messages Menus, page 13-14](#)
- [Last SNMP Trap Messages Table, page 13-15](#)

## Last SNMP Trap Messages Menus

The Network Status: Last X SNMP Trap Messages page provides additional menu options. These additional menu options enable you to filter the information displayed on the page, including displaying only messages of a specific type in the Last SNMP Trap Messages table. (By default, MWTM displays SNMP trap messages of all types in the table.) The following table describes the additional menu options provided by the Network Status: Last X SNMP Trap Messages page:

| Menu Command                        | Description                                                                                                                                                                                                                                                                |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>10/Page</b>                      | Displays 10 rows in the table.                                                                                                                                                                                                                                             |
| <b>20/Page</b>                      | Displays 20 rows in the table.                                                                                                                                                                                                                                             |
| <b>50/Page</b>                      | Displays 50 rows in the table.                                                                                                                                                                                                                                             |
| <b>100/Page</b>                     | Displays 100 rows in the table.                                                                                                                                                                                                                                            |
| <b>300/Page</b>                     | Displays 300 rows in the table.                                                                                                                                                                                                                                            |
| <b>500/Page</b>                     | Displays 500 rows in the table.                                                                                                                                                                                                                                            |
| <b>Max/Page</b>                     | Displays up to 15,000 rows in the table.<br><b>Note</b> Depending on the number of rows, this could take up to 15 minutes.                                                                                                                                                 |
| <b>DefPrefs</b>                     | Resets the <b>/Page</b> preferences for this Web page to the default settings for the MWTM server.                                                                                                                                                                         |
| <b>Pause</b><br>or<br><b>Resume</b> | Pauses or resumes the table.<br>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. |
| <b>Critical</b>                     | Displays only critical messages. MWTM displays administrative messages with a red background.                                                                                                                                                                              |
| <b>Major</b>                        | Displays only major messages. MWTM displays warning messages with an orange background.                                                                                                                                                                                    |
| <b>Minor</b>                        | Displays only minor messages. MWTM displays normal messages with a yellow background.                                                                                                                                                                                      |
| <b>Warning</b>                      | Displays only warning messages. MWTM displays administrative messages with a blue background.                                                                                                                                                                              |
| <b>Informational</b>                | Displays only informational messages. MWTM displays error messages with a white background.                                                                                                                                                                                |
| <b>Admin</b>                        | Displays only administrative messages. MWTM displays administrative messages with a white background.                                                                                                                                                                      |
| <b>Error</b>                        | Displays only error messages. MWTM displays administrative messages with a cyan background.                                                                                                                                                                                |
| <b>Normal</b>                       | Displays only normal messages. MWTM displays administrative messages with a green background.                                                                                                                                                                              |
| <b>Indeterminate</b>                | Displays only messages that do not fall into one of the above classifications. MWTM displays indeterminate messages with a white background.                                                                                                                               |
| <b>All</b>                          | Displays all status change and SNMP trap messages.                                                                                                                                                                                                                         |

## Last SNMP Trap Messages Table

The list of messages displayed in the Last SNMP Trap Messages table is continually refreshed as new messages are received.

- To pause the message display, select **Pause** from the menu bar.
- To resume the message display, select **Resume** from the menu bar.

The Last SNMP Trap Messages table contains the following columns:

| Column                                      | Description                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Offset (in title)</b>                    | Displays the number of rows in the table, prior to the first displayed row. For example, if the first displayed row is 501, the <b>Offset</b> is 500.                                                                                                                                                                                                                                                                                   |
| <b>Severity (in header)</b>                 | Message severity currently being displayed.                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Update Interval (in header)</b>          | Time between automatic updates for the page.                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Timestamp (in header)</b>                | Date and time the information on the page was last updated by MWTM.                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Row</b>                                  | Unique number identifying each entry in the table. You cannot edit this field.                                                                                                                                                                                                                                                                                                                                                          |
| <b>Time</b>                                 | <p>Date and time the message was logged.</p> <p>To sort the messages by time, click the <b>Time</b> header.</p> <p>To see only messages for a specific date, click the <b>year/month/date</b> string in the timestamp.</p> <p>To see only messages for a specific hour, click the <b>hour</b> string in the timestamp.</p> <p>To see only messages for a specific hour and minute, click the <b>minute</b> string in the timestamp.</p> |
| <b>Node</b>                                 | <p>Node that sent the trap.</p> <p>To see only SNMP trap messages for that node, click the node name.</p>                                                                                                                                                                                                                                                                                                                               |
| <b>Message</b>                              | Text of the message.                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>First (at bottom of table)</b>           | <p>Displays the first page of entries for the table.</p> <p>For example, if the table is sorted by <b>Time</b> in descending order, clicking this field displays the newest entries.</p> <p>You cannot click this field if the first page of entries is already displayed.</p>                                                                                                                                                          |
| <b>Previous (Rows) (at bottom of table)</b> | <p>Displays the previous page of entries for the table.</p> <p>You cannot click this field if the first page of entries is already displayed.</p>                                                                                                                                                                                                                                                                                       |
| <b>Next (Rows) (at bottom of table)</b>     | <p>Displays the next page of entries for the table.</p> <p>You cannot click this field if the last page of entries is already displayed.</p>                                                                                                                                                                                                                                                                                            |

| Column                                | Description                                                                                                                                                                                                                                                                  |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Last<br/>(at bottom of table)</b>  | <p>Displays the last page of entries for the table.</p> <p>For example, if the table is sorted by <b>Time</b> in descending order, clicking this field displays the oldest entries.</p> <p>You cannot click this field if the last page of entries is already displayed.</p> |
| <b>Total<br/>(at bottom of table)</b> | <p>Displays the total number of entries in the table.</p>                                                                                                                                                                                                                    |

## Viewing All Archived Status Change and SNMP Trap Messages

The Network Status Daily Archives: Status and SNMP Trap Messages page displays all archived status change and SNMP trap messages.

To access the Network Status Daily Archives: Status and SNMP Trap Messages page, use one of the following procedures:

- Select **View > Event History > Network Status Archives** from the MWTM Main Menu.
- Select **Network Status Daily Archives** from the MWTM Server Home Page.

The Network Status Daily Archives: Status and SNMP Trap Messages page provides the following menu options:

| Menu Command                 | Description                                                                      |
|------------------------------|----------------------------------------------------------------------------------|
| <b>Home</b>                  | Opens the MWTM Server Home Page.                                                 |
| <b>Current Status + Trap</b> | Opens the Network Status: Last X Status Change and Trap Messages Web page.       |
| <b>Current Status</b>        | Opens the Network Status: Last X Status Change Messages Web page.                |
| <b>Current Trap</b>          | Opens the Network Status: Last X SNMP Trap Messages Web page.                    |
| <b>Archives</b>              | Opens the Network Status Daily Archives: Status and SNMP Trap Messages Web page. |
| <b>Metrics</b>               | Opens the Network Status Messages: Metrics Web page.                             |
| <b>Dashboard</b>             | Opens the MWTM Network Status Log: Dashboard Web page.                           |
| <b>Help</b>                  | Opens an online help window for the current Web page.                            |

On the Network Status Daily Archives: Status and SNMP Trap Messages page, messages are archived by timestamp. MWTM automatically archives the messages at 1:30 AM each night; each archived file contains messages from a single calendar day.

To view archived messages, click a timestamp. MWTM displays the Network Status Archive: Last X Status Change and Trap Messages Page for that timestamp. See the [“Viewing Archived Status Change and SNMP Trap Messages for a Specific Date”](#) section on page 13-17 for more information.

## Viewing Archived Status Change and SNMP Trap Messages for a Specific Date

From the Network Status Archive: Last X Status Change and Trap Messages page, you can view all archived status change and SNMP trap messages for a specified date.

To access the Network Status Archive: Last X Status Change and Trap Messages page, click a date on the Network Status Daily Archives: Status and SNMP Trap Messages page. MWTM displays the archived messages for that timestamp.

The Network Status Archive: Last X Status Change and Trap Messages page is composed of the following sections:

- [Last Status Change and Trap Messages Menus, page 13-18](#)
- [Last Status Change and Trap Messages Table, page 13-19](#)

## Last Status Change and Trap Messages Menus

The Network Status Archive: Last X Status Change and Trap Messages page provides additional menu options. These additional menu options enable you to filter the information displayed on the page, including displaying only messages of a specific type in the Last Status Change and Trap Messages table. (By default, MWTM displays status change and SNMP trap messages of all types in the table.) The following table describes the additional menu options provided by the Network Status Archive: Last X Status Change and Trap Messages page:

| Menu Command                        | Description                                                                                                                                                                                                                                                                |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>10/Page</b>                      | Displays 10 rows in the table.                                                                                                                                                                                                                                             |
| <b>20/Page</b>                      | Displays 20 rows in the table.                                                                                                                                                                                                                                             |
| <b>50/Page</b>                      | Displays 50 rows in the table.                                                                                                                                                                                                                                             |
| <b>100/Page</b>                     | Displays 100 rows in the table.                                                                                                                                                                                                                                            |
| <b>300/Page</b>                     | Displays 300 rows in the table.                                                                                                                                                                                                                                            |
| <b>500/Page</b>                     | Displays 500 rows in the table.                                                                                                                                                                                                                                            |
| <b>Max/Page</b>                     | Displays up to 15,000 rows in the table.<br><b>Note</b> Depending on the number of rows, this could take up to 15 minutes.                                                                                                                                                 |
| <b>DefPrefs</b>                     | Resets the /Page preferences for this Web page to the default settings for the MWTM server.                                                                                                                                                                                |
| <b>Pause</b><br>or<br><b>Resume</b> | Pauses or resumes the table.<br>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. |
| <b>Critical</b>                     | Displays only critical messages. MWTM displays administrative messages with a red background.                                                                                                                                                                              |
| <b>Major</b>                        | Displays only major messages. MWTM displays warning messages with an orange background.                                                                                                                                                                                    |
| <b>Minor</b>                        | Displays only minor messages. MWTM displays normal messages with a yellow background.                                                                                                                                                                                      |
| <b>Warning</b>                      | Displays only warning messages. MWTM displays administrative messages with a blue background.                                                                                                                                                                              |
| <b>Informational</b>                | Displays only informational messages. MWTM displays error messages with a white background.                                                                                                                                                                                |
| <b>Admin</b>                        | Displays only administrative messages. MWTM displays administrative messages with a white background.                                                                                                                                                                      |
| <b>Error</b>                        | Displays only error messages. MWTM displays administrative messages with a cyan background.                                                                                                                                                                                |
| <b>Normal</b>                       | Displays only normal messages. MWTM displays administrative messages with a green background.                                                                                                                                                                              |
| <b>Indeterminate</b>                | Displays only messages that do not fall into one of the above classifications. MWTM displays indeterminate messages with a white background.                                                                                                                               |
| <b>All</b>                          | Displays all status change and SNMP trap messages.                                                                                                                                                                                                                         |

## Last Status Change and Trap Messages Table

The Last Status Change and Trap Messages table contains the following columns:

| Column                                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Offset</b><br>(in title)                    | Displays the number of rows in the table, prior to the first displayed row. For example, if the first displayed row is 501, the <b>Offset</b> is 500.                                                                                                                                                                                                                                                                                   |
| <b>Date of the Archive</b><br>(in header)      | Date the information in the table was archived.                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Severity</b><br>(in header)                 | Message severity displayed in the table.                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Timestamp</b><br>(in header)                | Date and time the page was displayed.                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Row</b>                                     | Unique number identifying each entry in the table. You cannot edit this field.                                                                                                                                                                                                                                                                                                                                                          |
| <b>Time</b>                                    | <p>Date and time the message was logged.</p> <p>To sort the messages by time, click the <b>Time</b> header.</p> <p>To see only messages for a specific date, click the <b>year/month/date</b> string in the timestamp.</p> <p>To see only messages for a specific hour, click the <b>hour</b> string in the timestamp.</p> <p>To see only messages for a specific hour and minute, click the <b>minute</b> string in the timestamp.</p> |
| <b>Type</b>                                    | <p>Type of message:</p> <ul style="list-style-type: none"> <li>• <b>Status</b>—Status change message</li> <li>• <b>Trap</b>—SNMP trap message</li> </ul> <p>To sort the messages by type, click the <b>Type</b> header.</p>                                                                                                                                                                                                             |
| <b>Message</b>                                 | <p>Text of the message.</p> <p>To sort the messages alphabetically by message text, click the <b>Message</b> header.</p>                                                                                                                                                                                                                                                                                                                |
| <b>First</b><br>(at bottom of table)           | <p>Displays the first page of entries for the table.</p> <p>For example, if the table is sorted by <b>Time</b> in descending order, clicking this field displays the newest entries.</p> <p>You cannot click this field if the first page of entries is already displayed.</p>                                                                                                                                                          |
| <b>Previous (Rows)</b><br>(at bottom of table) | <p>Displays the previous page of entries for the table.</p> <p>You cannot click this field if the first page of entries is already displayed.</p>                                                                                                                                                                                                                                                                                       |
| <b>Next (Rows)</b><br>(at bottom of table)     | <p>Displays the next page of entries for the table.</p> <p>You cannot click this field if the last page of entries is already displayed.</p>                                                                                                                                                                                                                                                                                            |

| Column                               | Description                                                                                                                                                                                                                                                   |
|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Last</b><br>(at bottom of table)  | Displays the last page of entries for the table.<br>For example, if the table is sorted by <b>Time</b> in descending order, clicking this field displays the oldest entries.<br>You cannot click this field if the last page of entries is already displayed. |
| <b>Total</b><br>(at bottom of table) | Displays the total number of entries in the table.                                                                                                                                                                                                            |

## Changing Network Status Message Colors

By default, MWTM displays network status messages with the following background colors:

- **Informational**—white background
- **Normal**—green background
- **Indeterminate**—cyan background
- **Warning**—blue background
- **Critical**—red background
- **Minor**—yellow background
- **Major**—orange background
- **Unclassified**—white background

For information about customizing the background colors for network status messages, see the [“Changing Event Severities and Colors” section on page 5-24](#).

## Viewing Network Status Metrics

The Network Status Messages: Metrics page displays a number of metrics for MWTM, based on the number of messages of each type and severity received by MWTM.

To access the Network Status Messages: Metrics page and display all metrics, use one of the following procedures:

- Select **View > Event History > Network Status Metrics** from the MWTM Main Menu.
- Select **Network Status Metrics** from the MWTM Server Home Page.

To access the Network Status Messages: Metrics page and display metrics for a specific object, right-click the object in a window, then select **Event History > Network Status Metrics** from the right-click menu.

The Network Status Messages: Metrics page is composed of the following sections:

- [Message Types Table, page 13-22](#)
- [Message Severity Table, page 13-23](#)
- [Status Messages Table, page 13-24](#)
- [Trap Messages Table, page 13-25](#)
- [Messages/Day Table, page 13-26](#)
- [Status Change Messages/Day Table, page 13-26](#)



- [SNMP Trap Messages/Day Table, page 13-27](#)
- [Files Processed Table, page 13-27](#)
- [Date Range Table, page 13-27](#)

## Message Types Table

The Message Types table contains the following columns:

| Column        | Description                                                                                                                                                                                                                                                                                                                                                                          |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Message Types | Total number of messages of each type received by MWTM. Possible types are: <ul style="list-style-type: none"><li>• <b>Total Messages</b>—Total number of messages of all types received by MWTM.</li><li>• <b>Total Status</b>—Total number of status change messages received by MWTM.</li><li>• <b>Total Traps</b>—Total number of SNMP trap messages received by MWTM.</li></ul> |
| Num           | Number of messages of each type received by MWTM.                                                                                                                                                                                                                                                                                                                                    |
| Num/Total     | Number of messages of a given type received by MWTM, divided by the total number of messages received by MWTM, displayed as a percentage.                                                                                                                                                                                                                                            |

## Message Severity Table

The Message Severity table contains the following columns:

| Column           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Message Severity | <p>Total number of messages (status change messages and SNMP trap messages) of each severity received by MWTM:</p> <ul style="list-style-type: none"><li>• <b>Total Warning</b>—Total number of <b>Warning</b> messages received by MWTM.</li><li>• <b>Total Normal</b>—Total number of <b>Normal</b> messages received by MWTM.</li><li>• <b>Total Unclass</b>—Total number of <b>Unclass</b> (unclassified) messages received by MWTM.</li><li>• <b>Total Minor</b>—Total number of <b>Minor</b> messages received by MWTM.</li><li>• <b>Total Major</b>—Total number of <b>Major</b> messages received by MWTM.</li><li>• <b>Total Informational</b>—Total number of <b>Informational</b> messages received by MWTM.</li><li>• <b>Total Error</b>—Total number of <b>Error</b> messages received by MWTM.</li><li>• <b>Total Critical</b>—Total number of <b>Critical</b> messages received by MWTM.</li><li>• <b>Total Admin</b>—Total number of <b>Admin</b> messages received by MWTM.</li></ul> |
| Num              | Number of messages of each severity received by MWTM.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Num/Total        | Number of messages of a given severity received by MWTM, divided by the total number of messages received by MWTM, displayed as a percentage.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

## Status Messages Table

The Status Messages table contains the following columns:

| Column               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Message Types</b> | <p>Total number of status messages of each severity received by MWTM. Possible severities are:</p> <ul style="list-style-type: none"> <li>• <b>Status Informational</b>—Total number of <b>Informational</b> status messages received by MWTM.</li> <li>• <b>Status Major</b>—Total number of <b>Major</b> status messages received by MWTM.</li> <li>• <b>Status Normal</b>—Total number of <b>Normal</b> status messages received by MWTM.</li> <li>• <b>Status Warning</b>—Total number of <b>Warning</b> status messages received by MWTM.</li> <li>• <b>Status Minor</b>—Total number of <b>Minor</b> status messages received by MWTM.</li> <li>• <b>Status Critical</b>—Total number of <b>Critical</b> status messages received by MWTM.</li> <li>• <b>Status Unclass</b>—Total number of <b>Unclass</b> (unclassified) status messages received by MWTM.</li> <li>• <b>Status Error</b>—Total number of <b>Error</b> status messages received by MWTM.</li> <li>• <b>Status Admin</b>—Total number of <b>Admin</b> status messages received by MWTM.</li> </ul> |
| <b>Num</b>           | Number of status change messages of each severity received by MWTM.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Num/Status</b>    | Number of status change messages of a given severity received by MWTM, divided by the total number of status change messages received by MWTM, displayed as a percentage.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Num/Total</b>     | Number of status change messages of a given severity received by MWTM, divided by the total number of messages (status change messages and SNMP trap messages) received by MWTM, displayed as a percentage.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

## Trap Messages Table

The Trap Messages table contains the following columns:

| Column               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Message Types</b> | <p>Total number of trap messages of each severity received by MWTM. Possible severities are:</p> <ul style="list-style-type: none"> <li>• <b>Trap Warning</b>—Total number of <b>Warning</b> trap messages received by MWTM.</li> <li>• <b>Trap Unclass</b>—Total number of <b>Unclass</b> trap messages received by MWTM.</li> <li>• <b>Trap Normal</b>—Total number of <b>Normal</b> trap messages received by MWTM.</li> <li>• <b>Trap Minor</b>—Total number of <b>Minor</b> trap messages received by MWTM.</li> <li>• <b>Trap Major</b>—Total number of <b>Major</b> trap messages received by MWTM.</li> <li>• <b>Trap Informational</b>—Total number of <b>Informational</b> trap messages received by MWTM.</li> <li>• <b>Trap Error</b>—Total number of <b>Error</b> trap messages received by MWTM.</li> <li>• <b>Trap Critical</b>—Total number of <b>Critical</b> trap messages received by MWTM.</li> <li>• <b>Trap Admin</b>—Total number of <b>Admin</b> trap messages received by MWTM.</li> </ul> |
| <b>Num</b>           | Number of trap messages of each severity received by MWTM.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Num/Trap</b>      | Number of trap messages of a given severity received by MWTM, divided by the total number of trap messages received by MWTM, displayed as a percentage.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Num/Total</b>     | Number of trap messages of a given severity received by MWTM, divided by the total number of messages (status change messages and trap messages) received by MWTM, displayed as a percentage.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

## Messages/Day Table

The Messages/Day table contains the following columns:

| Column            | Description                                                                                                                                                                                          |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Day               | Date for which metrics are calculated.                                                                                                                                                               |
| NumMsgs           | Total number of messages received by MWTM on a given day.                                                                                                                                            |
| NumMsgs/TotalMsgs | Number of messages received by MWTM on a given day, divided by the total number of messages (status change messages and SNMP trap messages) received by MWTM on all days, displayed as a percentage. |

## Status Change Messages/Day Table

The Status Change Messages/Day table contains the following columns:

| Column                    | Description                                                                                                                                                                                                        |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Day                       | Date for which metrics are calculated.                                                                                                                                                                             |
| NumStatMsgs               | Total number of status change messages received by MWTM on a given day.                                                                                                                                            |
| NumStatMsgs/TotalMsgs     | Number of status change messages received by MWTM on a given day, divided by the total number of messages (status change messages and SNMP trap messages) received by MWTM on all days, displayed as a percentage. |
| NumStatMsgs/TotalStatMsgs | Number of status change messages received by MWTM on a given day, divided by the total number of status change messages received by MWTM on all days, displayed as a percentage.                                   |

## SNMP Trap Messages/Day Table

The Status Change Messages/Day table contains the following columns:

| Column                    | Description                                                                                                                                                                                                    |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Day                       | Date for which metrics are calculated.                                                                                                                                                                         |
| NumTrapMsgs               | Total number of SNMP trap messages received by MWTM on a given day.                                                                                                                                            |
| NumTrapMsgs/TotalMsgs     | Number of SNMP trap messages received by MWTM on a given day, divided by the total number of messages (status change messages and SNMP trap messages) received by MWTM on all days, displayed as a percentage. |
| NumTrapMsgs/TotalTrapMsgs | Number of SNMP trap messages received by MWTM on a given day, divided by the total number of SNMP trap messages received by MWTM on all days, displayed as a percentage.                                       |

## Files Processed Table

The Files Processed table lists all files that have been processed by MWTM.

## Date Range Table

The Date Range table displays the date and time when MWTM began collecting metrics, and the date and time of the most recent metrics.

# Viewing MWTM System Messages

You can view the following MWTM system messages from the MWTM Server Home Page.

**Note**

These messages are all related to the MWTM system itself, not to your network.

- [Viewing MWTM Error Messages, page 13-29](#)
- [Viewing MWTM Info Messages, page 13-29](#)
- [Viewing MWTM Action Messages, page 13-30](#)
- [Viewing MWTM Trace Messages, page 13-32](#)
- [Viewing MWTM Debug Messages, page 13-34](#)
- [Viewing MWTM Dump Messages, page 13-34](#)
- [Viewing MWTM SNMP Messages, page 13-35](#)
- [Viewing All Current MWTM Messages, page 13-36](#)
- [Viewing All Archived MWTM Messages, page 13-37](#)
- [Viewing the MWTM System Console Log, page 13-38](#)
- [Viewing All Archived MWTM System Console Log Messages, page 13-39](#)
- [Viewing the MWTM System Command Log, page 13-40](#)
- [Viewing the MWTM System Event Automation Log, page 13-40](#)
- [Viewing the MWTM System Security Log, page 13-41](#)
- [Viewing the MWTM System Web Access Log, page 13-41](#)
- [Viewing the MWTM System Web Server Error Log, page 13-42](#)



## Viewing MWTM Error Messages

The System Messages: Last X Error Messages page displays error messages stored in the MWTM system log. These messages can be useful when diagnosing and correcting MWTM operational problems.

To access the System Messages: Last X Error Messages page, use one of the following procedures:

- Select **System Error Messages** from the MWTM Server Home Page.
- Select **Error** from the menu bar of any MWTM System Messages Web page.

The Last Error Messages table contains the following columns:

| Column                       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Period (in header)</b>    | Collection period of the table, such as <b>Since Server Restart</b> .                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Timestamp (in header)</b> | Date and time the information on the page was last updated by MWTM.                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Row</b>                   | Unique number identifying each entry in the table. You cannot edit this field.                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Time</b>                  | Date and time the message was logged.<br>To sort the messages by time, click the <b>Time</b> header.                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Source</b>                | Source for the message, with the format <i>process.host.id</i> , where: <ul style="list-style-type: none"><li>• <i>process</i> is the process that logged the message.</li><li>• <i>host</i> is the host name of the process that logged the message.</li><li>• <i>id</i> is an MWTM ID that uniquely identifies the process that logged the message, in the event that there are two or more clients running on the same device, connected to the same MWTM server.</li></ul> |
| <b>Task</b>                  | Task, or thread, that logged the message.                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Message</b>               | Text of the message.<br>To sort the messages alphabetically by message text, click the <b>Message</b> header.                                                                                                                                                                                                                                                                                                                                                                  |

## Viewing MWTM Info Messages

The System Messages: Last X Info Messages page displays informational messages stored in the MWTM system log. These messages can be useful when diagnosing and correcting MWTM operational problems.

To access the System Messages: Last X Info Messages page, select **System Info Messages** from the MWTM Server Home Page, or **Info** from the Web page menu bar, if shown.

The Last Info Messages table contains the following columns:

| Column                       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Period (in header)</b>    | Collection period of the table, such as <b>Since Server Restart</b> .                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Timestamp (in header)</b> | Date and time the information on the page was last updated by MWTM.                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Row</b>                   | Unique number identifying each entry in the table. You cannot edit this field.                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Time</b>                  | Date and time the message was logged.<br>To sort the messages by time, click the <b>Time</b> header.                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Source</b>                | Source for the message, with the format <i>process.host.id</i> , where: <ul style="list-style-type: none"> <li><i>process</i> is the process that logged the message.</li> <li><i>host</i> is the host name of the process that logged the message.</li> <li><i>id</i> is an MWTM ID that uniquely identifies the process that logged the message, in the event that there are two or more clients running on the same device, connected to the same MWTM server.</li> </ul> |
| <b>Task</b>                  | Task, or thread, that logged the message.                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Message</b>               | Text of the message.<br>To sort the messages alphabetically by message text, click the <b>Message</b> header.                                                                                                                                                                                                                                                                                                                                                                |

## Viewing MWTM Action Messages

The System Messages: Last X Action Messages page displays action messages stored in the MWTM system log. These messages can be useful when diagnosing and correcting MWTM operational problems, and when monitoring audit trails of user actions.

To access the System Messages: Last X Action Messages page, use one of the following procedures:

- Select **View > User Audit > User Actions** from the MWTM Main Menu.
- Select **System User Actions** from the MWTM Server Home Page.
- Select **Action** from the menu bar of any MWTM System Messages Web page.

MWTM displays the System Messages: Last X Action Messages page.

The System Messages: Last X Action Messages page is composed of the following sections:

- [Last Action Messages Menu, page 13-30](#)
- [Last Action Messages Table, page 13-32](#)

### Last Action Messages Menu

By default, MWTM displays action messages of all classes on the System Messages: Last X Action Messages page. However, menu options are provided that enable you to display only messages of a specific class on the page.

The Last Action Messages menu contains the following options:

| Column           | Description                                                                                                                 |
|------------------|-----------------------------------------------------------------------------------------------------------------------------|
| <b>Create</b>    | Opens the System Messages: Last X Action: Create Messages Web page, which displays only Create action messages.             |
| <b>Delete</b>    | Opens the System Messages: Last X Action: Delete Messages Web page, which displays only Delete action messages.             |
| <b>Discover</b>  | Opens the System Messages: Last X Action: Discover Messages Web page, which displays only Discover action messages.         |
| <b>Edit</b>      | Opens the System Messages: Last X Action: Edit Messages Web page, which displays only Edit action messages.                 |
| <b>Ignore</b>    | Opens the System Messages: Last X Action: Ignore Messages Web page, which displays only Ignore action messages.             |
| <b>OverWrite</b> | Opens the System Messages: Last X Action: OverWrite Messages Web page, which displays only OverWrite action messages.       |
| <b>Poll</b>      | Opens the System Messages: Last X Action: Poll Messages Web page, which displays only Poll action messages.                 |
| <b>Purge</b>     | Opens the System Messages: Last X Action: Purge Messages Web page, which displays only Purge action messages.               |
| <b>LogInOut</b>  | Opens the System Messages: Last X Action: LogInOut Messages Web page, which displays only Login and Logout action messages. |
| <b>All</b>       | Opens the System Messages: Last X Action Messages Web page, which displays all action messages.                             |

## Last Action Messages Table

The Last Action Messages table contains the following columns:

| Column                       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Period (in header)</b>    | Collection period of the table, such as <b>Since Server Restart</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Timestamp (in header)</b> | Date and time the information on the page was last updated by MWTM.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Row</b>                   | Unique number identifying each entry in the table. You cannot edit this field.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Time</b>                  | Date and time the message was logged.<br>To sort the messages by time, click the <b>Time</b> header.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Class</b>                 | Class of the message. Possible classes are: <ul style="list-style-type: none"> <li>• <b>Create</b>—Creation event, such as the creation of a seed file.</li> <li>• <b>Delete</b>—Deletion event, such as the deletion of an object or file.</li> <li>• <b>Discover</b>—Discovery event, such as Discovery beginning.</li> <li>• <b>Edit</b>—Edit event. A user has edited an object.</li> <li>• <b>Ignore</b>—Ignore event. A user has flagged a link or linkset as <b>Ignored</b>.</li> <li>• <b>Login</b>—Login event. A user has logged in to MWTM.</li> <li>• <b>LoginDisable</b>—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.</li> <li>• <b>LoginFail</b>—LoginFail event. An attempt by a user to log in to MWTM has failed.</li> <li>• <b>Logout</b>—Logout event. A user has logged out of MWTM.</li> <li>• <b>OverWrite</b>—OverWrite event. An existing file, such as a seed file or route file, has been overwritten.</li> <li>• <b>Poll</b>—Poll event, such as an SNMP poll.</li> <li>• <b>Purge</b>—Purge event. A user has requested Discovery with <b>Delete Existing Data</b> selected, and MWTM has deleted the existing MWTM database.</li> </ul> To sort the messages by class, click the <b>Class</b> header. |
| <b>Message</b>               | Text of the message.<br>To sort the messages alphabetically by message text, click the <b>Message</b> header.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

## Viewing MWTM Trace Messages

The System Messages: Last X Trace Messages page displays trace messages stored in the MWTM system log. These messages can be useful when diagnosing and correcting MWTM operational problems.

To access the System Messages: Last X Trace Messages page, select **System Error Messages** from the MWTM Server Home Page, then select **Trace** from the menu bar.

The Last Trace Messages table contains the following information (without column headers):

| Column                   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Period<br>(in header)    | Collection period of the table, such as <b>Since Server Restart</b> .                                                                                                                                                                                                                                                                                                                                                                                                          |
| Timestamp<br>(in header) | Date and time the information on the page was last updated by MWTM.                                                                                                                                                                                                                                                                                                                                                                                                            |
| Index                    | Message number, assigned to the message by MWTM.                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Time                     | Date and time the message was logged.                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Source                   | Source for the message, with the format <i>process.host.id</i> , where: <ul style="list-style-type: none"><li>• <i>process</i> is the process that logged the message.</li><li>• <i>host</i> is the host name of the process that logged the message.</li><li>• <i>id</i> is an MWTM ID that uniquely identifies the process that logged the message, in the event that there are two or more clients running on the same device, connected to the same MWTM server.</li></ul> |
| Task                     | Task, or thread, that logged the message.                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Message                  | Text of the message.                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

## Viewing MWTM Debug Messages

The System Messages: Last X Debug Messages page displays debug messages stored in the MWTM system log. These messages can be useful when diagnosing and correcting MWTM operational problems.

To access the System Messages: Last X Debug Messages page, select **System Error Messages** from the MWTM Server Home Page, then select **Debug** from the menu bar.



### Note

The **Debug** option is displayed only when enabled at the request of Cisco TAC.

The Last Debug Messages table contains the following information (without column headers):

| Column                       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Period (in header)</b>    | Collection period of the table, such as <b>Since Server Restart</b> .                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Timestamp (in header)</b> | Date and time the information on the page was last updated by MWTM.                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Index</b>                 | Message number, assigned to the message by MWTM.                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Time</b>                  | Date and time the message was logged.                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Source</b>                | Source for the message, with the format <i>process.host.id</i> , where: <ul style="list-style-type: none"> <li><i>process</i> is the process that logged the message.</li> <li><i>host</i> is the host name of the process that logged the message.</li> <li><i>id</i> is an MWTM ID that uniquely identifies the process that logged the message, in the event that there are two or more clients running on the same device, connected to the same MWTM server.</li> </ul> |
| <b>Task</b>                  | Task, or thread, that logged the message.                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Message</b>               | Text of the message.                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

## Viewing MWTM Dump Messages

The System Messages: Last X Dump Messages page displays dump messages stored in the MWTM system log. These messages can be useful when diagnosing and correcting MWTM operational problems.

To access the System Messages: Last X Dump Messages page, select **System Error Messages** from the MWTM Server Home Page, then select **Dump** from the menu bar.



### Note

The **Dump** option is displayed only when enabled at the request of Cisco TAC.

The Last Dump Messages table contains the following information (without column headers):

| Column                       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Period (in header)</b>    | Collection period of the table, such as <b>Since Server Restart</b> .                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Timestamp (in header)</b> | Date and time the information on the page was last updated by MWTM.                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Index</b>                 | Message number, assigned to the message by MWTM.                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Time</b>                  | Date and time the message was logged.                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Source</b>                | Source for the message, with the format <i>process.host.id</i> , where: <ul style="list-style-type: none"> <li><i>process</i> is the process that logged the message.</li> <li><i>host</i> is the host name of the process that logged the message.</li> <li><i>id</i> is an MWTM ID that uniquely identifies the process that logged the message, in the event that there are two or more clients running on the same device, connected to the same MWTM server.</li> </ul> |
| <b>Task</b>                  | Task, or thread, that logged the message.                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Message</b>               | Text of the message.                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

## Viewing MWTM SNMP Messages

The System Messages: Last X SNMP Messages page displays SNMP messages stored in the MWTM system log. These messages can be useful when diagnosing and correcting MWTM operational problems.



### Note

These are not SNMP trap messages. These are debugging messages from internal, low-level SNMP encoding and decoding routines.

To access the System Messages: Last X SNMP Messages page, select **System Error Messages** from the MWTM Server Home Page, then select **SNMP** from the menu bar.



### Note

The **SNMP** option is displayed only when enabled at the request of Cisco TAC.

The Last SNMP Messages table contains the following information (without column headers):

| Column                       | Description                                                                                          |
|------------------------------|------------------------------------------------------------------------------------------------------|
| <b>Period (in header)</b>    | Collection period of the table, such as <b>Since Server Restart</b> .                                |
| <b>Timestamp (in header)</b> | Date and time the information on the page was last updated by MWTM.                                  |
| <b>Index</b>                 | Message number, assigned to the message by MWTM.                                                     |
| <b>Time</b>                  | Date and time the message was logged.<br>To sort the messages by time, click the <b>Time</b> header. |

| Column  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source  | Source for the message, with the format <i>process.host.id</i> , where: <ul style="list-style-type: none"> <li><i>process</i> is the process that logged the message.</li> <li><i>host</i> is the host name of the process that logged the message.</li> <li><i>id</i> is an MWTM ID that uniquely identifies the process that logged the message, in the event that there are two or more clients running on the same device, connected to the same MWTM server.</li> </ul> |
| Task    | Task, or thread, that logged the message.                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Message | Text of the message.<br>To sort the messages alphabetically by message text, click the <b>Message</b> header.                                                                                                                                                                                                                                                                                                                                                                |

## Viewing All Current MWTM Messages

The System Messages: Last X All Messages page displays all current messages in the MWTM system log.

To access the System Messages: Last X All Messages page, select **System Error Messages** from the MWTM Server Home Page, then select **All** from the menu bar.

The Last All Messages table contains the following information (without column headers):

| Column                | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Period (in header)    | Collection period of the table, such as <b>Since Server Restart</b> .                                                                                                                                                                                                                                                                                                                                                                                                        |
| Timestamp (in header) | Date and time the information on the page was last updated by MWTM.                                                                                                                                                                                                                                                                                                                                                                                                          |
| Index                 | Message number, assigned to the message by MWTM.                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Time                  | Date and time the message was logged.                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Type                  | Type of message. Possible types are: <ul style="list-style-type: none"> <li><b>Action</b></li> <li><b>Debug</b></li> <li><b>Dump</b></li> <li><b>Error</b></li> <li><b>Info</b></li> <li><b>SNMP</b></li> <li><b>Trace</b></li> </ul>                                                                                                                                                                                                                                        |
| Source                | Source for the message, with the format <i>process.host.id</i> , where: <ul style="list-style-type: none"> <li><i>process</i> is the process that logged the message.</li> <li><i>host</i> is the host name of the process that logged the message.</li> <li><i>id</i> is an MWTM ID that uniquely identifies the process that logged the message, in the event that there are two or more clients running on the same device, connected to the same MWTM server.</li> </ul> |



| Column  | Description                               |
|---------|-------------------------------------------|
| Task    | Task, or thread, that logged the message. |
| Message | Text of the message.                      |

## Viewing All Archived MWTM Messages

The System Message Archives: All Messages page displays all archived messages in the MWTM system logs, including error messages, informational messages, trace messages, debug messages, dump messages, and SNMP messages.

To access the System Message Archives: All Messages page, use one of the following procedures:

- Select **System Message Archives** from the MWTM Server Home Page.
- Select **Archives** from the menu bar of any MWTM System Messages Web page.

On the System Message Archives: All Messages page, messages are archived by timestamp. Each archived file contains all MWTM system messages for a single session for the server to which you are connected, and which is currently running the MWTM server. (If you restart the server, MWTM creates a new file.)

To view archived messages, click a timestamp. MWTM displays the System Messages Archive: Last X All Messages page, which displays all messages that were in the ITP system log at the specified timestamp.

The Last All Messages table contains the following information (without column headers):

| Column  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Index   | Message number, assigned to the message by MWTM.                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Time    | Date and time the message was logged.                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Type    | Type of message. Possible types are: <ul style="list-style-type: none"> <li>• <b>Action</b></li> <li>• <b>Debug</b></li> <li>• <b>Dump</b></li> <li>• <b>Error</b></li> <li>• <b>Info</b></li> <li>• <b>SNMP</b></li> <li>• <b>Trace</b></li> </ul>                                                                                                                                                                                                                                |
| Source  | Source for the message, with the format <i>process.host.id</i> , where: <ul style="list-style-type: none"> <li>• <i>process</i> is the process that logged the message.</li> <li>• <i>host</i> is the host name of the process that logged the message.</li> <li>• <i>id</i> is an MWTM ID that uniquely identifies the process that logged the message, in the event that there are two or more clients running on the same device, connected to the same MWTM server.</li> </ul> |
| Task    | Task, or thread, that logged the message.                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Message | Text of the message.                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

## Viewing the MWTM System Console Log

The MWTM System Console Log page displays the contents of the MWTM system console log file for the server to which you are connected, and which is currently running the MWTM server. The console log file contains unexpected error and warning messages from the MWTM server, such as those that might occur if the MWTM server cannot start.

To access the MWTM System Console Log page, use one of the following procedures:

- Select **System Console Log** from the MWTM Server Home Page.
- Select **Console** from the menu bar of any MWTM System Messages Web page.

## Viewing All Archived MWTM System Console Log Messages

The MWTM System Console Archives: All Messages page displays all archived MWTM system console log messages for the server to which you are connected, and which is currently running the MWTM server. The archived console logs contain unexpected error and warning messages from the MWTM server, such as those that might occur if the MWTM server cannot start.

To access the MWTM System Console Archives: All Messages page, select **Console Archives** from the menu bar of any MWTM System Messages Web page.

On the MWTM System Console Archives: All Messages page, messages are archived by timestamp. Each archived file contains all MWTM system console log messages for a single session for the server to which you are connected, and which is currently running the MWTM server. (If you restart the server, MWTM creates a new file.)

To view archived messages, click a timestamp. MWTM displays the Console Archive: Last X All Messages page. This page displays the contents of the MWTM system console log file for the server to which you are connected, at the specified timestamp. The console log file contains unexpected error and warning messages from the MWTM server, such as those that might occur if the MWTM server cannot start.

## Viewing the MWTM System Command Log

The MWTM System Command Log: Last X Commands page displays the contents of the MWTM system command log file for the server to which you are connected, and which is currently running the MWTM server. The system command log lists all **mwtm** commands that have been entered for the MWTM server, the time each command was entered, and the user who entered the command.

To access the MWTM System Command Log: Last X Commands page, use one of the following procedures:

- Select **View > User Audit > Command Log** from the MWTM Main Menu.
- Select **System Command Log** from the MWTM Server Home Page.

MWTM displays the MWTM System Command Log: Last X Commands page.

The MWTM System Command Log: Last X Commands table contains the following columns:

| Column                          | Description                                                                                                   |
|---------------------------------|---------------------------------------------------------------------------------------------------------------|
| <b>Last Updated (in header)</b> | Date and time the information on the page was last updated by MWTM.                                           |
| <b>Row</b>                      | Command number, assigned to the command by MWTM.                                                              |
| <b>Time</b>                     | Date and time the command was logged.<br>To sort the messages by time, click the <b>Time</b> header.          |
| <b>User</b>                     | User who entered the command.<br>To sort the commands by user, click the <b>User</b> header.                  |
| <b>Command</b>                  | Text of the command.<br>To sort the messages alphabetically by command text, click the <b>Command</b> header. |

## Viewing the MWTM System Event Automation Log

The MWTM System Event Automation Log page displays the contents of the MWTM system event automation log file for the server to which you are connected, and which is currently running the MWTM server. The system event automation log lists all messages generated by scripts launched by event automation.

The default path and filename for the system event automation log file is `/opt/CSCOSgm/logs/eventAutomationLog.txt`. If you installed MWTM in a directory other than `/opt`, then the system event automation log file is located in that directory.

To access the MWTM System Event Automation Log page, use one of the following procedures:

- Select **System Event Automation Log** from the MWTM Server Home Page.
- Select **EventAuto** from the menu bar of any MWTM System Messages Web page.

### Related Topic

- [Changing the Way MWTM Processes Events, page 5-17](#)

## Viewing the MWTM System Security Log

The MWTM System Security Log: Last X Entries page displays the contents of the MWTM system security log file for the server to which you are connected, and which is currently running the MWTM server. The system security log lists all MWTM security events that have occurred for the MWTM server, the time each event occurred, the user and command that triggered the event, and the text of any associated message.

The default path and filename for the system security log file is */opt/CSCOs/gm/logs/sgmSecurityLog.txt*. If you installed MWTM in a directory other than */opt*, then the system security log file is located in that directory.

To access the MWTM System Security Log: Last X Entries page, use one of the following procedures:

- Select **View > User Audit > Security Log** from the MWTM Main Menu.
- Select **System Security Log** from the MWTM Server Home Page.

The Last Security Entries table contains the following columns:

| Column                          | Description                                                                                                                                    |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Last Updated (in header)</b> | Date and time the information on the page was last updated by MWTM.                                                                            |
| <b>Row</b>                      | Entry number, assigned to the security event entry by MWTM.                                                                                    |
| <b>Time</b>                     | Date and time the security event occurred.<br>To sort the entries by time, click the <b>Time</b> header.                                       |
| <b>User</b>                     | User who triggered the security event.<br>To sort the entries by user, click the <b>User</b> header.                                           |
| <b>Message</b>                  | Text of the security event message.<br>To sort the entries alphabetically by message text, click the <b>Message</b> header.                    |
| <b>Command</b>                  | Text of the command that triggered the security event.<br>To sort the entries alphabetically by command text, click the <b>Command</b> header. |

### Related Topic

- [Viewing All Current MWTM Messages](#)

## Viewing the MWTM System Web Access Log

The MWTM System Web Access Log: Last X Messages page displays the contents of the MWTM system Web access log file for the server to which you are connected, and which is currently running the MWTM server. The system Web access log lists all MWTM system Web access messages that have been logged for the MWTM server. This provides an audit trail of all access to the MWTM server via the Web interface.

To access the MWTM System Web Access Log: Last X Messages page, select **System Web Access Log** from the MWTM Server Home Page, or enter the **mwtm webaccesslog** command. (You must be logged in as the root user or as a super user to use the **mwtm webaccesslog** command.)

**Related Topic**

- [Viewing All Current MWTM Messages](#)

The Last Web Access Messages table contains the following columns:

| Column                          | Description                                                                    |
|---------------------------------|--------------------------------------------------------------------------------|
| <b>Last Updated (in header)</b> | Date and time the information on the page was last updated by MWTM.            |
| <b>Row</b>                      | Unique number identifying each entry in the table. You cannot edit this field. |
| <b>Message</b>                  | Text of the Web access message.                                                |

## Viewing the MWTM System Web Server Error Log

The MWTM System Web Server Error Log: Last X Messages page displays the contents of the MWTM system Web server error log file for the server to which you are connected, and which is currently running the MWTM server. The system Web server error log lists all MWTM system Web error messages that have been logged for the MWTM Web server.

To access the MWTM System Web Server Error Log: Last X Messages page, select **System Web Server Errors** from the MWTM Server Home Page, or enter the **mwtm weberrorlog** command. (You must be logged in as the root user or as a super user to use the **mwtm weberrorlog** command.)

**Related Topic**

- [Viewing All Current MWTM Messages](#)

The Last Web Server Error Messages table contains the following columns:

| Column                          | Description                                                                    |
|---------------------------------|--------------------------------------------------------------------------------|
| <b>Last Updated (in header)</b> | Date and time the information on the page was last updated by MWTM.            |
| <b>Row</b>                      | Unique number identifying each entry in the table. You cannot edit this field. |
| <b>Message</b>                  | Text of the Web server error message.                                          |

## Viewing Statistics Reports

You can view the following MWTM statistics reports for network objects from the MWTM Server Home Page:

- [Viewing RAN Backhaul Utilization Statistics Report, page 9-1](#)

## Viewing System Status Information for MWTM

You can view the following MWTM system status information from the MWTM Server Home Page:

- [Viewing Status Information for MWTM, page 13-43](#)
- [Viewing Version Information for MWTM, page 13-43](#)

- [Viewing MWTM Client Information, page 13-43](#)
- [Viewing MWTM User Account Information, page 13-44](#)
- [Viewing MWTM Object Counts, page 13-46](#)
- [Viewing the Troubleshooting Log for MWTM \(Server Only\), page 13-46](#)

## Viewing Status Information for MWTM

The MWTM System Status page displays the status of all MWTM servers, local clients, and processes. To access the MWTM System Status page, select **System Status** from the MWTM Server Home Page, or from the menu bar of any System Status Web page. (MWTM might take a few seconds to display this page.)

## Viewing Version Information for MWTM

The MWTM System Versions page displays version information for all MWTM servers, clients, and processes. To access the MWTM System Versions page, select **System Versions** from the MWTM Server Home Page, or from the menu bar of any System Status Web page. (MWTM might take a few seconds to display this page.)

## Viewing MWTM Client Information

The MWTM System Connected Clients page lists all MWTM clients that are currently connected to the MWTM server. It also lists all Solaris/Linux users that are logged in to the MWTM server.

To access the MWTM System Connected Clients page, use one of the following procedures:

- Select **View > User Audit > Connected Clients** from the MWTM Main Menu.
- Select **Connected Clients** from the MWTM Server Home Page.
- Select **Clients** from the menu bar of any MWTM System Status Web page.

## Viewing MWTM User Account Information

The MWTM User Accounts page displays information about all user accounts that have been defined for the MWTM server. If no user accounts have been defined, MWTM displays the message, “User Database is Empty.”

To access the MWTM User Accounts page, use one of the following procedures:

- Select **View > User Audit > User Accounts** from the MWTM Main Menu.
- Select **System User Accounts** from the MWTM Server Home Page.
- Select **Users** from the menu bar of any MWTM System Status Web page.

To sort the MWTM User Accounts page based on the contents of any column, click the column header.

The MWTM User Accounts table contains the following columns:

| Column                         | Description                                                                                                                                                                                                                                                                                                                  |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Server Name (in header)</b> | Name of the MWTM server for which user accounts are being displayed.                                                                                                                                                                                                                                                         |
| <b>User</b>                    | MWTM user for whom a User-Based Access account has been set up.<br>To sort the entries by alphabetically user, click the <b>User</b> header.                                                                                                                                                                                 |
| <b>Last Login</b>              | Date and time the user last logged in to MWTM.<br>To sort the entries by last login time, click the <b>Last Login</b> header.                                                                                                                                                                                                |
| <b>Level Name</b>              | Authentication level for the user. Valid levels are: <ul style="list-style-type: none"> <li>• Basic User</li> <li>• Power User</li> <li>• Network Operator</li> <li>• Network Administrator</li> <li>• System Administrator</li> </ul> To sort the entries alphabetically by level name, click the <b>Level Name</b> header. |



| Column              | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Level Number</b> | <p>Authentication level for the user, expressed as a number. Valid levels are:</p> <ul style="list-style-type: none"> <li>• <b>1</b>—Basic User</li> <li>• <b>2</b>—Power User</li> <li>• <b>3</b>—Network Operator</li> <li>• <b>4</b>—Network Administrator</li> <li>• <b>5</b>—System Administrator</li> </ul> <p>To sort the entries numerically by level number, click the <b>Level Number</b> header.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Status</b>       | <p>Current status of the user's account. Valid status settings are:</p> <ul style="list-style-type: none"> <li>• <b>Account Enabled</b>—The account has been enabled and is functioning normally.</li> <li>• <b>Account Disabled</b>—The account has been disabled for one of the following reasons: <ul style="list-style-type: none"> <li>– A System Administrator disabled the account. See the “<a href="#">mwtm disablepass</a>” section on page C-18 and the “<a href="#">mwtm disableuser</a>” section on page C-18 for more information.</li> <li>– MWTM disabled the account as a result of too many failed attempts to log in using the account. See the “<a href="#">mwtm badlogindisable</a>” section on page C-8 for more information.</li> <li>– MWTM disabled the account because it was inactive for too many days. See the “<a href="#">mwtm inactiveuserdays</a>” section on page C-22 for more information.</li> </ul> </li> </ul> <p>To sort the entries by status, click the <b>Status</b> header.</p> |

## Viewing MWTM Object Counts

The MWTM Object Counts page displays counts of objects in the MWTM database.

To access the MWTM Object Counts page, select **System Object Counts** from the MWTM Server Home Page.

The MWTM Object Counts page displays the following counts:

- **Nodes**—Number of nodes that are in the following states: **Active**, **Warning**, **Unmanaged**, **Unknown**, **Other**, and **Total**.

## Viewing the Troubleshooting Log for MWTM (Server Only)

Launching the MWTM System Troubleshooting page generates troubleshooting information, displays the information on this page, and stores the information in the */opt/CSCOsgm/tmp/cisco\_sgm\_tshoot.log* file on the MWTM server. This log, which is updated each time the MWTM System Troubleshooting page is accessed or the **mwtm tac** command is run, contains information that might be requested by Cisco customer support personnel.

To access the MWTM System Troubleshooting page, select **System Troubleshooting** from the MWTM Server Home Page, or from the Web page menu bar, if shown.

**Note**

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MWTM might take several minutes to create and display the troubleshooting log, and the resulting log might be several MB, depending on the size of the network and system logs.

---

# Viewing System Data Files for MWTM

You can view the following MWTM system data files from the MWTM Server Home Page:

- **MWTM System Data Files: Notes**—Displays a list of the note files that have been created on this MWTM server. The notes are listed by the name of the network object, or by the internal ID of the event.

To access the MWTM System Files: Notes page, select **Notes** from the MWTM Server Home Page. Click an object name or ID to view the contents of the note. Click a directory to view the subdirectories and notes contained in that directory.

- **MWTM System Data Files: Views**—Displays a list of the network view files that have been created on this MWTM server. The file name includes directory information, if applicable.

To access the MWTM System Files: Network Views page, select **Views** from the menu bar of any MWTM System Files Web Page. Click a network view file to view its contents. Click a directory to view the subdirectories and network view files contained in that directory.

- **MWTM System Data Files: Discovery Seeds**—Displays a list of the seed files that have been created on this MWTM server. The file name includes directory information, if applicable.

To access the MWTM System Files: Discovery Seeds page, select **Discovery Seeds** from the MWTM Server Home Page. Click a seed file to view its contents. Click a directory to view the subdirectories and seed files contained in that directory.

- **MWTM System Files: Server Event Automation Sounds**—Displays a list of event automation sound files that have been created on this MWTM server.

Event automation sound files are stored in the server's *sounds* directory:

- If you installed MWTM in the default directory, */opt*, then the sound file directory is */opt/CSCOsqm/sounds*.
- If you installed MWTM in a different directory, then the sound file directory is located in that directory.

To access the MWTM System Files: Server Event Automation Sounds page, select **Sounds** from the menu bar of any MWTM System Files Web Page, if shown.

# Viewing System Information for MWTM

You can view the following MWTM system information from the MWTM Server Home Page:

- **MWTM README**—Contains late-breaking information about MWTM that might not be found in the other product documentation.

To access the MWTM System README page, select **System README** from the MWTM Server Home Page, or from the Web page menu bar, if shown.

- **MWTM Install Log**—Displays the contents of the MWTM system installation log. The installation log contains messages and other information recorded during installation, which can be useful when troubleshooting problems.

To access the MWTM System Install Log page, select **System Install Log** from the MWTM Server Home Page, or from the Web page menu bar, if shown.

- **MWTM System Properties**—Displays MWTM server and client properties that control various MWTM configuration parameters.

To access the MWTM System Properties page, select **System Properties** from the MWTM Server Home Page, or from the Web page menu bar, if shown.

- **MWTM Root Variables**—Displays the contents of the */etc/CSCOsgm.sh* file, which determines the root location of the MWTM server and client installation.

To access the MWTM System Root Variables page, select **System Root Variables** from the MWTM Server Home Page, or from the Web page menu bar, if shown, or enter the **mwtm rootvars** command.

## Viewing the MWTM Technical Documentation

From the MWTM Server Home Page, you can view the following MWTM technical documentation:

- To view the entire Cisco Mobile Wireless Transport Manager Help System, select **Help Home Page**.
- To view the entire MWTM User Guide as a PDF file on the Web, using the Adobe Acrobat Reader, select **User Guide (PDF)**.
- To view the entire MWTM Installation Guide as a PDF file on the Web, using the Adobe Acrobat Reader, select **Installation Guide (PDF)**.
- To view the entire MWTM Release Notes as a PDF file on the Web, using the Adobe Acrobat Reader, select **Release Notes (PDF)**.
- To view Frequently Asked Questions (FAQs) about MWTM, select **Frequently Asked Questions**.
- To view the syntax for every MWTM command, select **Output of mwtm help command** from the MWTM Server Home Page.
- To view a list of the MIBs on the server to which you are connected, and which is currently running the MWTM server, select **SNMP MIBs** from the MWTM Server Home Page.

## Downloading the MWTM Client from the Web

You can access the MWTM client installation software for Linux, Solaris, and Windows from the MWTM Server Home Page. This access is useful if you do not have the CD-ROM, or if you prefer to download the software using your Web browser. Once you have downloaded the MWTM client installation software to your workstation, you must install the software on your local system.

For more information about installing the MWTM client software using a Web server, see the “Installing MWTM on Solaris” and “Installing MWTM on Windows” chapters of the *Cisco Mobile Wireless Transport Manager Installation Guide*.

- To access the MWTM Client for Solaris page, select **Download Solaris Client**.
- To access the MWTM Client for Windows page, select **Download Windows Client**.
- To access the MWTM Client for Linux page, select **Download Linux Client**. (The MWTM client for Linux is not a supported feature of MWTM. Use it under advisement.)

## Downloading the MWTM Server's SSL Certificate from the Web

If you have implemented Secure Sockets Layer (SSL) support in your MWTM system, you can download the MWTM server's signed SSL certificate to all remote MWTM clients that connect to the server using SSL.

To access the MWTM Server SSL Certificate page, select **Server SSL Certificate** from the MWTM Server Home Page.

For more information about downloading the certificate, or about enabling SSL in MWTM, see the [“Implementing SSL Support in MWTM \(Solaris Only\)” section on page 10-22](#).

## Accessing Software Updates and Additional Information

You can access the following additional information about MWTM from the MWTM Server Home Page:

- To view information about MWTM or any other Cisco product available on Cisco.com (also known as Cisco Connection Online), use one of the following procedures:
  - Select **View > Cisco.com** from the MWTM Main Menu.
  - Select **Cisco Home Page** from the MWTM Server Home Page.
- To access software updates for MWTM from Cisco.com for FTP, select **Engineering Software Updates (FTP)**. The Cisco Systems Engineering FTP server page is displayed.



# APPENDIX **A**

## MWTM Status Definitions

---

This appendix defines the default status settings for all MWTM network objects.

This appendix includes the following information:

- [Status Definitions for Interfaces, page A-1](#)
- [Status Definitions for Nodes, page A-4](#)
- [Status Definitions for Views, page A-4](#)

### Status Definitions for Interfaces

This section provides definitions for the following statuses:

- [Admin Status, page A-2](#)
- [Operational Status, page A-2](#)
- [Connect State for GSM Abis, page A-2](#)
- [Connect State for UMTS Iub, page A-2](#)
- [Alarm States, page A-3](#)
- [Redundancy State, page A-3](#)
- [Status, page A-4](#)

## Admin Status

Possible values for the administrative status of the interface are:

**Unknown**—Unknown administrative status

**Up** —Administratively up

**Shutdown**—Administratively down

**Testing**—Administrator is testing the interface

## Operational Status

Possible values for the operational status of the interface are:

**Unknown**—Unknown operational status.

**Up** —Interface is up.

**Down**—Interface is down.

**Testing**—Interface is in test mode.

**Dormant**—Interface is dormant.

**Not Present** —An interface component is missing.

**Lower Layer Down** —An interface is down because of a lower-layer interface.

## Connect State for GSM Abis

Possible values for the connect state of a GSM interface are:

**Connected** —The device is monitoring local and remote alarm status.

**Disconnected**—The system ignores the local alarm status. The local transmitter on the short-haul is disabled. Capability messages are transmitted to the remote describing the provisioning. The system stays disconnected until the remote capabilities are known and the peer state is transitioned to connected.

**Send Connect** —One or more attempts have been made to connect to remote peer.

**Receive Connect** —The local-peer has received a connect request from the remote-peer.

**Connect Rejected** —Connection was rejected.

**ACK Connect** —The initial connect request was sent and acknowledged by remote-peer. The local-peer is now waiting for a connect request from the remote-peer.

**Check Connect** —The local peer has reason to believe its remote peer has failed. Additional tests are being processed to verify peer's state.

## Connect State for UMTS Iub

Possible values for the connect state of a UMTS interface are:

**Initialized** —The connection is starting initialization.

**Starting**—The shorthaul interface is administratively active, but the backhaul interface is down.

**Closed**—The backhaul interface is active, but the shorthaul is administratively closed.



**Stopped**—Unable to connect to peer in specified time interval. Additional attempts will be tried based on peer request or restart timers.

**Closing**—Connection closed by administration request.

**Stopping** —Connection shut down by peer's Term-Request. Will transition to stopped state.

**Connect Sent** —Connection request sent to peer.

**ACK Received** —Connection request sent and acknowledgement has been received from peer. Now waiting for peer's connection request.

**ACK Sent** —Connection request received and acknowledgement has been sent to peer. Connection request sent and waiting for peer's acknowledgement.

**Open** —Connection open and available for traffic.

## Alarm States

The alarm states for a UMTS Iub interface include the following:

- Local Receive Alarm State
- Local Transmit Alarm State
- Remote Receive Alarm State
- Remote Transmit Alarm State

Possible values for these alarm states are:

**Remote Alarm** —Indicates a problem at the remote end. The alarm generated by the remote interface in the E1/T1 data stream is sent and no other action is required.

**No Alarm** —No alarm is present.

**Local Alarm** —Indicates local interface problem. The interface has not received synchronization from the GSM device. Device stops transmitting backhaul samples.

**Received Alarm** —Indicates receive problem in the local device. The remote device stops transmitting backhaul data and indicates a blue alarm.

**Alarm State Unavailable** —Indicates the alarm state is not available. This state only applies to the remote and occurs when the peer connection is inactive.

## Redundancy State

Possible values for the redundancy state of GSM Abis or UMTS Iub interfaces are:

**Active**—Active owner of interface.

**Standby**—Active owner of interface.

## Status

Possible values for the status of an interface are:

**Active**

**DiscoveringDown**

**Polling**

**Unknown**

**Unmanaged**

**Waiting**

**Warning**

## Status Definitions for Nodes

Possible values for the current status of the node are:

**Active**—The node is currently fully functional.

**Discovering**—The node is being discovered, and SNMP queries have been sent to the device.

**Polling**—The node is being polled.

**Unknown**—The node failed to respond to an SNMP request. MWTM sets all associated interfaces to **Unknown**.

**Unmanaged**—One of the following situations exists:

- The node is known indirectly by MWTM. In other words, MWTM knows the device exists but there is no known SNMP stack on the device for MWTM to query.
- An MWTM user has set the node to **Unmanaged** status to prevent MWTM from polling the node.

**Waiting**—The node is in the Discovery queue but is not currently being discovered.

**Warning**—The node is active, but one or more interfaces is in **Failed**, **Unavailable**, **Unknown**, or **Warning** status and is not **Ignored**.

## Status Definitions for Views

Possible values for the current status of the view are:

**Active**—All objects in the selected view are currently **Active** and fully functional.

**Unmanaged**—All objects in the selected view are currently **Unmanaged**.

**Warning**—One or more objects in the selected view is currently not **Active**.



## APPENDIX **B**

### MWTM FAQs

---

This appendix provides answers to the following frequently asked questions about MWTM:

- [What is MWTM?, page B-2](#)
- [Does MWTM require any other NMS applications?, page B-3](#)
- [What workstation and network devices do I need to run MWTM?, page B-3](#)
- [Can RAN-O devices send traps to MWTM and to another process on the same device?, page B-3](#)
- [Can I run MWTM on my Windows PC?, page B-4](#)
- [How do I install the MWTM client?, page B-4](#)
- [What are the names of the MIBs used by MWTM?, page B-4](#)
- [Why can't my remote workstation access MWTM on my local workstation?, page B-4](#)
- [What is a super user?, page B-5](#)
- [Why did MWTM not discover all of my RAN-O nodes?, page B-5](#)
- [I moved the server on which I had installed MWTM and now I can't start the MWTM client or server. Why?, page B-6](#)
- [How often does MWTM poll the RAN-O nodes?, page B-7](#)
- [If I select the Clear Event Icon menu option, does that delete the event from the MWTM database?, page B-7](#)
- [How does "zoom in on an area" work in a topology map?, page B-8](#)
- [Can I add my own icons to the topology map?, page B-8](#)
- [Why did I receive a "cannot connect to server" message?, page B-8](#)
- [Does the MWTM Java RMI use TCP or UDP?, page B-9](#)
- [What does this message mean: MessageLoggerProxy:setMessageLogger\(\): Could not resolve., page B-9](#)
- [What does a status of Deleted, Uninhibited, or NoShutdown mean?, page B-9](#)
- [Will the MWTM server processes restart automatically after a system reboot?, page B-10](#)
- [Some of my MWTM windows are showing up with small, unusable text entry fields. How can I correct this?, page B-10](#)
- [Sometimes my MWTM display seems to lock up. Why?, page B-10](#)
- [After a failed uninstall of the Windows client, I'm prompted to uninstall again, but the procedure does not work. Why?, page B-11](#)

- [Why do I see strange character strings when I install MWTM?, page B-11](#)
- [Why doesn't my browser launch when I select a Web page menu option from the MWTM Main Menu?, page B-12](#)
- [What is the difference between in-band and out-of-band management?, page B-12](#)
- [How does the MWTM server communicate to the BTS MWR at the remote cell site?, page B-13](#)
- [How do I change the default status polling interval?, page B-14](#)
- [Why are the age of my alarms always 0 minutes?, page B-14](#)

## What is MWTM?

MWTM provides a powerful, easy-to-use solution that enables network administrators to manage and troubleshoot Radio Access Network—Optimized (RAN-O) networks. For a more detailed description of MWTM, see the [“What is MWTM?” section on page 1-1](#).

## Does MWTM require any other NMS applications?

MWTM is functionally a standalone product and does not require any other products. However, you can integrate MWTM with other products to provide added value.

For example, you can integrate MWTM with CiscoWorks, which provides access to the full suite of CiscoWorks products, including the Device Center, the CiscoView Element Manager, Resource Manager Essentials (RME), the Internetwork Performance Monitor (IPM), and the Access Control List Manager.

You can also integrate MWTM with the HP OpenView SNMP manager to enable MWTM to receive traps via HP OpenView.

You can also forward MWTM events to other hosts, in the form of SNMP traps. This enables MWTM to integrate with high-level event- and alarm-monitoring systems such as the Cisco Info Center (CIC), HP OpenView, and Micromuse's Netcool suite of products. These systems can provide a single high-level view of all alarm monitoring in your network, making it easier to detect and resolve problems. For more information, see the [“Forwarding Events as Traps to Other Hosts” section on page 5-35](#).

## What workstation and network devices do I need to run MWTM?

MWTM comprises two distinct pieces of functionality.

- The MWTM server application runs on Solaris/Linux only.
- The MWTM client application, including the user interface, runs on Solaris/Linux, Windows 2000 Professional, and Windows XP Professional. For Solaris/Linux, the MWTM client can run on the same system as the MWTM server, or on a different system.



**Note** The Linux client is unsupported.

For further hardware and software requirements, see the “Preparing to Install MWTM” chapter of the *Cisco Mobile Wireless Transport Manager Installation Guide*.

## Can RAN-O devices send traps to MWTM and to another process on the same device?

Yes. You can configure your RAN-O devices to send SNMP traps to more than one process (such as MWTM and HP OpenView) on a single device. Each process receives traps on a different port number. However, to do so, you must configure a different community string for each process.

For example, your RAN-O network configurations could include the following lines:

```
snmp-server host 1.2.3.4 public udp-port 162
snmp-server host 1.2.3.4 otherCommunity udp-port 44750
```

where:

- The first line configures the HP OpenView trap receiver, with community string **public** and UDP port number **162**.

- The second line configures the MWTM trap receiver, with community string **otherCommunity** and UDP port number **44750**.

You would then configure MWTM to receive traps on port number 44740. For information about how to configure the MWTM port number, see the “[Enabling SNMP Traps \(Server Only\)](#)” section on [page 11-27](#).

## Can I run MWTM on my Windows PC?

You can run the MWTM client on Windows 2000 Professional or Windows XP Professional on your PC. However, the MWTM server must run on a Solaris/Linux system.

## How do I install the MWTM client?

You can install the MWTM client either from the CD distributed with MWTM, or by using a Web browser to download the MWTM client from an MWTM server. See the *Cisco Mobile Wireless Transport Manager Installation Guide* for full details.

## What are the names of the MIBs used by MWTM?

You can find the complete list of MIBs that MWTM configures and queries in the “[MWTM MIB Reference](#)” section on [page D-1](#).

You can obtain the latest versions of these MIBs from one of the following locations:

- The Zip file *mibs.zip*, located at the top of the MWTM CD Image, contains these MIBs.
- You can download these MIBs from the Cisco Website:

<http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>

## Why can't my remote workstation access MWTM on my local workstation?

Keep in mind that performance is always better if you access MWTM by installing the MWTM client on the remote workstation.

However, if you want to enable a remote Solaris/Linux workstation to access MWTM on a local workstation, enter the **xhost + remote\_workstation** UNIX command on your local workstation, where *remote\_workstation* is the remote device you are enabling to access your local workstation.

To enable a remote Windows workstation to access MWTM on a local workstation, you can use an X-Window system emulator such as eXceed or Reflection X, but be aware that there may be display problems. For example, the window borders might disappear, or the keyboard focus might be missing.

### X Performance Enhancer (AntiAliasing Off)

Checkbox used to specify whether antialiasing is on in the topology map. Antialiasing, which is on by default, improves the appearance of the icons and connections in the map.

You can improve the performance of the MWTM client on a remote workstation by turning off antialiasing in the topology map. For more information, see the [“Turning Off Antialiasing to Improve Performance” section on page 8-27](#).

## What is a super user?

A super user is an MWTM user who has been enabled to perform most of the MWTM functions that otherwise require the user to be logged in as the root user.

For a complete description of the functions that a super user can and cannot perform, as well as instructions for enabling a super user, see the [“Specifying a Super User \(Server Only\)” section on page 10-19](#).

## Why did MWTM not discover all of my RAN-O nodes?

After you discover the network, examine the Discovered Nodes table to verify that MWTM discovered all of the nodes in the network. If you suspect that MWTM did not discover all of the nodes, verify the following conditions:

- Verify that the MWTM server can ping the nodes.
- Verify that the nodes are running IOS images that are compatible with the MWTM server.
- Verify that the SNMP is enabled on the nodes.
- Verify that MWTM is configured with the correct SNMP community name. See the [“Configuring SNMP Settings” section on page 2-3](#) for details.
- Verify that you selected **Entire Network** when you ran Discovery. If you suspect that you did not, run Discovery again with **Entire Network** selected.

# I moved the server on which I had installed MWTM and now I can't start the MWTM client or server. Why?

If you change the IP address of the server on which you installed MWTM, or if you move the server to a new network, you must reboot the server to prevent MWTM connection problems.

To reboot the server, use the following procedure:

---

**Step 1** Log in as the root user, as described in the [“Becoming the Root User \(Server Only\)”](#) section on page 3-3.

**Step 2** Enter the following commands:

```
cd /opt/CSCOs/gm/bin
```

```
./mwtm reboot
```

---

If you change the server's Solaris/Linux host name, you must reset the default host name on the MWTM server and client, using the following procedure:

---

**Step 1** Log in as the root user, as described in the [“Becoming the Root User \(Server Only\)”](#) section on page 3-3.

**Step 2** Enter the following commands:

```
cd /opt/CSCOs/gm/bin
```

```
./mwtm evilstop
```

MWTM stops all MWTM servers on the local host.



**Step 3** Enter the following command:

```
./mwtm servername hostname
```

where *hostname* is the new default host name. Make sure the new name is valid and is defined in your */etc/hosts* file.

MWTM resets the default host name for the MWTM server and client and automatically restarts the MWTM server.

---

## How often does MWTM poll the RAN-O nodes?

By default, MWTM polls the nodes in the network every 15 minutes. However, you can initiate a poll for one or more nodes at any time by selecting the nodes in the Discovery panel of the Discovery Dialog and clicking **Poll Node**.

You can also change the default poll interval for one or more nodes in the SNMP Configuration Dialog. You must be logged in as the root user or as a super user to access this dialog.

Finally, the Node Details Window polls the displayed node and its adjacent node every 15 seconds, but you can change that poll interval, too.

## If I select the Clear Event Icon menu option, does that delete the event from the MWTM database?

No. When you select the **Clear Event Icon** menu option for an object, MWTM does not delete the actual event from its database. MWTM only deletes the event icon (an orange triangle) from its displays for the object, and only for the MWTM client on which you are currently working.

## Can I add my own sounds to the Event Sound Filter?

Yes. You can add sound files to an MWTM client. MWTM clients can play the following sound file formats: AIFC, AIFF, AU, SND, and WAV.

MWTM client sound files are stored in the MWTM client's *sounds* directory:

- If you installed the MWTM client for Solaris/Linux in the default directory, */opt*, then the sound file directory is */opt/CSCOSgmClient/sounds*.
- If you installed the MWTM client for Windows in the default directory, */Program Files*, then the sound file directory is *C:\Program Files\SGMClient\sounds*.
- If you installed MWTM in a different directory, then the sound file directory is located in that directory.

If for some reason MWTM cannot play a specified sound file, MWTM plays a default beep. For example, MWTM cannot play a sound file if one of the following conditions exists:

- The file has been moved or deleted from the *sounds* directory
- The *sounds* directory has been deleted or cannot be found
- Some other application is using all of the sound resources
- There is no sound card present

## How does “zoom in on an area” work in a topology map?

“Zoom in on an area” enables you to zoom in on a selected area of the topology map in the Topology Window. To do so, click the **Zoom in on an area** button, or select **Topology Tools > Zoom > Area** from the MWTM Main Menu, then click in the topology map and drag a rectangle around the area you want to zoom in on. MWTM expands the selected area to fill the topology map.

## Can I add my own icons to the topology map?

No. To ensure that icons on the topology map can be resized cleanly, they are drawn as special vector-based images. Raster images, such as GIF files, do not resize cleanly.

## Why did I receive a “cannot connect to server” message?

When you launch the MWTM client or the Event Configurator, or when you connect to a new server (whether manually or automatically as the result of a server failure), you might receive the following message:

This client is not allowed to connect to the server or the server is listening on a port the client does not know about or cannot reach. Click the help button for a more detailed explanation.

If you receive this message, one of the following situations has occurred:

1. An MWTM administrator has prevented your MWTM client from connecting to the MWTM server, using the **mwtm ipaccess** command.

To resolve this problem, contact the MWTM administrator and ask to have your client's IP address added to the *ipaccess.conf* file. See the [“Limiting MWTM Client Access to the MWTM Server \(Server Only\)” section on page 10-32](#) for more information.

2. The MWTM server has more than one IP address, but the MWTM server's default host name is set to an IP address that your MWTM client cannot access.

To resolve this problem in Solaris/Linux, use the **mwtm servername** command to reset the MWTM server's default host name to an IP address that your client can access and restart the server. See the [“mwtm servername” section on page C-43](#) for more information.

To resolve this problem in Windows, select **Start > Programs > Cisco MWTM Client > Modify Default MWTM Server Name**, then you can enter the **mwtm servername** command.


**Note**

Using the **mwtm servername** command to reset the MWTM server's default host name does not affect communication between the MWTM server and the RAN-O devices.

3. A firewall is installed between the MWTM server and your MWTM client that only allows traffic to pass through to the MWTM server's port numbers 1774 (the MWTM Web Server port) and 44742 (the MWTM Naming Server port), but communication between MWTM servers and clients requires additional ports.

To resolve this problem, set up the firewall correctly. See the [“Firewall Communication” section on page F-3](#) for details.

## Does the MWTM Java RMI use TCP or UDP?

MWTM's two-way RMI communication between Java-based GUI clients and Java-based server processes uses TCP sockets.

## What does this message mean: MessageLoggerProxy:setMessageLogger(): Could not resolve.

One of the following conditions has occurred:

- The host or port number of the Message Log Server is configured incorrectly. Verify that the host or port number is valid.
- MWTM cannot reach the Message Log Server, probably because it is restarting. MWTM recovers the connection when the Message Log Server restarts.

## What does a status of Deleted, Uninhibited, or NoShutdown mean?

A status of Deleted, Uninhibited, or NoShutdown indicates a possible problem with MWTM. If you see one of these status settings, contact Cisco TAC or your Cisco Account Team.

## Will the MWTM server processes restart automatically after a system reboot?

Yes. When you install the MWTM server, MWTM modifies your system startup scripts to ensure that the MWTM server processes start up again after a system reboot. To accomplish this, MWTM adds the following lines to your system startup scripts:

```
/etc/init.d/sgm
```

```
/etc/rc0.d/K99sgm
```

```
/etc/rc1.d/K99sgm
```

```
/etc/rc2.d/K99sgm
```

```
/etc/rc3.d/K99sgm
```

```
/etc/rc3.d/S99sgm
```

These lines ensure that the MWTM shutdown and startup scripts run in the correct order for each system initiation state.

### Linux Only

Note that for Linux only, the following lines are modified as well:

```
/etc/rc5.d/S99sgm
```

```
/etc/rc6.d/K99sgm
```

## Some of my MWTM windows are showing up with small, unusable text entry fields. How can I correct this?

Depending on your system, as well as other factors, MWTM windows can sometimes display so small that text is illegible, and columns and text entry fields are very narrow and unusable. If this happens, resize the window and widen the individual columns until the information is again legible and the columns and text entry fields are usable.

To make a column wider or narrower, click the column divider in the header and move the divider to the right or left while holding down the right mouse button.

## Sometimes my MWTM display seems to lock up. Why?

In MWTM, events might cause message popups to remain in the background of your display, preventing you from interacting with other windows. If you suspect that your display has locked up, perform the following tasks:

- Make sure you are running MWTM on a supported operating system. For more information about supported operating systems, refer to “Preparing to Install MWTM” in the *Cisco Mobile Wireless Transport Manager Installation Guide*.

- Minimize windows and look for an MWTM message popup in the background.

## After a failed uninstall of the Windows client, I'm prompted to uninstall again, but the procedure does not work. Why?

If for some reason the Windows MWTM client uninstall procedure fails before the client is completely uninstalled, MWTM prompts you to uninstall the client again. However, this might not be possible using the standard **Add/Remove Programs** icon in the Windows Control Panel, or from the Windows Start menu.

If you cannot uninstall the MWTM client using the standard procedure, use the following procedure:

- 
- Step 1** Delete the MWTM client installation directory and its contents:
- If you installed the MWTM client in the default directory, *C:\Program Files*, then the installation directory is *C:\Program Files\SGMClient\*.
  - If you installed the MWTM client in a different directory, then the installation directory is located in that directory.
- Step 2** Delete the following directory: *\Program Files\InstallShield Installation Information\{FB2CF81B-4F3C-4326-8130-5270116372E2}*.
-  **Note** This directory might be hidden.
- 
- Step 3** Delete the **Cisco SGM Client** registry key and its contents:
- HKEY\_LOCAL\_MACHINE\SOFTWARE\Cisco Systems, Inc.\  
Cisco SGM Client**
- Step 4** Delete the MWTM Client entries from the Windows Start menu and desktop.
- 

## Why do I see strange character strings when I install MWTM?

The setting of the LANG environment variable can cause syntax errors in the MWTM setup scripts, which can result in messages that contain strange character strings such as **?y?d@O**. To correct this problem, unset the LANG environment variable in the workstation from which you are installing MWTM, using one of the following commands:

- If you are running sh, enter the **unset LANG** command.
- If you are running csh, enter the **unsetenv LANG** command.

Then install MWTM again.

## Why doesn't my browser launch when I select a Web page menu option from the MWTM Main Menu?

If your browser is not already running on Solaris/Linux, and you select a menu option that displays a Web page, MWTM might not be able to launch the browser.

To avoid this problem, make sure the following conditions are met:

- You are running a supported browser (Netscape Navigator 7.1 or later; Microsoft Internet Explorer version 6.0 (SP1) or later; or Mozilla 1.6 or later, including Firefox 1.0).
- Your browser is already running before selecting a menu option that displays a Web page.
- The MWTM Web browser path is correct. For more information about setting the browser path, see the [“mwtm browserpath” section on page C-9](#).

## What is the difference between in-band and out-of-band management?

Devices located at the cell site are usually accessible only over the same path that is used to transport voice traffic. Collecting management information over this path is called in-band management and has an impact on backhaul utilization.

MWTM can reduce the amount and frequency of collecting management information when information is collected in-band. MWTM does not create reports for in-band accessed routers. Also, MWTM relies on the information in traps received from an in-band router instead of scheduling a poll to get the updated router status.

The following cell-site device configuration statements provide MWTM with information required to optimize data collection:

```
conf t
 ipran-mib location cellSite
 ipran-mib snmp-access inBand
```

Devices located at the aggregation site are managed using different paths than those used by voice traffic. Collecting management information in this configuration is called out-of-band management and has no impact on backhaul utilization.

Statistical reports are created for routers that are managed out of band. Also, when traps are received, the router is polled to get the latest information.

The following aggregation-site device configuration statements provide MWTM with information required to optimize data collection:

```
conf t
 ipran-mib location aggSite
 ipran-mib snmp-access outOfBand
```

The following example shows the range of options that are available for the **ipran-mib** command:

```
ems1941ka#conf t
Enter configuration commands, one per line. End with CNTL/Z.
ems1941ka(config)#ipran-mib ?
 backhaul-notify-interval Interval for backhaul utilization
 location Location of device
 snmp-access Specify type snmp connectivity
 threshold-acceptable Acceptable utilization threshold
```

```
threshold-overloaded Overloaded utilization threshold
threshold-warning Warning utilization threshold
```

```
ems1941ka(config)#ipran-mib location ?
aggSite Located at BSC or RNC site
cellSite Located at BTS or Node B site
undefined Undefined location

ems1941ka(config)#ipran-mib snmp-access ?
inBand In Band SNMP connectivity
outOfBand Out of Band SNMP connectivity
undefined Undefined connectivity
```

## How does the MWTM server communicate to the BTS MWR at the remote cell site?

The MWTM server must communicate to the cell site (BTS) router using IP routing. If the BTS router is reachable only through the backhaul interface, add a static route on the MWTM server to point to the BTS router. Use the IP address of the BSC router IP address as the next-hop address.

The following examples of static routing for Solaris and Linux platforms are based on the diagram in .

To create a static route on a Solaris MWTM server, use the following procedure:

**Step 1** Log in as the root user, as described in the [“Becoming the Root User \(Server Only\)”](#) section on page 3-3.

**Step 2** Enter the following command:

```
/usr/sbin/route add host 10.1.1.1 20.1.1.1
```

To create a static route on a Linux MWTM server, use the following procedure:

**Step 1** Log in as the root user, as described in the [“Becoming the Root User \(Server Only\)”](#) section on page 3-3.

**Step 2** Enter the following command:

```
route add -host 10.1.1.1 gw 20.1.1.1
```

## How do I change the default status polling interval?

The MWTM polls the MWR node for status information (for example, interface up or down) every 15 minutes. The size of this poll depends on the number and type of interfaces that are enabled on the MWR.

To change the default polling interval of 15 minutes, open the SNMP Configuration Dialog by selecting **Network > SNMP Configuration** from the MWTM Main Window. You can use this dialog to change the default polling interval to any number of minutes from 5 to 1440.



**Note**

The status information in the GUI is only as good as the most recent poll.

## Why are the age of my alarms always 0 minutes?

If the server clock is ahead of the client clock, the value will be 0 until the client clock catches up to the server clock. To get accurate values, use a time service such as Network Time Protocol (NTP) or similar, which keeps server and client clocks in sync.





# APPENDIX **C**

## MWTM Command Reference

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This appendix provides the format and a brief description of the following MWTM commands, listed alphabetically. Each command is available on the server only, server and Solaris clients only, or server and all clients (including Windows) as indicated.

- [mwtm](#), page C-5
- [mwtm adduser](#), page C-5
- [mwtm authtype](#), page C-6
- [mwtm backup](#), page C-7
- [mwtm backupdir](#), page C-7
- [mwtm badloginalarm](#), page C-7
- [mwtm badlogindisable](#), page C-8
- [mwtm browserpath](#), page C-9
- [mwtm certgui](#), page C-9
- [mwtm certtool](#), page C-9
- [mwtm changes](#), page C-10
- [mwtm clean](#), page C-10
- [mwtm cleanall](#), page C-11
- [mwtm cleandb](#), page C-11
- [mwtm cleandiscover](#), page C-11
- [mwtm cliconntimer](#), page C-13
- [mwtm client](#), page C-13
- [mwtm clientlogs](#), page C-14
- [mwtm clitimeout](#), page C-14
- [mwtm cmdlog](#), page C-15
- [mwtm console](#), page C-15
- [mwtm countnodes](#), page C-15
- [mwtm countobjects](#), page C-16
- [mwtm cwsetup](#), page C-16
- [mwtm delete](#), page C-17

- [mwtm deluser](#), page C-17
- [mwtm disablepass](#), page C-18
- [mwtm disableuser](#), page C-18
- [mwtm discover](#), page C-19
- [mwtm enableuser](#), page C-19
- [mwtm eventeditor](#), page C-20
- [mwtm eventlog](#), page C-20
- [mwtm evilstop](#), page C-21
- [mwtm export](#), page C-21
- [mwtm export cw](#), page C-21
- [mwtm help](#), page C-22
- [mwtm inactiveuserdays](#), page C-22
- [mwtm installlog](#), page C-23
- [mwtm iosinfo](#), page C-23
- [mwtm ipaccess](#), page C-23
- [mwtm jspport](#), page C-24
- [mwtm keytool](#), page C-25
- [mwtm killclients](#), page C-25
- [mwtm listusers](#), page C-26
- [mwtm logger](#), page C-27
- [mwtm logtimemode](#), page C-27
- [mwtm maxascirows](#), page C-28
- [mwtm maxevhist](#), page C-28
- [mwtm maxhtmlrows](#), page C-29
- [mwtm mldebug](#), page C-29
- [mwtm motd](#), page C-30
- [mwtm msglog](#), page C-31
- [mwtm msglogage](#), page C-31
- [mwtm msglogdir](#), page C-32
- [mwtm msglogsize](#), page C-32
- [mwtm netlog](#), page C-33
- [mwtm netlogger](#), page C-34
- [mwtm newlevel](#), page C-34
- [mwtm passwordage](#), page C-34
- [mwtm patchlog](#), page C-35
- [mwtm poll](#), page C-35
- [mwtm pollertimeout](#), page C-36
- [mwtm print](#), page C-37

- [mwtm props](#), page C-37
- [mwtm readme](#), page C-38
- [mwtm reboot](#), page C-38
- [mwtm repdir](#), page C-39
- [mwtm rephelp](#), page C-39
- [mwtm replot](#), page C-40
- [mwtm restart](#), page C-40
- [mwtm restore](#), page C-41
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- [mwtm rootvars](#), page C-42
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- [mwtm sounddir](#), page C-56
- [mwtm ssl](#), page C-57
- [mwtm sslstatus](#), page C-58
- [mwtm start](#), page C-58
- [mwtm start client](#), page C-58
- [mwtm start jsp](#), page C-59
- [mwtm start pm](#), page C-59
- [mwtm start web](#), page C-59
- [mwtm statreps clean](#), page C-59
- [mwtm statreps cleancustom](#), page C-60
- [mwtm statreps custage](#), page C-60
- [mwtm statreps dailyage](#), page C-61
- [mwtm statreps diskcheck](#), page C-61
- [mwtm statreps enable](#), page C-61
- [mwtm statreps export](#), page C-62
- [mwtm statreps hourlyage](#), page C-62
- [mwtm statreps servratio](#), page C-63

- [mwtm statreps status](#), page C-63
- [mwtm statreps timemode](#), page C-63
- [mwtm statreps timer](#), page C-64
- [mwtm statreps utilratio](#), page C-64
- [mwtm status](#), page C-64
- [mwtm stop](#), page C-65
- [mwtm stopclients](#), page C-65
- [mwtm stop jsp](#), page C-65
- [mwtm stop pm](#), page C-66
- [mwtm stop web](#), page C-66
- [mwtm superuser](#), page C-66
- [mwtm syncusers](#), page C-67
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- [mwtm telnetpath](#), page C-67
- [mwtm tnproxy](#), page C-68
- [mwtm trapaccess](#), page C-68
- [mwtm trapsetup](#), page C-69
- [mwtm trapstatus](#), page C-69
- [mwtm uninstall](#), page C-70
- [mwtm unknownage](#), page C-70
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- [mwtm userpass](#), page C-72
- [mwtm version](#), page C-72
- [mwtm viewlog](#), page C-72
- [mwtm wall](#), page C-73
- [mwtm webaccesslog](#), page C-73
- [mwtm weberrorlog](#), page C-74
- [mwtm weblogupdate](#), page C-74
- [mwtm webnames](#), page C-75
- [mwtm webport](#), page C-75
- [mwtm webutil](#), page C-75
- [mwtm who](#), page C-76
- [mwtm xtermpath](#), page C-76

# mwtm

## Server and Solaris/Linux Clients Only

### Command Description

Displays the command syntax for the **mwtm** command and all of its options. The function of this command is identical to **mwtm help**.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm adduser

## Server Only

### Full Syntax

**mwtm adduser** *[username]*

### Command Description

If MWTM User-Based Access is enabled, adds the specified user to the authentication list.

When you add a user, MWTM prompts you for the following information:

- User's password. When setting the password, follow the rules and considerations in the [“Creating Secure Passwords” section on page 10-5.](#)
- Whether to force the user to change the password at the next login. The default is not to force the user to change the password.

- Authentication level for the user. Valid levels are:
  - 1—Basic User
  - 2—Power User
  - 3—Network Operator
  - 4—Network Administrator
  - 5—System Administrator

See the “[Implementing MWTM User-Based Access \(Server Only\)](#)” section on page 10-2 for more information on authentication levels, and on the use of this command.

You must be logged in as the root user or as a super user to use this command.


**Note**

If you have enabled Solaris authentication, you must be logged in as the root user, not a super user, to use this command. See the “[Implementing MWTM User-Based Access \(Server Only\)](#)” section on page 10-2 for more information.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm authtype

**Server Only**
**Full Syntax**

**mwtm authtype** [**local** | **solaris** | **linux**]

**Command Description**

Configures MWTM security authentication, as follows:

- **local**—Allows creation of user accounts and passwords local to the MWTM system. When using this method, user names, passwords, and access levels are managed using MWTM commands.
- **solaris**—Uses standard Solaris-based user accounts and passwords, as specified in the */etc/nsswitch.conf* file. Authentication can be provided by the local */etc/passwd* file or from a distributed Network Information Services (NIS) system.
- **linux**—Uses standard Linux-based user accounts and passwords, as specified in the */etc/nsswitch.conf* file. Authentication can be provided by the local */etc/passwd* file or from a distributed Network Information Services (NIS) system.

See the “[Implementing MWTM User-Based Access \(Server Only\)](#)” section on page 10-2 for more information on the use of this command.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

# mwtm backup

## Server Only

### Command Description

Backs up MWTM data files to the MWTM installation directory. MWTM automatically backs up all data files at 1:30 AM each night, but you can use this command to back up the files at any other time.

- If you installed MWTM in the default directory, */opt*, then the locations of the backup files are */opt/mwtm50-client-backup.tar.Z* and */opt/mwtm50-server-backup.tar.Z*.
- If you installed MWTM in a different directory, then the backup files are located in that directory.

To restore the MWTM data files from the previous night's backup, use the **mwtm restore** command. Do not try to manually extract the backup files.

You must be logged in as the root user (not as a super user) to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm backupdir

## Server Only

### Full Syntax

**mwtm backupdir** [*directory*]

### Command Description

Enables you to change the directory in which MWTM stores its nightly backup files. The default backup directory is the directory in which MWTM is installed:

- If you installed MWTM in the default directory, */opt*, then the default backup directory is also */opt*.
- If you installed MWTM in a different directory, then the default backup directory is that directory.

If you specify a new directory that does not exist, MWTM does not change the directory, and issues an appropriate message.

You must be logged in as the root user or as a super user to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm badloginalarm

## Server Only

### Full Syntax

**mwtm badloginalarm** [*number-of-attempts* | **clear**]

**Command Description**

If MWTM User-Based Access is enabled, number of unsuccessful login attempts allowed before MWTM generates an alarm.

The valid range is 1 unsuccessful attempt to an unlimited number of unsuccessful attempts. The default value is 5 unsuccessful attempts.

MWTM records alarms in the system security log file. The default path and filename for the system security log file is `/opt/CSCOSgm/logs/sgmSecurityLog.txt`. If you installed MWTM in a directory other than `/opt`, then the system security log file is located in that directory.

To view the system security log file, enter **mwtm seclog**. You can also view the system security log on the MWTM System Security Log Web page. For more information, see the [“Viewing the MWTM System Security Log” section on page 13-41](#).

To reset the valid range back to 5 attempts, enter **mwtm badloginalarm clear**.

See the [“Automatically Disabling Users and Passwords \(Server Only\)” section on page 10-8](#) for more information on the use of this command.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1](#).

## mwtm badlogindisable

**Server Only****Full Syntax**

**mwtm badlogindisable** [*number-of-attempts* | **clear**]

**Command Description**

If MWTM User-Based Access is enabled, number of unsuccessful login attempts by a user allowed before MWTM disables the user’s authentication. MWTM does not delete the user from the authentication list, MWTM only disables the user’s authentication. To re-enable the user’s authentication, use the **mwtm enableuser** command.

The valid range is 1 unsuccessful attempt to an unlimited number of unsuccessful attempts. The default value is 10 unsuccessful attempts.

To reset the valid range back to 5 attempts, enter **mwtm badlogindisable clear**.

See the [“Automatically Disabling Users and Passwords \(Server Only\)” section on page 10-8](#) for more information on the use of this command.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1](#).



# mwtm browserpath

## Server and Solaris/Linux Clients Only

### Command Description

Sets a user-defined MWTM Web browser path, and verifies that the browser specified by the user exists. You must be logged in as the root user (not as a super user) to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm certgui

## Solaris Clients Only

### Command Description

If Secure Sockets Layer (SSL) is implemented in your MWTM system, opens the MWTM Certificate Tool window, which enables you to manage SSL certificates on the MWTM client.



#### Note

If you installed the MWTM server and client on the same workstation, this command is unnecessary. Instead, when you use the **mwtm keytool** command to manage SSL certificates on the server, MWTM automatically manages the certificates on the client.

You must be logged in as the root user (not as a super user) to use this command in Solaris.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm certtool

## Server and Solaris Clients Only

### Full Syntax

**mwtm certtool** [**clear** | **delete alias** | **export alias** [-file filename] | **import alias** [-file filename] | **list**]

### Command Description

If Secure Sockets Layer (SSL) is implemented in your MWTM system, enables you to manage SSL certificates on the MWTM client from the command line.



#### Note

If you installed the MWTM server and client on the same workstation, this command is unnecessary. Instead, when you use the **mwtm keytool** command to manage SSL certificates on the server, MWTM automatically manages the certificates on the client.

Use the following keywords and arguments with this command:

- **import alias [-file filename]**—Imports a signed SSL certificate in X.509 format. This is the most common use for this command.

The *alias* argument can be any character string; the host name of the server from which you are importing the certificate is a good choice.

To import the certificate from a file, specify the optional **-file** keyword and a filename.

- **export alias [-file filename]**—Exports the specified SSL certificate in X.509 format.  
To export the certificate to a file, specify the optional **-file** keyword and a filename.
- **list**—Lists all SSL certificates on the MWTM client.
- **delete alias**—Removes the specified SSL certificate from the MWTM client.
- **clear**—Removes all SSL certificates from the MWTM client.

**Solaris Only:** You must be logged in as the root user (not as a super user) to use this command in Solaris.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm changes

### Server Only

#### Command Description

Displays the contents of the MWTM CHANGES file. The CHANGES file lists all bugs that have been resolved in MWTM, sorted by release, from the current release back to Release 2.2.

- If you installed MWTM in the default directory, */opt*, then the MWTM CHANGES file is located in the */opt/CSCOsqm/install* directory.
- If you installed MWTM in a different directory, then the file is located in that directory.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm clean

### Server Only

#### Command Description

Removes all MWTM data from the MWTM server, **excluding** message log files, backup files, and report files. This command restores the MWTM server to a “clean” state, such as would exist after a new installation of MWTM, except for the presence of the retained files.

Data removed includes all MWTM data, notes, preferences, security settings, route files, seed files, event filters, report control files, and views, as well as any user-created files stored in MWTM directories.

You must be logged in as the root user (not as a super user) to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm cleanall

**Server Only****Command Description**

Removes all MWTM data from the MWTM server, **including** message log files, backup files, report files, configuration settings, and security settings. This command restores the MWTM server to a “clean” state, such as would exist after a new installation of MWTM.

Data removed includes all MWTM data, notes, preferences, security settings, route files, seed files, event filters, report control files, views, message log files, backup files, and report files, as well as any user-created files stored in MWTM directories.

You must be logged in as the root user (not as a super user) to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm cleandb

**Server Only****Command Description**

Removes all MWTM data from the MWTM server, including the core data model database, all view files, notes associated with objects, and event filters, but **excluding** message log files, backup files, report files, configuration settings, security settings, and route files. This command restores the MWTM server to a “clean” state, such as would exist after a new installation of MWTM, except for the presence of the retained files.

Data removed includes all MWTM data, notes, event filters, and views, as well as any user-created files stored in MWTM directories.

You must be logged in as the root user (not as a super user) to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm cleandiscover

**Server Only****Full Syntax**

**mwtm cleandiscover** [*seed-node*] [*seed-node*]...

**Command Description**

Enables you to delete all current network data and begin a clean discovery of the network from the command line. Use the *seed-node* arguments to specify the DNS names or IP addresses of one or more seed nodes.

**Note**

When you begin a clean discovery, MWTM stops any real-time polls that are running and issues appropriate messages.

Running this command does not remove any notes, preferences, views, message log files, backup files, or report files, nor any user-created files stored in MWTM directories.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm cliconntimer

**Server Only****Full Syntax**

**mwtm cliconntimer** [*number-of-seconds* | **clear**]

**Command Description**

Specifies how long, in seconds, an MWTM client is to wait for a message from the MWTM server before exiting. If the timer expires, the client pings the server and takes the following action:

- If the server responds to the ping, the client reconnects to the server.
- If the server does not respond to the ping, but there is a backup server configured, the client connects to the backup server.
- If the server does not respond to the ping, and there is no backup server configured, the client stops.

The valid range is 10 seconds to an unlimited number of seconds. The default value is 60 seconds.

To restore the default timeout of 60 seconds, enter the **mwtm cliconntimer clear** command.

Any changes you make take effect when you restart the MWTM server.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm client

**Solaris/Linux Clients Only****Full Syntax**

**mwtm client** [*hostname*]

**Command Description**

Starts an MWTM client on the specified host. If no host name is specified, starts an MWTM client on the default host, as specified during installation. See the [“Connecting to a New Server” section on page 3-33](#) for information about determining the default host.

If you Telnet into a remote workstation, the DISPLAY variable must be set to your local display, or you cannot use this command. If the DISPLAY variable is not set automatically, you must set it manually. See the [“Setting the DISPLAY Variable \(Client Only\)” section on page 11-30](#) for details.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm clientlogs

**Server Only****Command Description**

Uses PAGER to display the MWTM client log files.

The MWTM client log files contain client console output for all MWTM clients, one file per local or remote client. The file for a client is created by MWTM automatically when the client starts.

- If you installed MWTM in the default directory, /opt, then the MWTM client log file is located in the /opt/CSCOs/gm/logs/clientLogs directory.
- If you installed MWTM in a different directory, then the file is located in that directory.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm clitimeout

**Server Only****Full Syntax**

**mwtm clitimeout** [*number-of-minutes* | **clear**]

**Command Description**

Specifies how long, in minutes, an MWTM client can be inactive before being disconnected automatically by MWTM.

This function is disabled by default. If you do not specify this command, clients are never disconnected as a result of inactivity.

If you enter the **mwtm clitimeout** command, the valid range is 1 minute to an unlimited number of minutes. There is no default value.

If you have enabled this function and you want to disable it (that is, never disconnect a client as a result of inactivity), enter the **mwtm clitimeout clear** command.

See the [“Automatically Disabling Users and Passwords \(Server Only\)” section on page 10-8](#) for more information on the use of this command.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm cmdlog

#### Server Only

#### Full Syntax

**mwtm cmdlog** [clear | -r]

#### Command Description

Uses PAGER to display the contents of the system command log. The system command log lists all **mwtm** commands that have been entered for the MWTM server, the time each command was entered, and the user who entered the command.

To clear the log and restart the server, enter **mwtm cmdlog clear**.

To display the contents of the log in reverse order, with the most recent commands at the beginning of the log, enter **mwtm cmdlog -r**.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm console

#### Server Only

#### Command Description

Displays the contents of the console log file, *sgmConsoleLog.txt*. The console log file contains unexpected error and warning messages from the MWTM server, such as those that might occur if the MWTM server cannot start.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm countnodes

#### Server Only

#### Command Description

Displays a count of nodes in the current MWTM database.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm countobjects

**Server Only****Command Description**

Displays a count of all objects in the current MWTM database.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm cwsetup

**Solaris Server Only****Full Syntax**

**mwtm cwsetup** [install | uninstall]



**Command Description**

Manages the integration of MWTM with CiscoWorks:

- **install**—Checks to see which CiscoWorks files are installed, and installs additional files as necessary. Use this command to integrate MWTM and CiscoWorks in the following instances:
  - You installed CiscoWorks after you installed MWTM.
  - MWTM and CiscoWorks are no longer integrated for some reason.
- **uninstall**—Removes MWTM files from the CiscoWorks area.

*Always run **mwtm cwsetup uninstall** before uninstalling CiscoWorks from your system.*

You must be logged in as the root user (not as a super user) to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm delete

**Server Only****Full Syntax**

**mwtm delete node** [**all** | *node* [*node*]...]

**Command Description**

Deletes objects from the MWTM database.

- **node all**—Deletes all nodes from the MWTM database.
- **node node** [*node*]...—Deletes one or more nodes from the MWTM database. Use the *node* arguments to specify one or more nodes.

See the “[Deleting a Node](#)” section on [page 6-48](#) for more information.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm deluser

**Server Only****Full Syntax**

**mwtm deluser** [*username*]

**Command Description**

If MWTM User-Based Access is enabled, deletes the specified user from the authentication list. To add the user back to the list, use the **mwtm adduser** command.

See the “[Manually Disabling Users and Passwords \(Server Only\)](#)” section on page 10-11 for more information on the use of this command.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm disablepass

### Server Only

#### Full Syntax

**mwtm disablepass** [*username*]

#### Command Description

If MWTM User-Based Access is enabled and **mwtm authtype** is set to **local**, disables the specified user’s authentication and password. MWTM does not delete the user from the authentication list, MWTM only disables the user’s authentication and password.

- To re-enable the user’s authentication with the same password as before, use the **mwtm enableuser** command.
- To re-enable the user’s authentication with a new password, use the **mwtm userpass** command.

If **mwtm authtype** is set to **solaris**, you cannot use this command. Instead, you must manage passwords on the external authentication servers.

See the “[Manually Disabling Users and Passwords \(Server Only\)](#)” section on page 10-11 for more information on the use of this command.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm disableuser

### Server Only

#### Full Syntax

**mwtm disableuser** [*username*]

#### Command Description

If MWTM User-Based Access is enabled, disables the specified user’s authentication. MWTM does not delete the user from the authentication list, MWTM only disables the user’s authentication.

- To re-enable the user’s authentication with the same password as before, use the **mwtm enableuser** command.
- To re-enable the user’s authentication with a new password, use the **mwtm userpass** command.

See the “[Manually Disabling Users and Passwords \(Server Only\)](#)” section on page 10-11 for more information on the use of this command.

You must be logged in as the root user or as a super user to use this command.

**Note**

If you have enabled Solaris authentication, you must be logged in as the root user, not a super user, to use this command. See the “[Implementing MWTM User-Based Access \(Server Only\)](#)” section on page 10-2 for more information.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm discover

**Server Only****Full Syntax**

**mwtm discover** [*seed-node*] [*seed-node*]...

**Command Description**

Enables you to discover the network from the command line. Use the *seed-node* arguments to specify the DNS names or IP addresses of one or more seed nodes. For more information about seed nodes, see [Loading Seed Nodes and Seed Files, page 2-11](#).

**Note**

This command does not perform a clean discovery. To do so, see the **mwtm cleandiscover** command.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm enableuser

**Server Only****Full Syntax**

**mwtm enableuser** [*username*]

**Command Description**

If MWTM User-Based Access is enabled, re-enables the specified user’s authentication, which had been disabled either automatically by MWTM or by a super user.

The user’s authentication is re-enabled with the same password as before.

See the “[Enabling and Changing Users and Passwords \(Server Only\)](#)” section on page 10-13 for more information on the use of this command.

You must be logged in as the root user or as a super user to use this command.


**Note**

If you have enabled Solaris authentication, you must be logged in as the root user, not a super user, to use this command. See the [“Implementing MWTM User-Based Access \(Server Only\)”](#) section on [page 10-2](#) for more information.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm eventeditor

**Solaris/Linux Clients Only**
**Full Syntax**

**mwtm eventeditor** [*hostname*]

**Command Description**

Starts an MWTM Event Configurator on the specified host. If no host name is specified, starts an MWTM Event Configurator on the default host, as specified during installation. See the [“Connecting to a New Server”](#) section on [page 3-33](#) for information about determining the default host.

For more information about the MWTM Event Configurator, see the [“Changing the Way MWTM Processes Events”](#) section on [page 5-17](#).

If you Telnet into a remote workstation, the DISPLAY variable must be set to your local display, or you cannot use this command. If the DISPLAY variable is not set automatically, you must set it manually. See the [“Setting the DISPLAY Variable \(Client Only\)”](#) section on [page 11-30](#) for details.

## mwtm eventlog

**Server Only**
**Full Syntax**

**mwtm eventlog** [*clear* | *-r*]

**Command Description**

Uses PAGER to display the contents of the MWTM event automation log. The event automation log lists all messages generated by scripts launched by event automation.

To clear the log and restart the server, enter **mwtm eventlog clear**.

To display the contents of the log in reverse order, with the most recent events at the beginning of the log, enter **mwtm eventlog -r**.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

# mwtm evilstop

## Server Only

### Command Description

Forcefully stops all MWTM servers on the local host. This command can be useful if a normal **mwtm stop** does not stop the servers.

You must be logged in as the root user (not as a super user) to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm export

## Server Only

### Full Syntax

**mwtm export** [-d {bar | comma | tab}] [all | nodes ]

### Command Description

Exports current MWTM data.

By default, MWTM separates data fields with vertical bars (|). However, you can specify commas (,) or tabs as the separator:

- **-d bar**—Separate data fields with vertical bars (|). This is the default setting.
- **-d comma**—Separate data fields with commas (,).
- **-d tab**—Separate data fields with tabs.

By default, MWTM exports all data. However, you can limit the data that MWTM exports:

- **all**—Export all current MWTM data. This is the default selection.
- **nodes**—Export only node data.

You must be logged in as the root user or as a super user to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm export cw

## Solaris Server Only

### Full Syntax

**mwtm export cw**

**Command Description**

Exports current MWTM node names and read and write SNMP community names, in CiscoWorks import format, with fields separated by commas (.). You can export this data to a file, then use the file to import the devices into the CiscoWorks database.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm help

**Server and Solaris/Linux Clients Only****Full Syntax**

**mwtm help** [*keyword*]

**Command Description**

Displays the command syntax for the **mwtm** command and all of its options.

To see the command syntax for a specific keyword, enter **mwtm help** followed by that keyword. For example, if you enter **mwtm help restart**, MWTM displays:

```
mwtm restart - Restarts all MWTM Servers on the local host.
mwtm restart web - Restarts Web servers on the local host.
mwtm restart jsp - Restarts JSP servers on the local host.
mwtm restart pm - Restarts Process Manager on the local host.
```

**List of mwtm Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm inactiveuserdays

**Server Only****Full Syntax**

**mwtm inactiveuserdays** [*number-of-days* | **clear**]

**Command Description**

If mwtm User-Based Access is enabled, number of days a user can be inactive before disabling that user account.

This function is disabled by default. If you do not specify this command, user accounts are never disabled as a result of inactivity.

If you enter the **mwtm inactiveuserdays** command, the valid range is 1 day to an unlimited number of days. There is no default setting.

If you have enabled this function and you want to disable it (that is, prevent MWTM from automatically disabling user accounts as a result of inactivity), enter **mwtm inactiveuserdays clear**.

To re-enable the user's authentication, use the **mwtm enableuser** command.

See the “[Automatically Disabling Users and Passwords \(Server Only\)](#)” section on page 10-8 for more information on the use of this command.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm installlog

### Server and Solaris/Linux Clients Only

#### Full Syntax

**mwtm installlog** [**server** | **client**]

#### Command Description

Displays the latest install log for the **server** or **client**. If you do not specify **server** or **client**, displays the latest install log for both the server and client.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm iosinfo

### Server Only

#### Command Description

Displays the versions of IOS with which MWTM is compatible.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm ipaccess

### Server Only

#### Full Syntax

**mwtm ipaccess** [**add** [*ip-addr*] | **clear** | **edit** | **list** | **rem** [*ip-addr*] | **sample**]

#### Command Description

Enables you to create and manage a list of client IP addresses allowed to connect to the MWTM server.

The list of allowed client IP addresses is contained in the *ipaccess.conf* file. By default, when you first install MWTM, the *ipaccess.conf* file does not exist and MWTM allows all client IP addresses to connect to the MWTM server. To create the *ipaccess.conf* file and work with the list of allowed client IP addresses, specify one of the following keywords:

- **add**—Add the specified client IP address to the *ipaccess.conf* file. If the *ipaccess.conf* file does not already exist, this command creates a file with the first entry.
- **clear**—Remove all client IP addresses from the *ipaccess.conf* file, and allow connections from any MWTM client IP address.
- **edit**—Open and edit the *ipaccess.conf* file directly. If the *ipaccess.conf* file does not already exist, this command creates an empty file.
- **list**—List all client IP addresses currently in the *ipaccess.conf* file. If no client IP addresses are listed (that is, the list is empty), connections from any MWTM client IP address are allowed.
- **rem**—Remove the specified client IP address from the *ipaccess.conf* file.
- **sample**—Print out a sample *ipaccess.conf* file.

Any changes you make take effect when you restart the MWTM server.

See the “[Limiting MWTM Client Access to the MWTM Server \(Server Only\)](#)” section on page 10-32 for more information about using this command.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm jspport

### Server Only

#### Full Syntax

**mwtm jspport** [*port-number*]

#### Command Description

Sets a new port number for the JSP server, where *port-number* is the new, numeric port number. MWTM verifies that the new port number is not already in use.

This command is needed only if you must change the port number after you install MWTM, because another application must use the current port number.

The new port number must contain only numbers. If you enter a port number that contains non-numeric characters, such as **mwtm13**, MWTM displays an error message and returns to the command prompt without changing the port number.

You must be logged in as the root user (not as a super user) to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)



# mwtm keytool

## Solaris Server Only

### Full Syntax

**mwtm keytool** [**clear** | **genkey** | **import\_cert** *cert\_filename* | **import\_key** *key\_filename* *cert\_filename* | **list** | **print\_csr** | **print\_cert**]

### Command Description

If SSL is implemented in your MWTM system, manages SSL keys and certificates on the MWTM server.

If you installed the MWTM server and client on the same workstation, also automatically manages the certificates on the client.

Use the following keywords and arguments with this command:

- **clear**—Stops the MWTM server, if necessary, and removes all SSL keys and certificates from the server. Before restarting the server, you must either generate new SSL keys using the **mwtm keytool genkey** command, or you must completely disable SSL using the **mwtm ssl disable** command.
- **genkey**—Stops the MWTM server, if necessary, and generates a new self-signed public/private SSL key pair on the MWTM server. The new keys take effect when you restart the server.
- **import\_cert** *cert\_filename*—Imports the specified signed SSL certificate in X.509 format.
- **import\_key** *key\_filename* *cert\_filename*—Imports the specified SSL key in OpenSSL format and the specified signed SSL certificate in X.509 format.
- **list**—Lists all SSL key/certificate pairs on the MWTM server.
- **print\_csr**—Prints a certificate signing request (CSR) in X.509 format.
- **print\_cert**—Prints the MWTM server's SSL certificate in X.509 format.

See the “[Implementing SSL Support in MWTM \(Solaris Only\)](#)” section on page 10-22 for more information on the use of this command.

You must be logged in as the root user (not as a super user) to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm killclients

## Server Only

### Command Description

Forcefully stops all MWTM clients, including Event Configurators, on the local host.

You must be logged in as the root user (not as a super user) to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm listusers

## Server Only

## Full Syntax

**mwtm listusers** [*username*]

## Command Description

If MWTM User-Based Access is enabled, lists all currently defined users in the authentication list, including the following information for each user:

- User name
- Last time the user logged in
- User's authentication access level
- User's current authentication status, such as **Account Enabled** or **Password Disabled**

To list information for a specific user, use the *username* argument to specify the user.

See the “[Listing All Currently Defined Users \(Server Only\)](#)” section on page 10-17 for more information on the use of this command.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm logger

### Server Only

#### Command Description

Displays the system messages *messageLog.txt* file with tail -f.

To stop the display, enter **Ctrl-c**.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm logtimemode

### Server Only

#### Full Syntax

**mwtm logtimemode** [12 | 24]

#### Command Description

Sets the time mode for dates in log files (except *sgmCommandLog.txt* and *sgmSecurityLog.txt*):

- **12**—Use 12-hour time, with AM and PM. 1:00 in the afternoon is 1:00 PM.
- **24**—Use 24-hour time, also called military time. 1:00 in the afternoon is 13:00. This is the default setting.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm maxascirows

## Server Only

### Full Syntax

**mwtm maxascirows** [*number-of-rows*]

### Command Description

Sets the maximum number of rows for MWTM ASCII Web output, such as displays of detailed debugging information.

If you enter this command without the *number-of-rows* argument, MWTM displays the current maximum number of rows. You can then change that value, or leave it as-is. The valid range is 1 row to an unlimited number of rows. The default value is 6000 rows.

You must be logged in as the root user or as a super user to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm maxevhist

## Server Only

### Full Syntax

**mwtm maxevhist** [*number-of-rows*]

### Command Description

Sets the maximum number of rows for MWTM to search in the event history logs. The event history logs are the current and archived MWTM network status logs for status change and SNMP trap messages. MWTM sends the results of the search to the Web browser, where the results are further limited by the setting of the [mwtm maxhtmlrows](#) command.

If you enter this command without the *number-of-rows* argument, MWTM displays the current maximum number of rows. You can then change that value, or leave it as-is. The valid range is 1 row to an unlimited number of rows. The default value is 15000 rows.

The default setting is sufficient in most MWTM environments. However, you might need to increase the setting if MWTM has archived a large number of event history logs, each log contains thousands of messages, and you want to search more than 15000 rows. However, be aware that increasing this setting can increase the search time.

You must be logged in as the root user or as a super user to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm maxhtmlrows

## Server Only

### Full Syntax

**mwtm maxhtmlrows** [*number-of-rows*]

### Command Description

Sets the maximum number of rows for MWTM HTML Web output, such as displays of statistics reports, status change messages, or SNMP trap messages.

If you enter this command without the *number-of-rows* argument, MWTM displays the current maximum number of rows. You can then change that value, or leave it as-is. The valid range is 1 row to an unlimited number of rows. The default value is 200 rows.

You must be logged in as the root user or as a super user to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm mldebug

## Server Only

### Full Syntax

**mwtm mldebug** [*mode*]

### Command Description

Sets the mode for logging MWTM debug messages:

- **normal**—Logs all action, error, and info messages. Use **mwtm mldebug normal** to revert to the default settings if you accidentally enter the **mwtm mldebug** command.
- **list**—Displays the current settings for the **mwtm mldebug** command.
- **all**—Logs all messages, of any type.
- **none**—Logs no messages at all.
- **minimal**—Logs all error messages.
- **action**—Logs all action messages.
- **debug**—Logs all debug messages.
- **dump**—Logs all dump messages.
- **error**—Logs all error messages.
- **info**—Logs all info messages.
- **snmp**—Logs all SNMP messages.
- **trace**—Logs all trace messages.

This command can adversely affect MWTM performance. Use this command **only** under guidance from the Cisco TAC.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm motd

### Server Only

#### Full Syntax

**mwtm motd** [cat | disable | edit | enable]

#### Command Description

Manages the MWTM message of the day file, which is a user-specified MWTM system notice. You can use the message of the day to inform users of important changes or events in the MWTM system. The message of the day also gives users an opportunity to exit the MWTM client before launching.

If the message of the day is enabled, it is displayed whenever a user attempts to launch an MWTM client:

- If the user accepts the message, the client launches.
- If the user declines the message, the client does not launch.

Use the following keywords with this command:

- **enable**—Enables the message of the day function. Initially, the message of the day file is blank; use the **mwtm motd edit** command to specify the message text.
- **edit**—Enables you to change the message of the day.

- **cat**—Displays the contents of the message of the day file.
- **disable**—Disables this function (that is, stops displaying the message of the day whenever a user attempts to launch an MWTM client).

See the “[Displaying a Message of the Day \(Server Only\)](#)” section on page 10-15 for more information on the use of this command.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm msglog

### Server Only

#### Full Syntax

**mwtm msglog** [**clear** | **-r**]

#### Command Description

Uses PAGER to display the contents of the system message log.

To save the current contents of the log, clear the log, and restart the server, enter **mwtm msglog clear**.

To display the contents of the log in reverse order, with the most recent messages at the beginning of the log, enter **mwtm msglog -r**.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm msglogage

### Server Only

#### Full Syntax

**mwtm msglogage** [*number-of-days*]

#### Command Description

Sets the maximum number of days to archive system message log files before deleting them from the MWTM server.

If you enter this command without the *number-of-days* argument, MWTM displays the current maximum number of days. You can then change that value, or leave it as-is. The valid range is 1 day to an unlimited number of days. The default value is 31 days.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm msglogdir

**Server Only****Full Syntax**

**mwtm msglogdir** [*directory*]

**Command Description**

Changes the default location of all MWTM system message log files. By default, the system message log files are located on the MWTM server at */opt/CSCOsgm/logs*.

**Note**


---

Do not set the new directory to any of the following: */usr*, */var*, */opt*, or */tmp*.

---

Do not set the new directory to the same directory in which you are storing report files (**mwtm repdir**).

---

After you change the directory, MWTM asks if you want to restart the MWTM server. The new directory takes effect when you restart the MWTM server.

You must be logged in as the root user or as a super user to use this command. If you are changing to a default location outside MWTM, you must have appropriate permissions for that location.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm msglogsize

**Server Only****Full Syntax**

**mwtm msglogsize** [*number-of-lines*]

**Command Description**

Sets the maximum number of messages to write to the message log file before starting a new file.

If you enter this command without the *number-of-lines* argument, MWTM displays the current maximum number of messages. You can then change that value, or leave it as-is.

The valid range is 1000 messages to an unlimited number of messages. The default value is 10000 messages (approximately 2 MB). Therefore, the default message log file and its copy require approximately 4 MB, combined. If you specify a larger message log file size, the message log file and its copy require proportionally more space.

When changing the number of messages to display, keep in mind that every 5000 messages require approximately 1 MB. You need to balance your need to refer to old messages against the amount of space they take up.



You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm netlog

**Server Only****Full Syntax**

**mwtm netlog** [clear | -r]

**Command Description**

Uses PAGER to display the contents of the network status log.

To save the current contents of the log, clear the log, and restart the server, enter **mwtm netlog clear**.

To display the contents of the log in reverse order, with the most recent network status messages at the beginning of the log, enter **mwtm netlog -r**.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

# mwtm netlogger

## Server Only

### Command Description

Displays the current contents of the network status log file with tail -f.

To stop the display, enter **Ctrl-c**.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm newlevel

## Server Only

### Full Syntax

**mwtm newlevel** [*username*]

### Command Description

If MWTM User-Based Access is enabled, changes the authentication level for the specified user. Valid levels are:

- 1—Basic User
- 2—Power User
- 3—Network Operator
- 4—Network Administrator
- 5—System Administrator

See the “[Enabling and Changing Users and Passwords \(Server Only\)](#)” section on page 10-13 for more information on the use of this command.

You must be logged in as the root user or as a super user to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm passwordage

## Server Only

### Full Syntax

**mwtm passwordage** [*number-of-days* | **clear**]

### Command Description

If MWTM User-Based Access is enabled and **mwtm authtype** is set to **local**, number of days allowed before forcing users to change passwords.

**Note**

Change the password at least once for this command to properly age the password.

This function is disabled by default. If you do not specify this command, users never need to change their passwords.

If you enter the **mwtm passwordage** command, the valid range is 1 day to an unlimited number of days. There is no default setting.

If you have enabled this function and you want to disable it (that is, prevent MWTM from forcing users to change passwords), enter **mwtm passwordage clear**.

**Note**

If **mwtm authtype** is set to **solaris**, you cannot use this command. Instead, you must manage passwords on the external authentication servers.

See the “[Automatically Disabling Users and Passwords \(Server Only\)](#)” section on page 10-8 for more information on the use of this command.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm patchlog

**Server Only****Full Syntax**

**mwtm patchlog**

**Command Description**

Uses PAGER to display the contents of the patch log, which lists the patches that have been installed on the MWTM server.

The default path and filename for the patch log file is */opt/CSCOsgm/install/sgmPatch.log*. If you installed MWTM in a directory other than */opt*, then the patch log file is located in that directory.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm poll

**Server Only****Full Syntax**

**mwtm poll** [*node*] [*node*]...

**Command Description**

Enables you to poll one or more known nodes from the command line. Use the *node* arguments to specify the DNS names or IP addresses of one or more known nodes.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm pollertimeout

**Server Only****Full Syntax**

**mwtm pollertimeout** [*number-of-seconds*]

**Command Description**

Specifies how long, in seconds, MWTM clients that are connected to the MWTM server can run a demand poller, as in a real-time data window or Web page, before MWTM automatically stops the poller to prevent unnecessary traffic on the network. When the demand poller times out, MWTM stops the poller and sends an appropriate error message to the client.

The valid range is 1 second to an unlimited number of seconds. The default timeout is 8 hours (28800 seconds).

After you change the timeout, MWTM asks if you want to restart the MWTM server. The new poller timeout takes effect when you restart the MWTM server.

See the “[Server Status Information: Pollers](#)” section on page 3-26 for more information on demand pollers.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

# mwtm print

## Server Only

### Full Syntax

**mwtm print** {all | data | snmp | task}

### Command Description

Displays information about server internal data, SNMP settings, running tasks, or all three.

You must be logged in as the root user or as a super user to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm props

## Server and Solaris/Linux Clients Only

### Command Description

Displays the contents of the *System.properties* files for both MWTM server and client installs.

You must be logged in as the root user or as a super user to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm readme

## Server and Solaris/Linux Clients Only

### Command Description

Displays the contents of the README file for MWTM.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm reboot

## Server Only

### Command Description

Reboots the Solaris or Linux MWTM system.



#### Note

---

Use this command with care. Rebooting the Solaris MWTM system disconnects all MWTM clients that are using the system. Before using this command, use the **mwtm who** command to list all current users, and the **mwtm wall** command to warn all current users that you are rebooting the system.

---

You must be logged in as the root user (not as a super user) to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm repdir

## Server Only

### Full Syntax

**mwtm repdir** [*directory*]

### Command Description

Sets the directory in which MWTM stores report files. See the “[Working with MWTM Statistics Reports](#)” section on page 9-1 for information about MWTM reports.

The default directory for report files is located in the MWTM installation directory:

- If you installed MWTM in the default directory, */opt*, then the default directory is */opt/CSCOsqm/reports*.
- If you installed MWTM in a different directory, then the default directory is located in that directory.

Use this command if you want to use a different directory for report files, such as a Network File System location on another server.



#### Note

This command copies all files in the current directory to the new directory. If you are not logged in as the super user, and you do not own the new directory, you might not be able to copy the files. If that is the case, you must specify a directory that you own, or you must log in as the root user.

Do not set the new directory to any of the following: */usr*, */var*, */opt*, or */tmp*.

Do not set the new directory to the same directory in which you are storing message log files (**mwtm msglogdir**) or route table files (**mwtm routedir**).

After you change the directory, MWTM asks if you want to restart the MWTM server. The new directory takes effect when you restart the MWTM server.

You must be logged in as the root user or as a super user to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1](#).

# mwtm rephelp

## Server Only

### Command Description

Displays help for all commands related to MWTM reports.

You must be logged in as the root user or as a super user to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1](#).

# mwtm relog

## Server Only

### Full Syntax

**mwtm relog** [**clear** | **-r**]

### Command Description

Uses PAGER to display the contents of the system reports log. The reports log lists all messages related to the creation and maintenance of MWTM reports.

To clear the log and restart the server, enter **mwtm relog clear**.

To display the contents of the log in reverse order, with the most recent commands at the beginning of the log, enter **mwtm relog -r**.

The default path and filename for the system reports log file is */opt/CSCOs/gm/logs/sgmReportLog.txt*. If you installed MWTM in a directory other than */opt*, then the system reports log file is located in that directory.

You must be logged in as the root user or as a super user to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm restart

## Server Only

### Full Syntax

**mwtm restart** [**jsp** | **pm** | **web**]

### Command Description

Restarts MWTM servers on the local host:

- **jsp**—Restarts the MWTM JSP Server.
- **pm**—Restarts the MWTM Process Manager and all managed processes.
- **web**—Restarts the MWTM Web Server.
- If you do not specify a keyword, **mwtm restart** restarts all MWTM servers.

You must be logged in as the root user or as a super user to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)



# mwtm restore

## Server Only

### Full Syntax

**mwtm restore** [ **logs** | **reports** | **security** ]

### Command Description

Restores the MWTM data files from the previous night's backup, stored in the MWTM installation directory:

- If you installed MWTM in the default directory, */opt*, then the locations of the backup files are */opt/mwtm50-client-backup.tar.Z* and */opt/mwtm50-server-backup.tar.Z*.
- If you installed MWTM in a different directory, then the backup files are located in that directory.

To restore only specific parts of the MWTM data files, use the following keywords:

- **logs**—Restores only MWTM log files, such as the message log files.
- **reports**—Restores only MWTM report files, such as the statistics report files.
- **security**—Restores only the security-related parts of the MWTM data files. This command is useful if you inadvertently delete your user accounts or make other unwanted changes to your MWTM security information.

To change the directory in which MWTM stores these backup files, use the **mwtm backupdir** command.

You must be logged in as the root user (not as a super user) to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm restoreprops

## Server and Solaris/Linux Clients Only

### Command Description

Restores the MWTM server and client *System.properties* files, and other important configuration files, to “clean” backup versions of the files.

You must be logged in as the root user (not as a super user) to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm rootvars

### Server and Solaris/Linux Clients Only

#### Command Description

Displays the contents of the */etc/CSCOsgm.sh* file, which determines the root location of the MWTM server and client installation.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm sechelp

### Server Only

#### Command Description

Displays help for all commands related to MWTM security.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm seclog

### Server Only

#### Full Syntax

**mwtm seclog** [**clear** | **-r**]

#### Command Description

Uses PAGER to display the contents of the system security log.

The following security events are recorded in the log:

- All changes to system security, including adding users
- Login attempts, whether successful or unsuccessful, and logoffs
- Attempts to switch to another user's account, whether successful or unsuccessful
- Attempts to access files or resources of higher authentication level
- Access to all privileged files and processes
- Operating system configuration changes and program changes, at the Solaris level
- MWTM restarts
- Failures of computers, programs, communications, and operations, at the Solaris level

To clear the log and restart the server, enter **mwtm seclog clear**.

To display the contents of the log in reverse order, with the most recent security events at the beginning of the log, enter **mwtm seclog -r**.

The default path and filename for the system security log file is */opt/CSCOs/gm/logs/sgmSecurityLog.txt*. If you installed MWTM in a directory other than */opt*, then the system security log file is located in that directory.

See the “[Displaying the Contents of the System Security Log \(Server Only\)](#)” section on page 10-18 for more information on the use of this command.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1](#).

## mwtm secondaryserver

### Server Only

#### Full Syntax

**mwtm secondaryserver** [*hostname* [*naming-port*] | **list**]

#### Command Description

Configures a secondary MWTM server, where:

- *hostname* is the name of the host on which the secondary MWTM server is installed.
- *naming-port* is the MWTM Naming Server port number for the secondary MWTM server. The default port number is 44742.

For best results, Cisco recommends that you configure the primary server and the secondary server as secondaries for each other.

If you use the **mwtm secondaryserver** command to configure a secondary MWTM server, but the primary MWTM server fails before you launch the MWTM client, then the MWTM client has no knowledge of the secondary server.

To list the secondary MWTM server that has been configured for this primary MWTM server, enter the **mwtm secondaryserver list** command.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1](#).

## mwtm servername

### Server and Solaris/Linux Clients Only

#### Full Syntax

**mwtm servername** [*hostname*]

**Command Description**

Resets the MWTM server's default host name, where *hostname* is the new default host name:

- Make sure the new default host name is valid and is defined in your */etc/hosts* file. If it is not, you might not be able to start the MWTM server.
- If you are *not* logged in as the root user or as a super user when you enter this command from an MWTM client, the default host name is changed only for that MWTM client, and for the user who entered the command.
- If you *are* logged in as the root user or as a super user when you enter this command, the default host name is changed for the MWTM server and for the client, and the MWTM server is restarted. The new default host name is used by the MWTM server to register RMI services, and by MWTM clients to connect to the server.
- If you are logged into a *client-only* installation as the root user or as a super user when you enter this command, the default host name is changed only for that MWTM client. The new default host name is used by the MWTM client to connect to the MWTM server.

**Note**

Using the **mwtm servername** command to reset the MWTM server's default host name does not affect communication between the MWTM server and the network elements.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm setpath

**Server and Solaris/Linux Clients Only****Full Syntax**

**mwtm setpath** [*username*]

**Command Description**

Appends binary (bin) directories to the path for a user. This enables users to append the proper MWTM binary directories to their paths without manually editing the *.profile* and *.cshrc* files.

This command appends lines such as these to the user's *.profile* file:

**PATH=\$PATH:/opt/CSCOSgm/bin:/opt/CSCOSgmClient/bin # CiscoSGM**

and appends lines such as these to the user's *.cshrc* file:

**set path=(\$path /opt/CSCOSgm/bin /opt/CSCOSgmClient/bin) # CiscoSGM**

Thereafter, you can enter MWTM commands like this:

**mwtm help**

instead of like this:

**/opt/CSCOSgm/bin/mwtm help**

When entering this command, keep the following considerations in mind:

- If you enter this command and you do not specify a *username*, MWTM appends the bin directories to your path (that is, to the path for the user who is currently logged in and entering the **mwtm setpath** command).
- If you enter this command and you specify a *username*, MWTM appends the bin directories to the path for the specified user. To specify a *username*, the following conditions must all be true:
  - You must be logged in as the root user.
  - The specified *username* must exist in the local */etc/passwd* file.
  - You cannot specify a *username* that is defined in a distributed Network Information Services (NIS) system or in an Network File System-mounted (NFS-mounted) home directory.
- If you enter this command more than once for the same user, each command overwrites the previous command. MWTM does not append multiple bin directories to the same path.
- You might need to use the **su** - command when entering root-level commands. If you use the **su** command to become the root user, rather than logging in as the root user, then you must use the - option.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm snmpcomm

**Server Only****Full Syntax**

**mwtm snmpcomm** [*name*]

**Command Description**

Enables you to set a new default SNMP read community name. MWTM automatically updates the name in the SNMP parameters file. The default path and filename for the SNMP parameters file is */opt/CSCOsqm/etc/communities.conf*.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm snmpconf

**Server Only****Full Syntax**

**mwtm snmpconf** [*filename*]

**Command Description**

Sets the file used for SNMP parameters, such as community names, timeouts, and retries.

The default path and filename for the SNMP parameters file is `/opt/CSCOSgm/etc/communities.conf`. If you installed MWTM in a directory other than `/opt`, then the file is located in that directory.

When you specify a new path or filename, MWTM restarts the servers.

**Note**

The SNMP parameters file uses the HP OpenView format. Therefore, you can set this path and filename to point to the HP OpenView `ovsnmp.conf` file in an existing OpenView system.

For information about exporting SNMP community names from CiscoWorks Resource Manager Essentials (RME), see the [“Importing SNMP Community Names from CiscoWorks \(Solaris Only\)” section on page 11-2](#).

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1](#).

## mwtm snmpget

**Server Only****Full Syntax**

```
mwtm snmpget [-JJVM_ARG1 [-JJVM_ARG2]...] [-v snmp_version] [-c community_string] [-r retry]
[-t timeout] [-d output_delimiter] [--header|--no-header] [--raw-octets|--no-raw-octets]
[--str-octets|--no-str-octets] [--raw-timeticks|--no-raw-timeticks]
[--resolve-integer|--no-resolve-integer] [--resolve-bits|--no-resolve-bits]
[--get-sysuptime|--no-get-sysuptime] [--detect-mib-error] [--instance oids] [--int-instance integer]
[--str-instance string] [hostname] [oid] [oid]...
```

**Command Description**

Queries the specified *hostname* using SNMP GetRequests. Use the following optional keywords and arguments with this command:

- **-JJVM\_ARG1**—JVM options. The **-J** keyword and arguments must be specified before any other keywords and arguments.

For example, by default JVM uses a maximum of 64 MB of memory. However, if you are walking a large table, JVM might require more memory. To enable JVM to use a maximum of 256 MB of memory, use the following option:

**-J-Xmx256m**

- **-v *snmp\_version***—SNMP protocol version. Valid versions are **1** or **2c**. The default version is **2c**.
- **-c *community\_string***—SNMP community string. The default community string is specified in the SNMP parameters file, `communities.conf`.
- **-r *retry***—SNMP retry count. The default retry count is specified in the SNMP parameters file, `communities.conf`.
- **-t *timeout***—SNMP timeout, in seconds. The default timeout is specified in the SNMP parameters file, `communities.conf`.

- **-d output\_delimiter**—Output delimiter. The default output delimiter is a colon (:).
- **--header|--no-header**—Specifies whether to display variable names as table headers:
  - Specify **--header** to display variable names as table headers for tabular output, or to display MIB variable OIDs with the value for non-tabular output. This is the default setting.
  - Specify **--no-header** if you do not want to display variable names as table headers for tabular output, or MIB variable OIDs with the value for non-tabular output.
- **--raw-octets|--no-raw-octets**—Specifies whether to display octets as raw octets:
  - Specify **--raw-octets** to display raw octets, such as **6c 69 6e 6b**, for octet strings.
  - Specify **--no-raw-octets** if you do not want to display raw octets for octet strings. This is the default setting.

The other option for displaying octets is **--str-octets|--no-str-octets**.

- **--str-octets|--no-str-octets**—Specifies whether to display octets as strings:
  - Specify **--str-octets** to display octets as strings, such as **link**. This is the default setting.
  - Specify **--no-str-octets** if you do not want to display octets as strings.

The other option for displaying octets is **--raw-octets|--no-raw-octets**.

- **--raw-timeticks|--no-raw-timeticks**—Specifies the time format:
  - Specify **--raw-timeticks** to specify raw timeticks, such as **2313894**.
  - Specify **--no-raw-timeticks** to specify formatted timeticks, such as **6 Hours 26 Mins 12 Secs**. This is the default setting.

- **--resolve-integer|--no-resolve-integer**—Specifies the time format:
  - Specify **--resolve-integer** to display integers using the string description in the MIB, such as **available** or **unavailable**.
  - Specify **--no-resolve-integer** to display integers as numbers. This is the default setting.
- **--resolve-bits|--no-resolve-bits**—Specifies the time format:
  - Specify **--resolve-bits** to display bits using the string description in the MIB, such as **continue** or **ruleset**.
  - Specify **--no-resolve-bits** to display bits as numbers, such as **1** or **14**. This is the default setting.
- **--get-sysuptime|--no-get-sysuptime**—Specifies whether to retrieve the sysuptime:
  - Specify **--get-sysuptime** to retrieve the sysuptime in the same packet as each SNMP operation.
  - Specify **--no-get-sysuptime** if you do not want to retrieve the sysuptime in the same packet. This is the default setting.

- **--detect-mib-error**—Detects errors in returned MIB variables, such as `noSuchInstance`, `noSuchObject`, and `endOfMibView`. If any such errors are detected, an error message is printed and an error code is returned.

Sometimes multiple MIB variables are returned at the same time, some of which are in error, and some of which are not.

- If this occurs and you specified **--detect-mib-error**, none of the correct values are printed, only the error message, and an error code is returned.
- If this occurs and you did not specify **--detect-mib-error**, a return code of 0 is returned and all MIB variables are printed (even `noSuchInstance` is printed as a returned value). This is the default setting, with **--detect-mib-error** not specified.
- **--instance *oids***—Appends instance OIDs to each polling MIB variable. For example, the following commands perform the same function:

```
mwtm snmpget --instance 172.18.16.10 router_1 ipAdEntIfIndex ipAdEntNetMask
```

```
mwtm snmpget router_1 ipAdEntIfIndex.172.18.16.10 ipAdEntNetMask.172.18.16.10
```

- **--int-instance *integer***—Appends the specified integer instance OID to each polling MIB variable.
- **--str-instance *string***—Appends string instance OIDs to each polling MIB variable. For example, the following commands perform the same function:

```
mwtm snmpget --str-instance link_1 router_1 cItpSpLinksetState
```

```
mwtm snmpget router_1 cItpSpLinksetState.6.108.115.110.97.109.101
```

- **hostname**—Name of the host to be queried.
- **oid**—One or more OIDs or variable names.

The default path for the SNMP parameters file, *communities.conf*, is */opt/CSCOs/gm/etc/communities.conf*. If you installed MWTM in a directory other than */opt*, then the file is located in that directory. You can edit the file manually or using the MWTM client. See the [“Configuring SNMP Settings” section on page 2-3](#) for more information.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)



# mwtm snmphelp

## Server Only

### Command Description

Displays help for all commands related to SNMP queries.

You must be logged in as the root user or as a super user to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm snmpnext

## Server Only

### Full Syntax

```
mwtm snmpnext [-JJVM_ARG1 [-JJVM_ARG2]...] [-v snmp_version] [-c community_string] [-r retry]
[-t timeout] [-d output_delimiter] [--header|--no-header] [--raw-octets|--no-raw-octets]
[--str-octets|--no-str-octets] [--raw-timeticks|--no-raw-timeticks]
[--resolve-integer|--no-resolve-integer] [--resolve-bits|--no-resolve-bits]
[--get-sysuptime|--no-get-sysuptime] [--detect-mib-error] [--instance oids] [--int-instance integer]
[--str-instance string] [hostname] [oid] [oid]...
```

### Command Description

Queries the specified *hostname* using SNMP GetNextRequests. Use the following optional keywords and arguments with this command:

- **-JJVM\_ARG1**—JVM options. The **-J** keyword and arguments must be specified before any other keywords and arguments.  
  
For example, by default JVM uses a maximum of 64 MB of memory. However, if you are walking a large table, JVM might require more memory. To enable JVM to use a maximum of 256 MB of memory, use the following option:  
  
**-J-Xmx256m**
- **-v *snmp\_version***—SNMP protocol version. Valid versions are **1** or **2c**. The default version is **2c**.
- **-c *community\_string***—SNMP community string. The default community string is specified in the SNMP parameters file, *communities.conf*.
- **-r *retry***—SNMP retry count. The default retry count is specified in the SNMP parameters file, *communities.conf*.
- **-t *timeout***—SNMP timeout, in seconds. The default timeout is specified in the SNMP parameters file, *communities.conf*.
- **-d *output\_delimiter***—Output delimiter. The default output delimiter is a colon (:).
- **--header|--no-header**—Specifies whether to display variable names as table headers:
  - Specify **--header** to display variable names as table headers for tabular output, or to display MIB variable OIDs with the value for non-tabular output. This is the default setting.

- Specify **--no-header** if you do not want to display variable names as table headers for tabular output, or MIB variable OIDs with the value for non-tabular output.
- **--raw-octets|--no-raw-octets**—Specifies whether to display octets as raw octets:
  - Specify **--raw-octets** to display raw octets, such as **6c 69 6e 6b**, for octet strings.
  - Specify **--no-raw-octets** if you do not want to display raw octets for octet strings. This is the default setting.

The other option for displaying octets is **--str-octets|--no-str-octets**.

- **--str-octets|--no-str-octets**—Specifies whether to display octets as strings:
  - Specify **--str-octets** to display octets as strings, such as **link**. This is the default setting.
  - Specify **--no-str-octets** if you do not want to display octets as strings.

The other option for displaying octets is **--raw-octets|--no-raw-octets**.

- **--raw-timeticks|--no-raw-timeticks**—Specifies the time format:
  - Specify **--raw-timeticks** to specify raw timeticks, such as **2313894**.
  - Specify **--no-raw-timeticks** to specify formatted timeticks, such as **6 Hours 26 Mins 12 Secs**. This is the default setting.
- **--resolve-integer|--no-resolve-integer**—Specifies the time format:
  - Specify **--resolve-integer** to display integers using the string description in the MIB, such as **available** or **unavailable**.
  - Specify **--no-resolve-integer** to display integers as numbers. This is the default setting.

- **--resolve-bits|--no-resolve-bits**—Specifies the time format:
  - Specify **--resolve-bits** to display bits using the string description in the MIB, such as **continue** or **ruleset**.
  - Specify **--no-resolve-bits** to display bits as numbers, such as **1** or **14**. This is the default setting.
- **--get-sysuptime|--no-get-sysuptime**—Specifies whether to retrieve the sysuptime:
  - Specify **--get-sysuptime** to retrieve the sysuptime in the same packet as each SNMP operation.
  - Specify **--no-get-sysuptime** if you do not want to retrieve the sysuptime in the same packet. This is the default setting.

- **--detect-mib-error**—Detects errors in returned MIB variables, such as `noSuchInstance`, `noSuchObject`, and `endOfMibView`. If any such errors are detected, an error message is printed and an error code is returned.

Sometimes multiple MIB variables are returned at the same time, some of which are in error, and some of which are not.

- If this occurs and you specified **--detect-mib-error**, none of the correct values are printed, only the error message, and an error code is returned.
- If this occurs and you did not specify **--detect-mib-error**, a return code of 0 is returned and all MIB variables are printed (even `noSuchInstance` is printed as a returned value). This is the default setting, with **--detect-mib-error** not specified.
- **--instance *oids***—Appends instance OIDs to each polling MIB variable. For example, the following commands perform the same function:

```
mwtm snmpget --instance 172.18.16.10 router_1 ipAdEntIfIndex ipAdEntNetMask
```

```
mwtm snmpget router_1 ipAdEntIfIndex.172.18.16.10 ipAdEntNetMask.172.18.16.10
```

- **--int-instance *integer***—Appends the specified integer instance OID to each polling MIB variable.

- **--str-instance** *string*—Appends string instance OIDs to each polling MIB variable. For example, the following commands perform the same function:

```
mwtm snmpget --str-instance link_1 router_1 cItpSpLinksetState
```

```
mwtm snmpget router_1 cItpSpLinksetState.6.108.115.110.97.109.101
```

- *hostname*—Name of the host to be queried.
- *oid*—One or more OIDs or variable names.

The default path for the SNMP parameters file, *communities.conf*, is */opt/CSCOsrm/etc/communities.conf*. If you installed MWTM in a directory other than */opt*, then the file is located in that directory. You can edit the file manually or using the MWTM client. See the “Configuring SNMP Settings” section on page 2-3 for more information.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm snmpwalk

### Server Only

#### Full Syntax

```
mwtm snmpwalk [-JJVM_ARG1 [-JJVM_ARG2]...] [-v snmp_version] [-c community_string]
[-r retry] [-t timeout] [-x maximum_rows] [-d output_delimiter] [--tabular|--no-tabular]
[--getbulk|--no-getbulk] [--header|--no-header] [--raw-octets|--no-raw-octets]
[--str-octets|--no-str-octets] [--raw-timeticks|--no-raw-timeticks]
[--resolve-integer|--no-resolve-integer] [--resolve-bits|--no-resolve-bits]
[--get-sysuptime|--no-get-sysuptime] [--detect-mib-error] [--instance oids] [--int-instance integer]
[--str-instance string] [hostname] [oid] [oid]...
```

### Command Description

Queries the specified *hostname*, using SNMP GetNextRequests to “walk” through the MIB. Use the following optional keywords and arguments with this command:

- **-JJVM\_ARG1**—JVM options. The **-J** keyword and arguments must be specified before any other keywords and arguments.

For example, by default JVM uses a maximum of 64 MB of memory. However, if you are walking a large table, JVM might require more memory. To enable JVM to use a maximum of 256 MB of memory, use the following option:

**-J-Xmx256m**

- **-v snmp\_version**—SNMP protocol version. Valid versions are **1** or **2c**. The default version is **2c**.
- **-c community\_string**—SNMP community string. The default community string is specified in the SNMP parameters file, *communities.conf*.
- **-r retry**—SNMP retry count. The default retry count is specified in the SNMP parameters file, *communities.conf*.
- **-t timeout**—SNMP timeout, in seconds. The default timeout is specified in the SNMP parameters file, *communities.conf*.
- **-x maximum\_rows**—Maximum number of rows to be walked. If a table has more than the maximum number of rows, the **mwtm snmpwalk** command fails. You can use the **-m** keyword and argument to increase the maximum number of rows that can be walked. The default setting is 10,000 rows.

However, for every 10,000 rows walked, JVM requires an additional 10 MB of memory. You can use the **-J** keyword and argument to increase the memory available to JVM.

- **-d output\_delimiter**—Output delimiter. The default output delimiter is a colon (:).
- **--tabular|--no-tabular**—Specifies whether to print the result of the query in tabular format:
  - Specify **--tabular** to print the result in tabular format. This is the default setting.
  - Specify **--no-tabular** if you do not want to print the result in tabular format.
- **--getbulk|--no-getbulk**—(SNMP version 2c only) Specifies whether to use the **getbulk** command to walk the table:
  - Specify **--getbulk** to use the **getbulk** command. This is the default setting.
  - Specify **--no-getbulk** if you do not want to use the **getbulk** command.
- **--header|--no-header**—Specifies whether to display variable names as table headers:
  - Specify **--header** to display variable names as table headers for tabular output, or to display MIB variable OIDs with the value for non-tabular output. This is the default setting.
  - Specify **--no-header** if you do not want to display variable names as table headers for tabular output, or MIB variable OIDs with the value for non-tabular output.
- **--raw-octets|--no-raw-octets**—Specifies whether to display octets as raw octets:
  - Specify **--raw-octets** to display raw octets, such as **6c 69 6e 6b**, for octet strings.
  - Specify **--no-raw-octets** if you do not want to display raw octets for octet strings. This is the default setting.

The other option for displaying octets is **--str-octets|--no-str-octets**.

- **--str-octets|--no-str-octets**—Specifies whether to display octets as strings:
  - Specify **--str-octets** to display octets as strings, such as **link**. This is the default setting.

- Specify **--no-str-octets** if you do not want to display octets as strings.

The other option for displaying octets is **--raw-octets|--no-raw-octets**.

- **--raw-timeticks|--no-raw-timeticks**—Specifies the time format:
  - Specify **--raw-timeticks** to specify raw timeticks, such as **2313894**.
  - Specify **--no-raw-timeticks** to specify formatted timeticks, such as **6 Hours 26 Mins 12 Secs**. This is the default setting.

- **--resolve-integer|--no-resolve-integer**—Specifies the time format:
  - Specify **--resolve-integer** to display integers using the string description in the MIB, such as **available** or **unavailable**.
  - Specify **--no-resolve-integer** to display integers as numbers. This is the default setting.
- **--resolve-bits|--no-resolve-bits**—Specifies the time format:
  - Specify **--resolve-bits** to display bits using the string description in the MIB, such as **continue** or **ruleset**.
  - Specify **--no-resolve-bits** to display bits as numbers, such as **1** or **14**. This is the default setting.
- **--get-sysuptime|--no-get-sysuptime**—Specifies whether to retrieve the sysuptime:
  - Specify **--get-sysuptime** to retrieve the sysuptime in the same packet as each SNMP operation.
  - Specify **--no-get-sysuptime** if you do not want to retrieve the sysuptime in the same packet. This is the default setting.

- **--detect-mib-error**—Detects errors in returned MIB variables, such as `noSuchInstance`, `noSuchObject`, and `endOfMibView`. If any such errors are detected, an error message is printed and an error code is returned.

Sometimes multiple MIB variables are returned at the same time, some of which are in error, and some of which are not.

- If this occurs and you specified **--detect-mib-error**, none of the correct values are printed, only the error message, and an error code is returned.
- If this occurs and you did not specify **--detect-mib-error**, a return code of 0 is returned and all MIB variables are printed (even `noSuchInstance` is printed as a returned value). This is the default setting, with **--detect-mib-error** not specified.
- **--instance *oids***—Appends instance OIDs to each polling MIB variable. For example, the following commands perform the same function:

```
mwtm snmpget --instance 172.18.16.10 router_1 ipAdEntIfIndex ipAdEntNetMask
```

```
mwtm snmpget router_1 ipAdEntIfIndex.172.18.16.10 ipAdEntNetMask.172.18.16.10
```

- **--int-instance *integer***—Appends the specified integer instance OID to each polling MIB variable.
- **--str-instance *string***—Appends string instance OIDs to each polling MIB variable. For example, the following commands perform the same function:

```
mwtm snmpget --str-instance link_1 router_1 cItpSpLinksetState
```

```
mwtm snmpget router_1 cItpSpLinksetState.6.108.115.110.97.109.101
```

- *hostname*—Name of the host to be queried.
- *oid*—One or more OIDs or variable names.

The default path for the SNMP parameters file, *communities.conf*, is `/opt/CSCOSgm/etc/communities.conf`. If you installed MWTM in a directory other than `/opt`, then the file is located in that directory. You can edit the file manually or using the MWTM client. See the “Configuring SNMP Settings” section on page 2-3 for more information.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm sounddir

## Server Only

## Full Syntax

**mwtm sounddir** [*directory*]

## Command Description

Sets the directory in which the MWTM server stores event automation sound files. See the [“Changing the Way MWTM Processes Events” section on page 5-17](#) for information about sound files.



The default directory for sound files is located in the MWTM installation directory:

- If you installed MWTM in the default directory, */opt*, then the default directory is */opt/CSCOSgm/sounds*.
- If you installed MWTM in a different directory, then the default directory is located in that directory.

Use this command if you want to use a different directory for MWTM server event automation sound files, such as a Network File System location on another server.

**Note**

This command copies all files in the current directory to the new directory. If you are not logged in as the super user, and you do not own the new directory, you might not be able to copy the files. If that is the case, you must specify a directory that you own, or you must log in as the root user.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1](#).

## mwtm ssl

**Server Only****Full Syntax**

**mwtm ssl** [**enable** | **disable** | **status**]

**Command Description**

If you have obtained the SSL-enabled version of MWTM and installed an SSL key/certificate pair in MWTM, you can use this command to manage SSL support in MWTM:

- **enable**—Enables SSL support. If you enter this command and SSL has not been implemented in your MWTM system, MWTM prompts you to contact Cisco TAC or your Cisco Account Team for help in implementing SSL.
- **disable**—Disables SSL support.
- **status**—Displays the current status of SSL support in MWTM, including whether SSL support is enabled or disabled and which SSL keys and certificates exist.

See the [“Implementing SSL Support in MWTM \(Solaris Only\)” section on page 10-22](#) for more information on the use of this command.

You must be logged in as the root user (not as a super user) to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1](#).

# mwtm sslstatus

## Server Only

### Command Description

If SSL is implemented in your MWTM system, displays current status for SSL support in MWTM, including whether SSL support is enabled or disabled and which SSL keys and certificates exist.

See the [“Implementing SSL Support in MWTM \(Solaris Only\)”](#) section on page 10-22 for more information on the use of this command.

You must be logged in as the root user (not as a super user) to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm start

## Server Only

### Command Description

Starts all MWTM servers on the local host.

You must be logged in as the root user or as a super user to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm start client

## Server and all Clients

### Full Syntax

**mwtm start client** [*hostname*]

### Command Description

Starts an MWTM client on the specified host. If no host name is specified, starts an MWTM client on the default host, as specified during installation. See the [“Connecting to a New Server”](#) section on page 3-33 for information about determining the default host.

If you Telnet into a remote workstation, the DISPLAY variable must be set to your local display, or you cannot use this command. If the DISPLAY variable is not set automatically, you must set it manually. See the [“Setting the DISPLAY Variable \(Client Only\)”](#) section on page 11-30 for details.

This command has the same function as the **mwtm client** command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm start jsp

### Server Only

#### Command Description

Starts the MWTM JSP Server on the local host.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm start pm

### Server Only

#### Command Description

Starts the MWTM Process Manager and all managed processes on the local host.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm start web

### Server Only

#### Command Description

Starts the MWTM Web Server on the local host.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm statreps clean

### Server Only

#### Command Description

Removes all data from MWTM network statistics reports, restoring the reports to a “clean” state.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm statreps cleancustom

**Server Only****Full Syntax**

**mwtm statreps cleancustom** [*tag*]

**Command Description**

Removes all data from one or more MWTM custom statistics reports, restoring the reports to a “clean” state:

- To clean all custom reports, enter **mwtm statreps cleancustom**.
- To clean a single custom report, enter **mwtm statreps cleancustom tag**, where *tag* is the ID tag of the custom report you want to clean.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm statreps custage

**Server Only****Full Syntax**

**mwtm statreps custage** [*number-of-days*]

**Command Description**

Maximum number of days MWTM is to archive custom reports.

If you enter this command without the *number-of-days* argument, MWTM displays the current maximum number of days. You can then change that value, or leave it as-is. The valid range is 1 day to an unlimited number of days. The default value is 10 days.

This command has the same function as the **mwtm repcustage** command.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

# mwtm statreps dailyage

## Server Only

### Full Syntax

**mwtm statreps dailyage** [*number-of-days*]

### Command Description

Maximum number of days MWTM is to archive daily network statistics reports.

If you enter this command without the *number-of-days* argument, MWTM displays the current maximum number of days. You can then change that value, or leave it as-is. The valid range is 1 day to an unlimited number of days. The default value is 90 days.

This command has the same function as the **mwtm repdailyage** command.

You must be logged in as the root user or as a super user to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm statreps diskcheck

## Server Only

### Full Syntax

**mwtm statreps** [**diskcheck** | **nodiskcheck**]

### Command Description

Specifies whether MWTM is to verify that a disk has at least 10 MB of space remaining before generating network statistics reports:

- **diskcheck**—Verify the disk space. This is the default setting.
- **nodiskcheck**—Do not verify the disk space.

If your system does not return the necessary amount of free space, in a correct format that MWTM can parse, this command enables MWTM to disable checking to allow reporting to continue.

You must be logged in as the root user or as a super user to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm statreps enable

## Server Only

### Full Syntax

**mwtm statreps** [**disable** | **enable**]

**Command Description**

Enables MWTM to generate network statistics reports:

- **enable**—Generate network statistics reports. This is the default setting.
- **disable**—Do not generate network statistics reports.

You must enter this command to enable MWTM to generate network statistics reports.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm statreps export

**Server Only****Full Syntax**

**mwtm statreps** [**export** | **noexport**]

**Command Description**

Specifies whether MWTM is to generate network statistics reports in export format:

- **export**—Generate network statistics reports in export format. This is the default setting.
- **noexport**—Do not generate network statistics reports in export format.

Network statistics reports in export format are Zip files that contain comma-separated value (CSV) text files that you can download and unzip.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm statreps hourlyage

**Server Only****Full Syntax**

**mwtm statreps hourlyage** [*number-of-days*]

**Command Description**

Maximum number of days MWTM is to archive hourly network statistics reports.

If you enter this command without the *number-of-days* argument, MWTM displays the current maximum number of days. You can then change that value, or leave it as-is. The valid range is 1 day to an unlimited number of days. The default value is 31 days.

This command has the same function as the **mwtm rephourlyage** command.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm statreps servratio

**Server Only****Full Syntax**

**mwtm statreps servratio** [*factor*]

**Command Description**

Displays a gray background in the InSrv cell in a network statistics report, if the following condition is met:

$$\text{Current In-Service} < \text{factor} * \text{Long-Term In-Service}$$

The default value for *factor* is **0.95**.

You must be logged in as the root user or as a super user to use this command.

## mwtm statreps status

**Server Only****Command Description**

Displays the current status of all MWTM network statistics report parameters. These are the parameters that are set using the other **mwtm statreps** commands, such as **mwtm statreps** [**disable** | **enable**] and **mwtm statreps** [**diskcheck** | **nodiskcheck**].

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm statreps timemode

**Server Only****Full Syntax**

**mwtm statreps timemode** [12 | 24]

**Command Description**

Sets the time mode for dates in network statistics reports:

- **12**—Use 12-hour time, with AM and PM. 1:00 in the afternoon is 1:00 PM.
- **24**—Use 24-hour time, also called military time. 1:00 in the afternoon is 13:00. This is the default setting.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm statreps timer

### Server Only

#### Command Description

Displays the timer file for MWTM network statistics reports. The timer file is useful for identifying how much time MWTM spends gathering report data and generating reports.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm statreps utilratio

### Server Only

#### Full Syntax

**mwtm statreps utilratio** [*factor*]

#### Command Description

Displays a gray background in the Send Utilization or Receive Utilization cell in a network statistics report, if the following condition is met:

**Current Utilization** > *factor* \* **Long-Term Utilization**

The default value for *factor* is **1.50**.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm status

### Server Only

#### Command Description

Displays the status of all MWTM servers on the local host.



**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm stop

**Server Only****Command Description**

Stops all MWTM servers on the local host.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm stopclients

**Server and Solaris/Linux Clients Only****Command Description**

Forcefully stops all MWTM clients on the local host.

You must be logged in as the root user (not as a super user) to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm stop jsp

**Server Only****Command Description**

Stops the MWTM JSP Server on the local host.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm stop pm

### Server Only

#### Command Description

Stops the MWTM Process Manager and all managed processes on the local host.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm stop web

### Server Only

#### Command Description

Stops the MWTM Web Server on the local host.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm superuser

### Server Only

#### Full Syntax

**mwtm superuser** [username]

#### Command Description

Enables the specified user to perform most functions that otherwise require the user to be logged in as the root user. (The root user can still perform those functions, too.) The specified user account must exist in the local */etc/passwd* file. You cannot specify a user that is defined in a distributed Network Information Services (NIS) system.



#### Note

As a super user, you can adversely affect your operating environment if you are unaware of the effects of the commands you use. If you are a relatively inexperienced UNIX user, limit your activities as a super user to the tasks described in this document.

For a complete list of the MWTM commands that a super user *cannot* use, as well as other super user considerations, see the [“Specifying a Super User \(Server Only\)” section on page 10-19.](#)

You must be logged in as the root user (not as a super user) to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm syncusers

**Server Only****Command Description**

If MWTM User-Based Access is enabled and **mwtm authtype** is set to **solaris**, synchronizes local MWTM passwords with Solaris.

See the “[Manually Synchronizing Local MWTM Passwords \(Server Only\)](#)” section on page 10-17 for more information on the use of this command.

You must be logged in as the root user (not as a super user) to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm tac

**Server Only****Command Description**

Collects important troubleshooting information for the Cisco Technical Assistance Center, and writes the information to the `/opt/CSCOsgm/tmp/cisco_sgm_tshoot.log` file.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm telnetpath

**Server and all Clients****Command Description**

Specifies the path to the Telnet application to use for Telnet sessions on the MWTM client, as well as any special parameters to pass to the Telnet application.

- On Solaris, the default path is `/usr/bin/telnet`.
- On Windows, you do not need to specify a path. Windows detects and launches the Telnet application wherever it is located.

You must be logged in as the root user (not as a super user) to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm tnproxy

**Server Only****Full Syntax**

**mwtm tnproxy** [**disable** | **enable** | **status**]

**Command Description**

Manages a Telnet proxy. A Telnet proxy resides on a server and forwards Telnet requests from clients to network elements that are accessible only from that server. A Telnet proxy is typically used to enable remote clients on desktop networks to Telnet to network elements that otherwise would be unreachable.

- **disable**—Disables MWTM Telnet proxy support. This is the default setting.
- **enable**—Enables MWTM to use a Telnet proxy, and prompts you to restart the MWTM server. When you restart the server, MWTM automatically starts the Telnet proxy process.
- **status**—Indicates whether MWTM Telnet proxy support is currently enabled or disabled.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm trapaccess

**Server Only****Full Syntax**

**mwtm trapaccess** [**add** [*ip-addr*] | **clear** | **edit** | **list** | **rem** [*ip-addr*] | **sample**]

**Command Description**

Enables you to create and manage a list of network element IP addresses allowed to send traps to the MWTM server.

The list of allowed network element IP addresses is contained in the *trapaccess.conf* file. By default, when you first install MWTM, the *trapaccess.conf* file does not exist and MWTM allows all IP addresses to send traps to the MWTM server. To create the *trapaccess.conf* file and work with the list of allowed client IP addresses, specify one of the following keywords:

- **add**—Add the specified IP address to the *trapaccess.conf* file. If the file does not already exist, this command creates the file containing the first entry.
- **clear**—Remove all IP addresses from the *trapaccess.conf* file, and allow traps from any MWTM client IP address.
- **edit**—Open and edit the *trapaccess.conf* file directly. If the *trapaccess.conf* file does not already exist, this command creates an empty file.

- **list**—List all IP addresses currently in the *trapaccess.conf* file. If no IP addresses are listed (that is, the list is empty), traps from any MWTM IP address are allowed.
- **rem**—Remove the specified IP address from the *trapaccess.conf* file.
- **sample**—Print out a sample *trapaccess.conf* file.

Any changes you make take effect when you restart the MWTM server.

See the “[Limiting Traps by IP Address \(Server Only\)](#)” section on page 11-29 for more information about using this command.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm trapsetup

### Server Only

#### Full Syntax

**mwtm trapsetup** [**disable**]

#### Command Description

Stops the MWTM server, configures MWTM to receive SNMP traps (or prevents MWTM from receiving traps), then restarts the MWTM server. MWTM gives you the option to receive traps natively or using HP OpenView.

When you select an SNMP trap port number for the MWTM server, make sure your network elements use the same SNMP trap port number. See the description of the **snmp-server host** command in the “RAN-O Requirements” section of the *Cisco Mobile Wireless Transport Manager Installation Guide* for more information.

To prevent MWTM from receiving traps, enter the **mwtm trapsetup disable** command. MWTM restarts the MWTM server.

You must be logged in as the root user (not as a super user) to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm trapstatus

### Server Only

#### Command Description

Displays the current trap reception configuration for MWTM, including:

- SNMP trap integration type:
  - **native**—MWTM receives traps natively on a UDP port.
  - **hpov**—MWTM receives traps using HP OpenView.

- For **native**, MWTM also displays the UDP port number on which MWTM receives traps natively.
- For **hpoov**, MWTM also displays the location of the HP OpenView home directory.
- Status for the sgmlTrapReceiver (such as **Running** or **Stopped**).

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm uninstall

### Server and Solaris/Linux Clients Only

#### Command Description

Uninstalls MWTM.

You must be logged in as the root user (not as a super user) to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm unknownage

### Server Only

#### Full Syntax

**mwtm unknownage** [*number-of-days*]

#### Command Description

Sets the maximum number of days to retain **Unknown** objects before deleting them from the MWTM database.

If you enter this command without the *number-of-days* argument, MWTM displays the current maximum number of days. You can then change that value, or leave it as-is. The valid range is 1 day to an unlimited number of days. The default value is 7 days. Setting this value to 0 days means that after one hour, **Unknown** objects will be deleted.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm updateuser

### Server Only

#### Full Syntax

**mwtm updateuser** [*username*]

**Command Description**

If MWTM User-Based Access is enabled, changes the authentication level for the specified user. Valid levels are:

- 1—Basic User
- 2—Power User
- 3—Network Operator
- 4—Network Administrator
- 5—System Administrator

If **mwtm authtype** is set to **local**, this command also enables you to change the following settings:

- User's password. When setting the password, follow the rules and considerations in the [“Creating Secure Passwords”](#) section on page 10-5.

See the [“Enabling and Changing Users and Passwords \(Server Only\)”](#) section on page 10-13 for more information on authentication levels, and on the use of this command.

You must be logged in as the root user or as a super user to use this command.

**Note**

If you have enabled Solaris authentication, you must be logged in as the root user, not a super user, to use this command. See the [“Implementing MWTM User-Based Access \(Server Only\)”](#) section on page 10-2 for more information.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm useraccess

**Server Only****Full Syntax**

**mwtm useraccess** [**disable** | **enable**]

**Command Description**

Enables or disables MWTM User-Based Access.

User-Based Access provides multi-level password-protected access to MWTM features. Each user can have a unique user name and password. Each user can also be assigned to one of five levels of access, which control the list of MWTM features accessible by that user.

You must enable MWTM User-Based Access in order to use the associated MWTM security commands.

See the [“Implementing MWTM User-Based Access \(Server Only\)”](#) section on page 10-2 for more information.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

# mwtm userpass

## Server Only

### Full Syntax

**mwtm userpass** [*username*]

### Command Description

If MWTM User-Based Access is enabled and **mwtm authtype** is set to **local**, changes the specified user's MWTM security authentication password.

If the user's authentication has been disabled, either automatically by MWTM or by a super user, this command re-enables the user's authentication with a new password.

If **sgm authtype** is set to **solaris**, you cannot use this command. Instead, you must manage passwords on the external authentication servers.

See the “[Enabling and Changing Users and Passwords \(Server Only\)](#)” section on page 10-13 for more information on the use of this command.

You must be logged in as the root user or as a super user to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm version

## Server and Solaris/Linux Clients Only

### Command Description

Displays version information for MWTM servers and clients on the local host.

### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm viewlog

## Server Only

### Command Description

Uses PAGER to display the contents of the system message log.

To save the current contents of the log, clear the log, and restart the server, enter **mwtm viewlog clear**.

To display the contents of the log in reverse order, with the most recent messages at the beginning of the log, enter **mwtm msglog -r**.

This command has the same function as the **mwtm msglog** command.

You must be logged in as the root user or as a super user to use this command.



**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm wall

**Server Only****Full Syntax**

**mwtm wall** *message\_string*

**Command Description**

Sends a message to all clients connected to the server. For example:

**./mwtm wall Server going down at 9:00 pm tonight.**

sends the following message:

**Server going down at 9:00 pm tonight.**

MWTM ignores quotation marks in *message\_string*. To include quotation marks, use the escape character (\) in combination with quotation marks. For example:

**./mwtm wall Example of the \"mwtm wall\" command.**

sends the following message:

**Example of the “mwtm wall” command.**

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm webaccesslog

**Server Only****Full Syntax**

**mwtm webaccesslog** [**clear** | **-r**]

**Command Description**

Uses PAGER to display the MWTM system Web access log file for the server to which you are connected, and which is currently running the MWTM server. The system Web access log lists all MWTM system Web access messages that have been logged for the MWTM server. This provides an audit trail of all access to the MWTM server via the Web interface.

To clear the log and restart the server, enter **mwtm webaccesslog clear**.

To display the contents of the log in reverse order, with the most recent Web access messages at the beginning of the log, enter **mwtm webaccesslog -r**.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm weberrorlog

### Server Only

#### Full Syntax

**mwtm weberrorlog** [clear | -r]

#### Command Description

Uses PAGER to display the MWTM Web server error log file for the server to which you are connected, and which is currently running the MWTM server. The Web server error log lists all MWTM Web error messages that have been logged for the MWTM Web server.

To clear the log and restart the server, enter **mwtm weberrorlog clear**.

To display the contents of the log in reverse order, with the most recent Web error messages at the beginning of the log, enter **mwtm weberrorlog -r**.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

## mwtm weblogupdate

### Server Only

#### Full Syntax

**mwtm weblogupdate** [interval | disable]

#### Command Description

Controls how often, in seconds, MWTM updates certain Web output.

When you enter this command, MWTM displays the current interval. You can then change that value, or leave it as-is. The valid range is 1 second to an unlimited number of seconds. The default value is 300 seconds (5 minutes).

To disable the update interval, enter the **mwtm weblogupdate disable** command. This option lessens MWTM's CPU usage on both the server and client.

You must be logged in as the root user or as a super user to use this command.

#### List of MWTM Commands

- [MWTM Command Reference, page C-1.](#)

# mwtm webnames

## Server Only

### Full Syntax

**mwtm webnames** [**display** | **real**]

### Command Description

Specifies whether MWTM is to show real node names or display names in Web pages:

- **real**—Show the real DNS names of nodes in Web pages, as discovered by MWTM.
- **display**—Show display names in Web pages. Display names are new names that you specify for nodes. This is the default setting. For more information about display names, see the [“Editing a Node” section on page 6-42](#).

You must be logged in as the root user or as a super user to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1](#).

# mwtm webport

## Server Only

### Full Syntax

**mwtm webport** [*port-number*]

### Command Description

Sets a new port number for the Web server, where *port-number* is the new, numeric port number. MWTM verifies that the new port number is not already in use.

The new port number must contain only numbers. If you enter a port number that contains non-numeric characters, such as **mwtm13**, MWTM displays an error message and returns to the command prompt without changing the port number.

You must be logged in as the root user (not as a super user) to use this command.

### List of MWTM Commands

- [MWTM Command Reference, page C-1](#).

# mwtm webutil

## Server Only

### Full Syntax

**mwtm webutil** [**percent** | **erlangs**]

**Command Description**

Specifies whether MWTM is to display send and receive utilization for linksets and links as percentages or in Erlangs, in Web pages:

- **percent**—MWTM displays utilization as a percentage. This is the default setting.
- **erlangs**—MWTM displays utilization in Erlangs.

See the “[Working with MWTM Statistics Reports](#)” section on page 9-1 for more information on the use of this command.

You must be logged in as the root user or as a super user to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm who

**Server Only****Command Description**

Displays a list of all client user names and processes connected to the server.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)

## mwtm xterm

**Server or Solaris/Linux Clients Only****Command Description**

Specifies the path to the xterm application to use for xterm sessions on the MWTM client, as well as any special parameters to pass to the xterm application.

The default path is `/usr/openwin/bin/xterm`.

If one of the special parameters that you pass to the xterm application is a title, the title can contain dashes (-) and underscores (\_), but it cannot contain any spaces.

You must be logged in as the root user (not as a super user) to use this command.

**List of MWTM Commands**

- [MWTM Command Reference, page C-1.](#)



# APPENDIX D

## MWTM MIB Reference

MWTM queries the following MIBs, listed in alphabetical order:

| MIB                                                           | Description                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CISCO-ENVMON-MIB.my</b><br>(1.3.6.1.4.1.9.9.13)            | Provides environmental monitoring information on Cisco devices.                                                                                                                                                                                                           |
| <b>CISCO-EPM-NOTIFICATION-MIB.my</b><br>(1.3.6.1.4.1.9.9.311) | Defines the trap structure that carries the identity and status info of the managed object. MWTM can send internal events as traps defined in this MIB to third-party NMS applications for further processing.                                                            |
| <b>CISCO-HSRP-MIB.my</b><br>(1.3.6.1.4.1.9.9.106)             | Provides a means to monitor and configure the Cisco IOS proprietary Hot Standby Router Protocol (HSRP). Cisco HSRP protocol is defined in RFC2281.                                                                                                                        |
| <b>CISCO-HSRP-EXT-MIB.my</b><br>(1.3.6.1.4.1.9.9.107)         | Provides an extension to the CISCO-HSRP-MIB which defines Cisco's proprietary Hot Standby Routing Protocol (HSRP). The extensions cover assigning of secondary HSRP IP addresses and modifying an HSRP group's priority by tracking the operational status of interfaces. |
| <b>CISCO-IP-RAN-BACKHAUL-MIB.my</b><br>(1.3.6.1.4.1.9.9.483)  | Provides information on the optimization of IP-RAN traffic between the Base Transceiver Station (BTS) and Base Station Controller (BSC). It handles both GSM Abis and UMTS lub traffic.                                                                                   |
| <b>CISCO-PROCESS-MIB.my</b><br>(1.3.6.1.4.1.9.9.109)          | Displays estimated memory and CPU utilization on Cisco devices. CPU utilization gives a general idea of how busy the processor is. The numbers are a ratio of the current idle time divided by the longest idle time.                                                     |
| <b>CISCO-SMI.my</b><br>(no OID)<br>(1.3.6.1.4.1.9)            | Defines the Structure of Management Information for the Cisco enterprise.                                                                                                                                                                                                 |
| <b>CISCO-SYSLOG-MIB.my</b><br>(1.3.6.1.4.1.9.9.41)            | Provides a means of gathering syslog messages generated by the Cisco IOS. MWTM can send internal events as traps defined in this MIB to third-party NMS applications for further processing.                                                                              |
| <b>CISCO-TC.my</b><br>(1.3.6.1.4.1.9.12.1)                    | Defines textual conventions used throughout Cisco enterprise MIBs.                                                                                                                                                                                                        |
| <b>ENTITY-MIB.my</b><br>(1.3.6.1.2.1.47)                      | Defines multiple logical entities supported by a single SNMP agent.                                                                                                                                                                                                       |

| MIB                                                       | Description                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>IANAifType-MIB.my</b><br>(no OID)<br>(1.3.6.1.2.1.30)  | Defines the IANAifType Textual Convention, and thus the enumerated values of the ifType object defined in MIB-II's ifTable.                                                                                                                                                                          |
| <b>IF-MIB.my</b><br>(1.3.6.1.2.1.31)                      | Describes generic objects for network interface sub-layers. This MIB is an updated version of MIB-II's ifTable, and incorporates the extensions defined in RFC 1229.                                                                                                                                 |
| <b>INET-ADDRESS-MIB.my</b><br>(1.3.6.1.2.1.76)            | Defines textual conventions for representing Internet addresses. An Internet address can be an IPv4 address, an IPv6 address, or a DNS domain name. This module also defines textual conventions for Internet port numbers, autonomous system numbers, and the length of an Internet address prefix. |
| <b>MIB-II mib (RFC1213-MIB.my)</b><br>(1.3.6.1.2.1)       | Provides basic management information on the device (RFC 1213).                                                                                                                                                                                                                                      |
| <b>OLD-CISCO-INTERFACES-MIB.my</b><br>(1.3.6.1.4.1.9.2.2) | Defines interfaces for the Cisco enterprise.                                                                                                                                                                                                                                                         |
| <b>OLD-CISCO-SYS-MIB.my</b><br>(1.3.6.1.4.1.9.2.1.1)      | Provides a means of gathering basic information for a router.                                                                                                                                                                                                                                        |
| <b>SNMP-FRAMEWORK-MIB.my</b><br>(1.3.6.1.6.3.10)          | Defines the SNMP Management Architecture.                                                                                                                                                                                                                                                            |
| <b>SNMP-TARGET-MIB.my</b><br>(1.3.6.1.6.3.12)             | Defines the MIB objects that provide mechanisms to remotely configure the parameters used by an SNMP entity for the generation of SNMP messages.                                                                                                                                                     |
| <b>SNMPv2-CONF.my</b><br>(no OID)                         | Defines SNMPv2 conformance.                                                                                                                                                                                                                                                                          |
| <b>SNMPv2-MIB.my</b><br>(1.3.6.1.6.3.1)                   | Defines SNMPv2 entities.                                                                                                                                                                                                                                                                             |
| <b>SNMPv2-SMI.my</b><br>(defines several high-level OIDs) | Defines the Structure of Management Information for SNMPv2.                                                                                                                                                                                                                                          |
| <b>SNMPv2-TC.my</b><br>(no OID)                           | Defines textual conventions for SNMPv2.                                                                                                                                                                                                                                                              |

You can obtain the latest versions of these MIBs from one of the following locations:

- The Zip file *mibs.zip*, located at the top of the MWTM DVD Image, contains these MIBs.
- You can download these MIBs from the Cisco Website:

<http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>



## MWTM Trap Reference

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MWTM supports the following traps, listed in alphabetical order:

| Trap Name                                     | Description                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ciscoEnvMonFanNotification</b>             | A ciscoEnvMonFanNotification trap is generated if any one of the fans in the fan array (where extant) fails. Since such a notification is usually generated before the shutdown state is reached, it can convey more data and has a better chance of being sent than does the ciscoEnvMonShutdownNotification.                                                                                                               |
| <b>AuthenticationFailure</b>                  | An AuthenticationFailure trap is generated when the server is accessed using a wrong SNMP community string.                                                                                                                                                                                                                                                                                                                  |
| <b>ciscoEnvMonRedundantSupplyNotification</b> | A ciscoEnvMonRedundantSupplyNotification trap is generated if the redundant power supply (where extant) fails. Since such a notification is usually generated before the shutdown state is reached, it can convey more data and has a better chance of being sent than does the ciscoEnvMonShutdownNotification.                                                                                                             |
| <b>ciscoEnvMonShutdownNotification</b>        | A ciscoEnvMonShutdownNotification trap is generated if the environmental monitor detects a testpoint reaching a critical state and is about to initiate a shutdown. This notification contains no objects so that it may be encoded and sent in the shortest amount of time possible. Even so, management applications should not rely on receiving such a notification as it may not be sent before the shutdown completes. |
| <b>ciscoEnvMonTemperatureNotification</b>     | A ciscoEnvMonTemperatureNotification trap is generated if the temperature measured at a given testpoint is outside the normal range for the testpoint (that is, is at the warning, critical, or shutdown stage). Since such a Notification is usually generated before the shutdown state is reached, it can convey more data and has a better chance of being sent than does the ciscoEnvMonShutdownNotification.           |

| Trap Name                             | Description                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ciscoEnvMonVoltageNotification</b> | A ciscoEnvMonVoltageNotification trap is generated if the voltage measured at a given testpoint is outside the normal range for the testpoint (that is, is at the warning, critical, or shutdown stage). Since such a notification is usually generated before the shutdown state is reached, it can convey more data and has a better chance of being sent than does the ciscoEnvMonShutdownNotification. |
| <b>ciscoIpRanBackHaulGsmAlarm</b>     | A ciscoIpRanBackHaulGsmAlarm trap is generated when the values of the following objects change: connect state, local alarm state, remote alarm state, and redundancy state.                                                                                                                                                                                                                                |
| <b>ciscoIpRanBackHaulUmtsAlarm</b>    | A ciscoIpRanBackHaulUmtsAlarm trap is generated when the values of the following objects change: connect state, received local state, received remote state, transmit local state, transmit remote state, and redundancy state.                                                                                                                                                                            |
| <b>ciscoIpRanBackHaulRcvdUtil</b>     | A ciscoIpRanBackHaulRcvdUtil trap is generated when a received utilization state changes to a new state.                                                                                                                                                                                                                                                                                                   |
| <b>ciscoIpRanBackHaulSentUtil</b>     | A ciscoIpRanBackHaulSentUtil trap is generated when a sent utilization state changes to a new state.                                                                                                                                                                                                                                                                                                       |
| <b>ciscoRFProgressionNotif</b>        | A ciscoRFProgressionNotif trap is sent by the active redundant unit whenever its RF state changes or the RF state of the peer unit changes.                                                                                                                                                                                                                                                                |
| <b>ciscoRFSwactNotif</b>              | A ciscoRFSwactNotif trap is sent by the newly active redundant unit whenever a switch of activity (SWACT) occurs. In the case where a SWACT event may be indistinguishable from a reset event, a network management station should use this notification to differentiate the activity.                                                                                                                    |
| <b>coldStart</b>                      | A coldStart trap is generated when the SNMPv2 entity, acting in an agent role, is reinitializing itself and that its configuration may have been altered.                                                                                                                                                                                                                                                  |
| <b>cpmCPUFallingThreshold</b>         | A cpmCPUFallingThreshold trap is generated when CPU utilization is below the falling threshold.                                                                                                                                                                                                                                                                                                            |
| <b>cpmCPURisingThreshold</b>          | A cpmCPURisingThreshold trap is generated when CPU utilization is above the rising threshold.                                                                                                                                                                                                                                                                                                              |
| <b>linkDown</b>                       | A linkDown trap is generated when a link goes down.                                                                                                                                                                                                                                                                                                                                                        |
| <b>linkUp</b>                         | A linkUp trap is generated when a link comes up.                                                                                                                                                                                                                                                                                                                                                           |
| <b>warmStart</b>                      | A warmStart trap is generated when the SNMPv2 entity, acting in an agent role, is reinitializing itself such that its configuration is unaltered.                                                                                                                                                                                                                                                          |





## APPENDIX **F**

# Configuring MWTM to Run with Various Networking Options

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In addition to running on standard IP-connected networks, MWTM has the flexibility to adapt to a variety of different networking environments, including Virtual Private Network (VPN), Network Address Translation (NAT), firewall, port-forwarding, and Secure Sockets Layer (SSL). MWTM can run in each of these environments individually, or in any combination of networking environments.

This appendix describes communication between the MWTM client and the MWTM server. As shown in , this includes:

- Two-way RMI communication between a Java-based GUI client and Java-based server processes. The client can send requests to and receive responses from the server, and the server can send unsolicited notifications to the client. For example, if the server detects that a node's state has changed, it sends a notification to all MWTM clients to update their Topology Windows.
- One-way HTTP communication between a Web browser and an MWTM-embedded Web server, using the request/response model.



### Note

This appendix does not address communication between the MWTM server and the RAN-O node, which uses the SNMP protocol for network management.

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This appendix includes the following sections:

- [VPN Communication, page F-1](#)
- [NAT Communication, page F-2](#)
- [Firewall Communication, page F-3](#)
- [Port-Forwarding Communication, page F-7](#)
- [Additional Network Configurations, page F-9](#)
- [SSL Communication, page F-9](#)

## VPN Communication

MWTM client/server communication can run transparently through a VPN tunnel, which is a secure IP layer, without any user intervention. You can use VPN to connect to a corporate network, then start the MWTM client to connect through the VPN tunnel to an MWTM server in the corporate network.

When the client host establishes a VPN tunnel, the operating system (or system library) sees this as another virtual IP interface. The VPN tunnel does not affect HTTP communication between the Web browser and server, it only affects RMI communication between the MWTM client and server processes.

For HTTP communication, the virtual IP address is transparent to the upper layer. The operating system automatically chooses the correct IP address to send out the request packet. For RMI communication, the MWTM client needs to register with the MWTM server using the correct IP address, so that the server can invoke RMI callbacks and send unsolicited notifications to the client.

MWTM solves this problem by automatically detecting the local IP interface so that the MWTM server can send unsolicited notification to the correct IP address.

shows a sample VPN network with the following characteristics:

- The MWTM client with IP address 192.168.0.1 is connected to the MWTM server network through a VPN tunnel.
- The MWTM client host has obtained VPN IP address 10.1.1.2, which is a virtual IP interface.

When connecting to the MWTM server, the MWTM client automatically recognizes its VPN IP address, 10.1.1.2, and uses that address to register with the MWTM server to receive RMI callbacks. This configuration is transparent to the user; no manual configuration is needed.

## NAT Communication

MWTM client/server communication can run through one or more static NAT-connected networks. (MWTM does not support dynamic NAT or dynamic NAT pool overloading.)

In a static NAT network, the MWTM client and server are located on different sides of the NAT network, with no routes between the client network and the server network. The NAT device statically maps the client IP address to a NAT address in the server network, and the server IP address to a NAT address in the client network.

The NAT device translates packets between the MWTM client and server by replacing IP address headers when packets pass through. From the client's point of view, the server appears to be at a NAT IP address in the client network, and vice versa. For most protocols, this technique is sufficient to enable the client and server to communicate.

However, for RMI protocol, this is not sufficient. RMI protocol requires the client and server to keep remote object references by remote stubs. These remote stubs contain the remote objects' IP addresses, and are passed between the client and server using Java serialization. The NAT device only converts the IP addresses in the IP packet header, but the remote stub object is within the packet content. Therefore, the NAT device cannot recognize the IP address inside the packet, and fails to route it correctly.

MWTM solves this problem by creating a specialized NAT-aware socket factory. Some manual configuration on the part of the user is required to enable MWTM to “know” the network NAT configuration.

shows a sample static NAT network with the following characteristics:

- A static NAT device connects Network A (192.168.\*.\*) to Network B (10.\*.\*.\*), with no routes between Network A and Network B.
- The NAT device maps MWTM client IP address 192.168.0.1 in Network A to 10.1.1.2 in Network B.
- The NAT device maps MWTM server IP address 10.0.0.1 in Network B to 192.168.1.2 in Network A.

To configure MWTM in this static NAT network, you must change the MWTM client's *RMIOverNAT.properties* file.

- In Solaris/Linux, if you installed MWTM in the default directory, */opt*, then the location of the file is */opt/CSCOsgmClient/properties/RMIOverNAT.properties*.
- In Windows, if you installed MWTM in the default directory, */opt*, then the location of the file is *C:\Program Files\SGMClient\properties\RMIOverNAT.properties*.
- If you installed MWTM in a different directory, then the file is located in that directory.

For the example shown in , you must add the following line to the file:

**10.0.0.1 = 192.168.1.2**

This line maps the MWTM server's real IP address, 10.0.0.1 in Network B, to its NAT address, 192.168.1.2, in Network A, which is the server's IP address as seen by the client.

**Note**

The MWTM server automatically detects the MWTM client's NAT address. No manual configuration on the part of the user is needed at the server side.

## Firewall Communication

To enable MWTM client/server communication through a firewall, you need to set up the firewall so that it allows MWTM communication packets to pass through freely.

**Note**

The MWTM client and server communicate using TCP sockets. All port numbers in this section are TCP ports.

The port number used by MWTM is configured in the *System.properties* file:

- If you installed MWTM in the default directory, */opt*, then the location of the file is */opt/CSCOsgm/properties/System.properties*.
- If you installed MWTM in a different directory, then the file is located in that directory.

Set the following parameters on the server side of the file:

**RMIREGISTRY\_PORT = 44742**

**DATASERVER\_PORT = 0**

**MLSERVER\_PORT = 0**

**PMSERVER\_PORT = 0**

**LOGINSERVER\_PORT = 0**

**WEB\_PORT = 1744**

where:

- **RMIREGISTRY\_PORT** is the port on which the RMI naming server listens. You must specify a port number; **0** is not allowed.
- **DATASERVER\_PORT** is the port on which the *sgmDataServer* process listens. If you specify **0**, MWTM uses any available port, 1024 and above.
- **MLSERVER\_PORT** is the port on which the *sgmMsgLogServer* process listens. If you specify **0**, MWTM uses any available port, 1024 and above.
- **PMSERVER\_PORT** is the port on which the *sgmProcMgrServer* process listens. If you specify **0**, MWTM uses any available port, 1024 and above.
- **LOGINSERVER\_PORT** is the port on which the Login service in the *sgmDataServer* process listens. If you specify **0**, MWTM uses any available port, 1024 and above.
- **WEB\_PORT** is the port on which the MWTM Web server listens. You must specify a port number; **0** is not allowed. To change the **WEB\_PORT** number, use the **mwtm webport** command. See the “[mwtm webport](#)” section on page C-75 for more information.

If any of these port numbers changes, you must restart the MWTM server before the changes take effect.

Set the following parameters in the MWTM client's *RMIOverNAT.properties* file:

**RMIREGISTRY\_PORT = 44742**

**CLIENT\_PORT = 0**

where:

- **RMIREGISTRY\_PORT** is the port on which the server-side RMI naming server listens. This port number must match the one specified for the **RMIREGISTRY\_PORT** on the server side.
- **CLIENT\_PORT** is the port on which the MWTM client listens for RMI callbacks (unsolicited notifications):
  - If you specify **CLIENT\_PORT = 0**, MWTM uses any available port, 1024 and above.
  - If you specify **CLIENT\_PORT** with a single value other than **0**, such as **CLIENT\_PORT = 33459**, MWTM uses that port, and you can run only one MWTM client process at a time.

- If you specify **CLIENT\_PORT** with a range of values other than **0**, such as **CLIENT\_PORT = 33459-33479**, MWTM can use any of the ports in the range, including the beginning and ending ports, and you can run more than one MWTM client process at a time.

If any of these port numbers changes, you must restart the MWTM client before the changes take effect.

The MWTM client's *System.properties* file is located in the *properties* directory:

- In Solaris/Linux, if you installed MWTM in the default directory, */opt*, then the location of the file is */opt/CSCOsgmClient/properties/System.properties*.
- In Windows, if you installed MWTM in the default directory, */opt*, then the location of the file is *C:\Program Files\SGMClient\properties\System.properties*.
- If you installed MWTM in a different directory, then the file is located in that directory.

shows a sample firewall network with the following parameters set in the *System.properties* file:

- On the MWTM server side:

**RMIREGISTRY\_PORT = 44742**

**DATASERVER\_PORT = 44751**

**MLSERVER\_PORT = 44752**

**PMSERVER\_PORT = 44753**

**LOGINSERVER\_PORT = 44754**

**WEB\_PORT = 1774**

- On the MWTM client side:

**RMIREGISTRY\_PORT = 44742**

**CLIENT\_PORT = 56173**

# Port-Forwarding Communication

To enable MWTM to operate in a TCP port-forwarding environment, perform the following configuration tasks:

- 
- |               |                                                                                                                                                                                             |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | Configure the server hostname and port number mapping in the MWTM client's <i>RMIOverNAT.properties</i> file, as described in the <a href="#">“NAT Communication” section on page F-2</a> . |
| <b>Step 2</b> | Configure the port numbers used by the MWTM client and server in the <i>System.properties</i> file, as described in the <a href="#">“Firewall Communication” section on page F-3</a> .      |
| <b>Step 3</b> | Configure the port-forwarding tunnel to forward each side's TCP connection to the other side.                                                                                               |
- 

shows a sample network that uses Secure Shell (SSH) port-forwarding. Other port-forwarding configurations might use a single host with dual interfaces at the client's and server's networks. While other port-forwarding configurations may differ from this example, the general rules to configure MWTM to operate in a port-forwarding environment are the same.

The port-forwarding network shown in has the following parameters set;

- In the *System.properties* file, on the MWTM server side:

**RMIREGISTRY\_PORT = 44742**

**DATASERVER\_PORT = 44751**

**MLSERVER\_PORT = 44752**

**PMSERVER\_PORT = 44753**

**LOGINSERVER\_PORT = 44754**

**WEB\_PORT = 1774**

- In the *System.properties* file, on the MWTM client side:

**RMIREGISTRY\_PORT = 44742**

**CLIENT\_PORT = 56173**

- In the MWTM client's *RMIOverNAT.properties* file:

**10.0.0.1/44742 = 127.0.0.1/25742**

**10.0.0.1/44751 = 127.0.0.1/25751**

**10.0.0.1/44752 = 127.0.0.1/25752**

**10.0.0.1/44753 = 127.0.0.1/25753**

**10.0.0.1/44754 = 127.0.0.1/25754**

**10.0.0.1/1774 = 127.0.0.1/8080**

- In the port-forwarding network:

**Local port 25751 => remote host 127.0.0.1, port 44742**

**Local port 25751 => remote host 127.0.0.1, port 44751**

**Local port 25752 => remote host 127.0.0.1, port 44752**

**Local port 25753 => remote host 127.0.0.1, port 44753**

**Local port 25754 => remote host 127.0.0.1, port 44754**

**Local port 8080 => remote host 127.0.0.1, port 1774**

**Remote port 56173 => local host 127.0.0.1, port 56173**



**Note**

For port-forwarding setup, the backward-forwarding port numbers must match each other. In the above example, both are **56173**. The forward-forwarding port numbers do not need to match each other.

If you want to run more than one MWTM client process at the same time on the same device, you must specify **CLIENT\_PORT** with a range of values other than **0**, such as **CLIENT\_PORT = 33459-33479**, in the MWTM client's *RMIOverNAT.properties* file. See the “[Firewall Communication](#)” section on page F-3 for more information about specifying the **CLIENT\_PORT** parameter. You must also set up the backward-forwarding port numbers to use a range of values.

## Additional Network Configurations

There are numerous other network configurations that are not directly addressed here. The MWTM client and server can work with most of these networks, as long as the MWTM client and server can establish an SSH connection.

A few examples of alternative network configurations are as follows:

- Dynamic NAT, where the MWTM client and server are on two different sides of the dynamic NAT network.
- A situation where the MWTM client is in a trusted network and the MWTM server is in a public network, but the firewall does not allow a direct TCP connection made from the MWTM server to the MWTM client.
- A situation where the MWTM server is in a trusted network and the MWTM client is in a public network, but the firewall does not allow a direct TCP connection made from MWTM client to MWTM server.

To allow MWTM client and server communication in these network environments, you can establish a SSH connection between the MWTM client and the MWTM server using SSH port-forwarding (for details, see [Port-Forwarding Communication, page F-7](#)).

## SSL Communication

If SSL is implemented and enabled in your MWTM system, MWTM uses secure socket communication for both RMI and HTTP communication between the MWTM client and server.

MWTM supports standard-based SSL encryption algorithms, including RSA, DSA public key algorithms, and 40-bit or 128-bit encryption. MWTM can generate an X.509 certificate and a certificate signing request (CSR), which is interoperable with most certificate authorities (CAs).

Both the MWTM Web server and the MWTM server processes share the same SSL key/certificate pair. Both the MWTM client and the Web browser can examine the server's certificate.

For more information, including descriptions of the MWTM commands and procedures used to implement, enable, manage, and monitor SSL support, see the “[Implementing SSL Support in MWTM \(Solaris Only\)](#)” section on page 10-22.

shows a sample MWTM-over-SSL network with the following characteristics:

- A user-generated SSL key pair on the MWTM server.

- The server's certificate is trusted on the MWTM client.
- Communication between the client and server is RMI-over-SSL and HTTPS. Both protocols are encrypted and secure.



## MWTM Statistics Export File Formats

This appendix lists the formats for the following MWTM statistics export files:

- [MWTM Capacity Planning Data Export, page G-1](#)
- [MWTM 15 Minutes Statistics Data Export, page G-1](#)

### MWTM Capacity Planning Data Export

Export files for MWTM capacity planning data export files use the following format:

```
=====
Format of Backhaul Utilization Summary Export File (Hourly/Daily/Monthly/Yearly)
#
#
Field Variables Description

1 Node Name of the Name
2 Interface Backhaul Interface
3 Protocol Traffic type, could be All, GSM or UMTS
4 Direction Direction of the traffic, send or receive
5 00-09% Percentage of traffic runs within 00-09% bandwidth
6 10-19% Percentage of traffic runs within 10-19% bandwidth
7 20-29% Percentage of traffic runs within 20-29% bandwidth
8 30-39% Percentage of traffic runs within 30-39% bandwidth
9 40-49% Percentage of traffic runs within 40-49% bandwidth
10 50-59% Percentage of traffic runs within 50-59% bandwidth
11 60-69% Percentage of traffic runs within 60-69% bandwidth
12 70-79% Percentage of traffic runs within 70-79% bandwidth
13 80-89% Percentage of traffic runs within 80-89% bandwidth
14 90-100% Percentage of traffic runs within 90-100% bandwidth
15 Peak Util Peak Utilization
16 Peak Date Date when the first peak traffic occurs
17 Peak Time Time when the first peak traffic occurs
18 Bandwidth (Kbits/Sec) Total available bandwidth
```

### MWTM 15 Minutes Statistics Data Export

Export files for MWTM 15 minutes statistics data export files use the following format:

```
=====
Format of Backhaul Utilization 15 Minutes Raw Statistics Export File (Hourly/Daily/Monthly/Yearly)
```

## MWTM 15 Minutes Statistics Data Export

```
#
#
```

| #    | Field Variables       | Description                                         |
|------|-----------------------|-----------------------------------------------------|
| #    | -----                 | -----                                               |
| # 1  | Node                  | Name of the Name                                    |
| # 2  | Interface             | Backhaul Interface                                  |
| # 3  | Date                  | Date when the data is collected                     |
| # 4  | Time                  | Time when the data is collected                     |
| # 5  | Protocol              | Traffic type, could be All, GSM or UMTS             |
| # 6  | Direction             | Direction of the traffic, send or receive           |
| # 7  | 00-09%                | Percentage of traffic runs within 00-09% bandwidth  |
| # 8  | 10-19%                | Percentage of traffic runs within 10-19% bandwidth  |
| # 9  | 20-29%                | Percentage of traffic runs within 20-29% bandwidth  |
| # 10 | 30-39%                | Percentage of traffic runs within 30-39% bandwidth  |
| # 11 | 40-49%                | Percentage of traffic runs within 40-49% bandwidth  |
| # 12 | 50-59%                | Percentage of traffic runs within 50-59% bandwidth  |
| # 13 | 60-69%                | Percentage of traffic runs within 60-69% bandwidth  |
| # 14 | 70-79%                | Percentage of traffic runs within 70-79% bandwidth  |
| # 15 | 80-89%                | Percentage of traffic runs within 80-89% bandwidth  |
| # 16 | 90-100%               | Percentage of traffic runs within 90-100% bandwidth |
| # 17 | Peak Util             | Peak Utilization                                    |
| # 18 | Peak Date             | Date when the first peak traffic occurs             |
| # 19 | Peak Time             | Time when the first peak traffic occurs             |
| # 20 | Bandwidth (Kbits/Sec) | Total available bandwidth                           |



## MWTM and Ports

MWTM uses the following default ports to provide services:

| Port Name or Number | Port Type | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1774                | tcp       | Apache web server                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 1775                | tcp       | TOMCAT JSP server                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 44742               | tcp       | Java RMI naming service                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| dynamic port 1      | tcp       | Java RMI service for Process Manager. A network or system administrator can specify a fixed port using the <code>PMSERVER_PORT</code> parameter in the <i>System.properties</i> file.<br><b>Note</b> If you installed MWTM in the default directory, <i>/opt</i> , then the location of the <i>System.properties</i> file is <i>/opt/CSCOsqm/properties/System.properties</i> . If you installed MWTM in a different directory, then the <i>System.properties</i> file is located in that directory.    |
| dynamic port 2      | tcp       | Java RMI service for Login Service. A network or system administrator can specify a fixed port using the <code>LOGINSERVER_PORT</code> parameter in the <i>System.properties</i> file.<br><b>Note</b> If you installed MWTM in the default directory, <i>/opt</i> , then the location of the <i>System.properties</i> file is <i>/opt/CSCOsqm/properties/System.properties</i> . If you installed MWTM in a different directory, then the <i>System.properties</i> file is located in that directory.   |
| dynamic port 3      | tcp       | Java RMI service for MWTM Data Server. A network or system administrator can specify a fixed port using the <code>DATASERVER_PORT</code> parameter in the <i>System.properties</i> file.<br><b>Note</b> If you installed MWTM in the default directory, <i>/opt</i> , then the location of the <i>System.properties</i> file is <i>/opt/CSCOsqm/properties/System.properties</i> . If you installed MWTM in a different directory, then the <i>System.properties</i> file is located in that directory. |

| Port Name or Number | Port Type | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| dynamic port 4      | tcp       | <p>Java RMI service for MWTM Message Logger. A network or system administrator can specify a fixed port using the <code>MLSERVER_PORT</code> parameter in the <i>System.properties</i> file.</p> <p><b>Note</b> If you installed MWTM in the default directory, <i>/opt</i>, then the location of the <i>System.properties</i> file is <i>/opt/CSCOs/gm/properties/System.properties</i>. If you installed MWTM in a different directory, then the <i>System.properties</i> file is located in that directory.</p>                                                                                                                                                 |
| dynamic port 5      | tcp       | <p>Java RMI service for MWTM Telnet Proxy. A network or system administrator can specify a fixed port using the <code>TELNETPROXY_PORT</code> parameter in the <i>System.properties</i> file.</p> <p><b>Note</b> This port is enabled only when the MWTM Telnet Proxy process is enabled. By default, the MWTM Telnet Proxy process is disabled in MWTM.</p> <p>If you installed MWTM in the default directory, <i>/opt</i>, then the location of the <i>System.properties</i> file is <i>/opt/CSCOs/gm/properties/System.properties</i>. If you installed MWTM in a different directory, then the <i>System.properties</i> file is located in that directory.</p> |
| 162                 | udp       | SNMP trap listener                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| dynamic ports 1-5   | udp       | <p>SNMP request senders. These ports are used by the SNMP stack for sending SNMP requests. A maximum of 5 can be opened in MWTM. You can customize the number of ports by changing the <code>SNMP_SOCKET_NUMBER</code> parameter in the <i>Server.properties</i> file.</p> <p><b>Note</b> If you installed MWTM in the default directory, <i>/opt</i>, then the location of the <i>Server.properties</i> file is <i>/opt/CSCOs/gm/properties/Server.properties</i>. If you installed SGM in a different directory, then the <i>Server.properties</i> file is located in that directory.</p>                                                                        |



# Open Source License Notices for the Cisco Mobile Wireless Transport Manager

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## GLOSSARY

This glossary contains MWTM-specific terms. For an online listing of other internetworking terms and acronyms, refer to the following URL:

- <http://www.cisco.com/univercd/cc/td/doc/cisintwk/ita/index.htm>

### A

|                       |                                                                                                                                                                                                                                           |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>active alarm</b>   | Network object with the following status: <ul style="list-style-type: none"><li>• A link that is <b>Warning</b> or worse and is not <b>Ignored</b>.</li><li>• A node that is <b>Pending</b> or worse and is not <b>Ignored</b>.</li></ul> |
| <b>adjacent node</b>  | In MWTM, for a given pair of connected RAN-O nodes, the node that MWTM discovered second. See <a href="#">node</a> .                                                                                                                      |
| <b>aggregate site</b> | A Base Station Controller (BSC) or Radio Network Controller (RNC) site where traffic is collected for multiple cell sites. See <a href="#">cell site</a> .                                                                                |
| <b>ANSI</b>           | American National Standards Institute.                                                                                                                                                                                                    |
| <b>auto save</b>      | Setting that enables MWTM to save changes automatically when you exit MWTM.                                                                                                                                                               |
| <b>auto start</b>     | Setting that enables MWTM to start a process automatically when the Process Manager is started. See <a href="#">Data Server</a> , <a href="#">Message Log Server</a> , <a href="#">Process Manager</a> , <a href="#">Trap Receiver</a> .  |

### B

|                |                                                                                                                                                                                                                                                  |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>browser</b> | GUI-based hypertext client application, such as Internet Explorer, Netscape Navigator, or Mozilla, used to access hypertext documents and other services located on innumerable remote servers throughout the World Wide Web (WWW) and Internet. |
| <b>BSC</b>     | Base Station Controller. Equipment that manages radio resources in a GSM network.                                                                                                                                                                |
| <b>BTS</b>     | Base Transceiver Station. The equipment in a GSM network that is used to transmit radio frequencies over the air waves.                                                                                                                          |

**C**

|                               |                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>circle layout</b>          | Topology map layout in which objects are arranged in a circle, connected by links. Contrast with <a href="#">spring layout</a> . See <a href="#">topology map</a> .                                                                                                                                                                                                   |
| <b>cell site</b>              | A Base Transceiver Station (BTS) or Node B site, usually located at the remote site with limited connectivity. See <a href="#">aggregate site</a> .                                                                                                                                                                                                                   |
| <b>Cisco IOS software</b>     | Cisco Internetwork Operating System software. Cisco system software that provides common functionality, scalability, and security for many Cisco products. The Cisco IOS software allows centralized, integrated, and automated installation and management of internetworks, while ensuring support for a wide variety of protocols, media, services, and platforms. |
| <b>CLI</b>                    | Command line interface. An interface that allows the user to interact with the Cisco IOS software operating system by entering commands and optional arguments.                                                                                                                                                                                                       |
| <b>client</b>                 | Node or software program that requests services from a server. The MWTM user interface is an example of a client. See also <a href="#">server</a> .                                                                                                                                                                                                                   |
| <b>client view</b>            | User-customized subset of the DEFAULT view. See also <a href="#">DEFAULT view</a> , <a href="#">view</a> .                                                                                                                                                                                                                                                            |
| <b>command line interface</b> | See <a href="#">CLI</a> .                                                                                                                                                                                                                                                                                                                                             |
| <b>community name</b>         | See <a href="#">community string</a> .                                                                                                                                                                                                                                                                                                                                |
| <b>community string</b>       | Text string that acts as a password and is used to authenticate messages sent between a management station and a RAN-O node containing an SNMP agent. The community string is sent in every packet between the manager and the agent. Also called <a href="#">community name</a> , <a href="#">read community</a> .                                                   |
| <b>congestion</b>             | Condition in which a link has too many packets waiting to be sent. This condition could be caused by the failure of an element in the network. Possible levels are <b>None</b> , <b>Low</b> , <b>High</b> , and <b>Very High</b> , which correspond roughly to equivalent ANSI, China standard, ITU, NTT, and TTC congestion levels.                                  |
| <b>console log</b>            | Log containing unexpected error and warning messages from the MWTM server, such as those that might occur if the MWTM server cannot start.                                                                                                                                                                                                                            |
| <b>current view</b>           | View that is currently in use on an MWTM client. The view can be the DEFAULT view or a customized view. Also called <a href="#">current view</a> . See <a href="#">client view</a> , <a href="#">DEFAULT view</a> .                                                                                                                                                   |

**D**

|                    |                                                                                                                                                                                                                                  |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Data Server</b> | Multi-threaded process that handles most of the work done by MWTM, including Discovery, polling, and scheduling. See also <a href="#">Message Log Server</a> , <a href="#">Process Manager</a> , <a href="#">Trap Receiver</a> . |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                           |                                                                                                                                                                                                                                                                    |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>DEFAULT view</b>       | View into which MWTM places all discovered objects when discovering the network. The DEFAULT view is stored on the MWTM server and shared by all MWTM clients, but it cannot be modified by the clients. See <a href="#">current view</a> , <a href="#">view</a> . |
| <b>demand polling</b>     | User-initiated poll of selected nodes. Contrast with <a href="#">status polling</a> .                                                                                                                                                                              |
| <b>device</b>             | See <a href="#">node</a> .                                                                                                                                                                                                                                         |
| <b>device type</b>        | In MWTM, the type of a discovered device, either a Cisco device or a BTS or BSC device. Also called <a href="#">system object ID</a> . See <a href="#">legacy device</a> .                                                                                         |
| <b>diamond</b>            | In topology maps, indicator for a link that is part of a configured interface, associated with the closest node. See <a href="#">topology</a> .                                                                                                                    |
| <b>discovered</b>         | Object that has been discovered by MWTM. Also called <i>known</i> . Contrast with <a href="#">unknown</a> .                                                                                                                                                        |
| <b>Discovery</b>          | Process by which MWTM discovers objects in your network. See also <a href="#">nonrecursive Discovery</a> , <a href="#">recursive Discovery</a> .                                                                                                                   |
| <b>display name</b>       | User-specified name for a node. Contrast with <a href="#">DNS name</a> . See also <a href="#">node name</a> .                                                                                                                                                      |
| <b>domain name</b>        | The style of identifier—a sequence of case-insensitive ASCII labels separated by dots (“bbn.com.”)—defined for subtrees in the Internet Domain Name System [R1034] and used in other Internet identifiers, such as host names, mailbox names, and URLs.            |
| <b>Domain Name System</b> | See <a href="#">DNS</a> .                                                                                                                                                                                                                                          |
| <b>double triangle</b>    | In topology maps, indicator for a connection that has multiple interfaces. See <a href="#">topology map</a> .                                                                                                                                                      |
| <b>DNS</b>                | Domain Name System. System used on the Internet for translating names of network nodes into addresses.                                                                                                                                                             |
| <b>DNS name</b>           | Initial name of a node, as discovered by MWTM. Contrast with <a href="#">display name</a> . See also <a href="#">node name</a> .                                                                                                                                   |

## E

|                         |                                                                                           |
|-------------------------|-------------------------------------------------------------------------------------------|
| <b>event forwarding</b> | See <a href="#">trap forwarding</a> .                                                     |
| <b>exclude</b>          | Removing a network object from a view, while retaining the object in the MWTM data model. |

## G

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>GSM</b>                      | ITU standard for defining the Global System for Mobile communications.                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>graphical element</b>        | Graphical representation of an object or view in the topology map. See <a href="#">topology map</a> .                                                                                                                                                                                                                                                                                                                                                        |
| <b>graphical user interface</b> | See <a href="#">GUI</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>GUI</b>                      | Graphical user interface. User environment that uses pictorial as well as textual representations of the input and output of applications and the hierarchical or other data structure in which information is stored. Conventions such as buttons, icons, and windows are typical, and many actions are performed using a pointing device (such as a mouse). Microsoft Windows and the Apple Macintosh are prominent examples of platforms utilizing a GUI. |

## H

|                                  |                                                                                                                                                                                                                                                                                                      |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>host</b>                      | Computer system on a network. Similar to the term node except that host usually implies a computer system, whereas node generally applies to any network system, including access servers and RAN-O devices. See also <a href="#">node</a> .                                                         |
| <b>host address</b>              | See <a href="#">host number</a> .                                                                                                                                                                                                                                                                    |
| <b>host number</b>               | Part of an IP address that designates which node on the subnetwork is being addressed. Also called a <a href="#">host address</a> .                                                                                                                                                                  |
| <b>HTML</b>                      | Hypertext Markup Language. Simple hypertext document formatting language that uses tags to indicate how a given part of a document should be interpreted by a viewing application, such as a Web browser. See also <a href="#">hypertext</a> and <a href="#">browser</a> .                           |
| <b>hypertext</b>                 | Electronically-stored text that allows direct access to other texts by way of encoded links. Hypertext documents can be created using HTML, and often integrate images, sound, and other media that are commonly viewed using a browser. See also <a href="#">HTML</a> and <a href="#">browser</a> . |
| <b>Hypertext Markup Language</b> | See <a href="#">HTML</a> .                                                                                                                                                                                                                                                                           |

## I

|                         |                                                                                                                       |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>ignore</b>           | Exclude an object when aggregating and displaying MWTM status information. See also <a href="#">unignore</a> .        |
| <b>IMSI</b>             | International Mobile Subscriber Identity. A unique 15-digit code that identifies an individual user on a GSM network. |
| <b>installation log</b> | Log containing messages and other information recorded during installation.                                           |

**internal ID** Unique identifier assigned by MWTM, for its own internal use, to every event, link, linkset, and node.

**Internet Protocol** See [IP](#).

**IP** Internet Protocol. Network layer protocol in the TCP/IP stack offering a connectionless internetwork service. IP provides features for addressing, type-of-service specification, fragmentation and reassembly, and security. Documented in RFC 791.

**IP address** 32-bit address assigned to hosts using TCP/IP. An IP address belongs to one of five classes (A, B, C, D, or E) and is written as 4 octets separated by periods (dotted decimal format). Each address consists of a network number, an optional subnetwork number, and a host number. The network and subnetwork numbers together are used for routing, while the host number is used to address an individual host within the network or subnetwork. A subnet mask is used to extract network and subnetwork information from the IP address. CIDR provides a new way of representing IP addresses and subnet masks. See also [IP](#).

**ITU** International Telecommunication Union.

## K

**known** See [discovered](#).

## L

**legacy device** In MWTM, a device that is not a Cisco RAN-O node. Legacy devices include BSCs and BTSs.

**link** In RAN-O networks, the connection between nodes. See [node](#).

**local authentication** Type of MWTM security authentication that allows the creation of user accounts and passwords local to the MWTM system. When using this method, user names, passwords, and access levels are managed using MWTM commands. Contrast with [Solaris authentication](#).

For more information on Solaris authentication, see the “[Implementing MWTM User-Based Access \(Server Only\)](#)” section on page 10-2.

**local IP address** IP address used by the MWTM client to connect to the MWTM server.

**local VPN IP address** IP address used by the MWTM client to connect to the MWTM server via VPN. See [local IP address](#), [VPN](#).

## M

**managed object** Link or node that is being managed by MWTM.

|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Management Information Base</b> | See <a href="#">MIB</a> .                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Message Log Server</b>          | Multi-threaded service that logs messages from the Data Server, Process Manager, and MWTM client. See also <a href="#">Data Server</a> , <a href="#">Process Manager</a> , <a href="#">Trap Receiver</a> .                                                                                                                                                                                                             |
| <b>MIB</b>                         | Management Information Base. Database of network management information that is used and maintained by a network management protocol such as SNMP. The value of a MIB object can be changed or retrieved using SNMP commands, usually through a GUI network management system. MIB objects are organized in a tree structure that includes public (standard) and private (proprietary) branches.                       |
| <b>mouse over help</b>             | Popups that display information about objects and table entries.                                                                                                                                                                                                                                                                                                                                                       |
| <b>N</b>                           |                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>name server</b>                 | Server connected to a network that resolves network names into network addresses.                                                                                                                                                                                                                                                                                                                                      |
| <b>network management system</b>   | See <a href="#">NMS</a> .                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>network view</b>                | See <a href="#">view</a> .                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>new node</b>                    | Node that MWTM has newly discovered, and that has not yet been added to the current view.                                                                                                                                                                                                                                                                                                                              |
| <b>NMS</b>                         | Network management system. System responsible for managing at least part of a network. An NMS is generally a reasonably powerful and well-equipped computer such as an engineering workstation. NMSes communicate with agents to help keep track of network statistics and resources.                                                                                                                                  |
| <b>node</b>                        | <p>Endpoint of a network connection or a junction common to two or more lines in a network. Nodes can be processors, controllers, or workstations. Nodes, which vary in routing and other functional capabilities, can be interconnected by links, and serve as control points in the network.</p> <p>In RAN-O networks, a node is a Cisco Mobile Wireless Router (MWR).</p> <p>See <a href="#">legacy device</a>.</p> |
| <b>Node B</b>                      | Physical unit for radio transmission/reception with cells in the UTRAN.                                                                                                                                                                                                                                                                                                                                                |
| <b>node name</b>                   | Name of a node. This is either the DNS name of the node, or a user-specified name. See <a href="#">display name</a> , <a href="#">DNS name</a> .                                                                                                                                                                                                                                                                       |



**nonrecursive Discovery** Discovery of seed nodes only. MWTM discovers all seed nodes and attempts to manage them, then marks all nodes that are adjacent to those seed nodes as **Unmanaged**. Contrast with [recursive Discovery](#).

**note** User-defined descriptive string attached to an object.

## O

**object** Link or node that has been discovered by MWTM.

## P

**PAGER** Environment variable that causes the terminal to display text output one screenful at a time. This variable is usually set to either `/usr/bin/more` or `/usr/bin/less`, which are two common pager executables.

**ping** Packet internet groper. ICMP echo message and its reply. Often used in IP networks to test the reachability of a network device.

**polling** Access method in which a primary network device inquires, in an orderly fashion, whether secondaries have data to transmit. The inquiry occurs in the form of a message to each secondary that gives the secondary the right to transmit.

**poll interval** Time between polls.

**poll response** Time taken by a node to respond to MWTM poll requests.

**port** In IP terminology, an upper-layer process that receives information from lower layers. Ports are numbered, and each numbered port is associated with a specific process. For example, SMTP is associated with port 25. A port number is also called a well-known address.

**preferences** Settings that enable a user to change the way MWTM presents information.

**primary SNMP address** IP address used by SNMP to poll the node. (There might be other IP addresses on the node that are not the primary SNMP address.) Contrast with [secondary IP address](#).

**process** Internal component of MWTM. See [Data Server](#), [Message Log Server](#), [Process Manager](#), [Trap Receiver](#).

**Process Manager** Multi-threaded process that handles the management of registered MWTM services. See also [Data Server](#), [Message Log Server](#), [Trap Receiver](#).

## Q

**QoS** Quality of service. Measure of performance for a transmission system that reflects its transmission quality and service availability.

**Quality of Service** See [QoS](#).

## R

**RAN** Radio Access Network.

**RAN backhaul** The end-to-end RAN connections between the BTS or Node B at the cell site and the BSC or RNC.

**RAN shorthaul** An interface that transports GSM or UMTS voice and data traffic between the BTS or Node-B and the RAN-O node at the cell site. At the aggregation site, RAN shorthauls exist between the RAN-O node and the BSC or RNC.

**RAN-O** RAN optimization. Standard-based, end-to-end, IP connectivity for GSM and UMTS RAN transport. The Cisco solution puts RAN voice and data frames into IP packets at the cell-site, and transports them seamlessly over an optimized backhaul network. At the central site, the RAN frames are extracted from IP packets, and the GSM or UMTS data streams are rebuilt.

**read community** See [community string](#).

**recursive Discovery** Discovery of the entire network. MWTM discovers all seed nodes and attempts to manage them; then attempts to discover and manage all RAN-O nodes that are adjacent to those seed nodes (unless the nodes are connected by serial links only); then attempts to discover and manage all RAN-O nodes that are adjacent to *those* nodes; and so on, until MWTM has discovered the entire network.

Contrast with [nonrecursive Discovery](#).

**RNC** Radio Network Controller. Network element that controls one or more Node B transceiver stations in the UTRAN.

**route** Path through an internetwork.

## S

**secondary IP address** Alternate or backup IP address used by a node. Contrast with [primary SNMP address](#).

**seed file** List of seed nodes. See [seed node](#).

**seed node** Node used by MWTM to discover the other objects in your network.

**serial** Method of data transmission in which the bits of a data character are transmitted sequentially over a single channel.

|                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>server</b>                             | Node or software program that provides services to clients. See <a href="#">client</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Simple Network Management Protocol</b> | See <a href="#">SNMP</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>SMPP</b>                               | Short Message Peer-to-Peer Protocol. A messaging protocol meant to simplify integration of data applications with wireless mobile networks such as GSM.                                                                                                                                                                                                                                                                                                                                                                 |
| <b>SNMP</b>                               | Simple Network Management Protocol. Network management protocol used almost exclusively in TCP/IP networks. SNMP provides a means to monitor and control network devices, and to manage configurations, statistics collection, performance, and security.                                                                                                                                                                                                                                                               |
| <b>Solaris authentication</b>             | Type of MWTM security authentication that uses standard Solaris-based user accounts and passwords, as specified in the <code>/etc/nsswitch.conf</code> file. Authentication can be provided by the local <code>/etc/passwd</code> file or from a distributed Network Information Services (NIS) system. Contrast with <a href="#">local authentication</a> .<br><br>For more information on Solaris authentication, see the “ <a href="#">Implementing MWTM User-Based Access (Server Only)</a> ” section on page 10-2. |
| <b>spring layout</b>                      | Topology map layout in which objects are arranged in a spring layout. Objects with the most links are drawn closer to the center of the map, while objects with fewer links are drawn farther away. Contrast with <a href="#">circle layout</a> . See <a href="#">topology map</a> .                                                                                                                                                                                                                                    |
| <b>status</b>                             | Current condition, such as <b>Active</b> or <b>Unknown</b> , of a network object.                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>status polling</b>                     | Regularly scheduled polling of nodes performed by MWTM. Contrast with <a href="#">demand polling</a> .                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>super user</b>                         | User specified in MWTM to be able to perform most functions that otherwise require the user to be logged in as the root user.<br><br>For more information, see the “ <a href="#">Specifying a Super User (Server Only)</a> ” section on page 10-19.                                                                                                                                                                                                                                                                     |
| <b>system object ID</b>                   | See <a href="#">device type</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

## T

|                    |                                                                                                                                                                                                                                                                                                        |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>TCP</b>         | Transmission Control Protocol. Connection-oriented transport layer protocol that provides reliable full-duplex data transmission. TCP is part of the TCP/IP protocol stack. See also <a href="#">TCP/IP</a> .                                                                                          |
| <b>TCP/IP</b>      | Transmission Control Protocol/Internet Protocol. Common name for the suite of protocols developed by the U.S. DoD in the 1970s to support the construction of worldwide internetworks. TCP and IP are the two best-known protocols in the suite. See also <a href="#">IP</a> and <a href="#">TCP</a> . |
| <b>thread name</b> | Task name.                                                                                                                                                                                                                                                                                             |

|                                                        |                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>timeout</b>                                         | Event that occurs when one network device expects to hear from another network device within a specified period of time, but does not. The resulting timeout usually results in a retransmission of information or the dissolving of the session between the two devices.                                                                                                                      |
| <b>topology</b>                                        | See <a href="#">topology map</a> .                                                                                                                                                                                                                                                                                                                                                             |
| <b>topology map</b>                                    | Graphical representation by MWTM of the RAN-O network. Also called <a href="#">topology</a> .                                                                                                                                                                                                                                                                                                  |
| <b>Transmission Control Protocol</b>                   | See <a href="#">TCP</a> .                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Transmission Control Protocol/Internet Protocol</b> | See <a href="#">TCP/IP</a> .                                                                                                                                                                                                                                                                                                                                                                   |
| <b>trap</b>                                            | Unsolicited message sent by an SNMP agent to an NMS, console, or terminal to indicate the occurrence of a significant event, such as a specifically defined condition or a threshold that has been reached.                                                                                                                                                                                    |
| <b>trap forwarding</b>                                 | Forwarding MWTM events to other hosts, in the form of SNMP traps. This enables MWTM to integrate with high-level event- and alarm-monitoring systems such as the Cisco Info Center (CIC), HP OpenView, and Micromuse's Netcool suite of products. These systems can provide a single high-level view of all alarm monitoring in your network, making it easier to detect and resolve problems. |
| <b>Trap Receiver</b>                                   | Multi-threaded service that receives SNMP traps for MWTM. See also <a href="#">Data Server</a> , <a href="#">Message Log Server</a> , <a href="#">Process Manager</a> .                                                                                                                                                                                                                        |

## U

|                               |                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>UDP</b>                    | User Datagram Protocol. Connectionless transport layer protocol in the TCP/IP protocol stack. UDP is a simple protocol that exchanges datagrams without acknowledgments or guaranteed delivery, requiring that error processing and retransmission be handled by other protocols. UDP is defined in RFC 768.                                                                                           |
| <b>UMTS</b>                   | Universal Mobile Telecommunications System. Third generation wireless standard for supporting data transfer rates of 144 kbs (vehicular), 384 kbs (pedestrian), or up to 2 Mbs in buildings.                                                                                                                                                                                                           |
| <b>unignore</b>               | Stop ignoring the selected object at the next polling cycle. See also <a href="#">ignore</a> .                                                                                                                                                                                                                                                                                                         |
| <b>unknown</b>                | Device type for which MWTM is unable to determine the device type. If a node, the node failed to respond to an SNMP request. If a link, either the associated node failed to respond to an SNMP request, or MWTM found that the link no longer exists. Contrast with <a href="#">discovered</a> .                                                                                                      |
| <b>unmanaged</b>              | Node status in which the node is known indirectly by MWTM (MWTM knows the device exists but there is no known SNMP stack on the device for MWTM to query), or a user has set the node to this status to prevent MWTM from polling the node.                                                                                                                                                            |
| <b>User-Based Access</b>      | <p>MWTM security scheme that provides multi-level password-protected access to MWTM features. Each user can have a unique user name and password. Each user can also be assigned to one of five levels of access, which control the list of MWTM features accessible by that user.</p> <p>For more information, see the <a href="#">“Configuring MWTM User-Based Access” section on page 10-1</a>.</p> |
| <b>User Datagram Protocol</b> | See <a href="#">UDP</a> .                                                                                                                                                                                                                                                                                                                                                                              |
| <b>utilization</b>            | Amount of an object’s send or receive capacity that is being used, expressed as a percentage or in Erlangs.                                                                                                                                                                                                                                                                                            |
| <b>UTRAN</b>                  | UMTS Terrestrial RAN. Radio access network for UMTS networks.                                                                                                                                                                                                                                                                                                                                          |

## V

|                                |                                                                                                                                                                                                                       |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>view</b>                    | View that is currently in use on an MWTM client. The current view can be the DEFAULT view or a customized view. See <a href="#">client view</a> , <a href="#">current view</a> , <a href="#">DEFAULT view</a> .       |
| <b>Virtual Private Network</b> | See <a href="#">VPN</a> .                                                                                                                                                                                             |
| <b>VPN</b>                     | Virtual Private Network. Enables IP traffic to travel securely over a public TCP/IP network by encrypting all traffic from one network to another. A VPN uses “tunneling” to encrypt all information at the IP level. |

## W

**World Wide Web** See [WWW](#).

**WWW** World Wide Web. Large network of Internet servers providing hypertext and other services to terminals running client applications such as a browser. See also *browser*.