



CHAPTER 4

Getting Started

This chapter provides information about starting and stopping the Cisco Mobile Wireless Transport Manager (MWTM), and an overview of how to use the MWTM to manage your Cisco IP Transfer Point (ITP) or Radio Access Network-Optimization (RAN-O) installation.

This chapter includes:

- [Starting the MWTM Server, page 4-1](#)
- [Starting the MWTM Client, page 4-2](#)
- [Discovering Your Network, page 4-4](#)
- [Displaying the MWTM Main Window, page 4-22](#)
- [Using the MWTM Main Menu, page 4-33](#)
- [Accessing the MWTM through a Web Browser, page 4-39](#)
- [Loading and Saving MWTM Files, page 4-41](#)
- [Using the Windows Start Menu, page 4-43](#)
- [Using the Windows Start Menu, page 4-43](#)
- [Exiting the MWTM Client, page 4-44](#)

For detailed information about the MWTM-supported platforms, and hardware and software requirements, see the *Installation Guide for the Cisco Mobile Wireless Transport Manager 6.0*.



Note

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

Starting the MWTM Server

Before starting an MWTM server, verify that:

- Each node uses a supported IOS image
- The MWTM server has IP connectivity to each node
- SNMP is enabled on each node
- (Optional, but recommended) Traps are enabled on each node
- (Optional, but recommended) A trap host is defined on each node

**Tip**

For a definition of MWTM nodes, see [What is ITP?, page 1-6](#) and [What is RAN-O?, page 1-7](#).

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

To start the MWTM server on a Solaris or Linux system:

Step 1

You must be logged in as the root user or as a superuser, or your login must have administrator privileges. To log in as the root user, see the [Becoming the Root User \(Server Only\), page 4-2](#).

**Note**

For details on setting up administrator privileges, see [Specifying a Super User \(Server Only\), page 2-18](#).

Step 2

Enter:

```
# cd /opt/CSCOSgm/bin
# ./mwtm start
```

Becoming the Root User (Server Only)

Some MWTM procedures require that you log 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 that 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 Client

This section contains:

- [Before Starting the MWTM Client, page 4-3](#)
- [Starting the MWTM Client on Solaris or Linux, page 4-3](#)
- [Access the Node, page 4-4](#)
- [Starting the MWTM Client on Windows, page 4-4](#)

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.

If there is a client-server mismatch, the MWTM displays a warning message when you try to start the client. If you have a web browser installed, the MWTM optionally opens a web page from which you can download an allowed, matching client. See [Downloading the MWTM Client from the Web](#), page 11-7 for more information about downloading the MWTM client.

Setting the DISPLAY Variable for Solaris or Linux Clients

If you see the following message upon client startup, you must set the DISPLAY variable:

```
Could not launch client: Can't connect to X11 window server using <x> as the value of the DISPLAY variable.
```

The DISPLAY variable is set as part of your login environment on Solaris or Linux. However, if you use Telnet or SSH to access a workstation, you must set the DISPLAY variable to local display by using this command:

```
# setenv DISPLAY local_ws:0.0
```

where *local_ws* is your local workstation.

If your shell does not support the **setenv** command, enter:

```
# export DISPLAY=local_ws:0.0
```

Starting the MWTM Client on Solaris or Linux

To start the MWTM client on a Solaris or Linux system on which the MWTM server is installed, ensure that the MWTM server is running, then enter:

```
# cd /opt/CSCOsgm/bin
# ./mwtm client
```

To start the MWTM client on a Solaris or Linux system other than the one on which the MWTM server is installed, ensure that the MWTM server is running, then enter:

```
# cd /opt/CSCOsgmClient/bin
# ./mwtm client
```

To start the MWTM client on a Solaris or 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:

```
# 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 or Linux system on which the MWTM server is running.

Access the Node

You use the MWTM to link to the node by using the connection protocol (Telnet or SSH) that you set in the Node SNMP and Credentials dialog box (see [Credentials Fields, page 3-21](#)).

To access the node, right-click a node in a window, then choose **Node > Connect to** from the right-click menu.

**Note**

If your client workstation does not have network access to the IP address of the node (that is, if the node is behind a firewall or NAT device), you might be unable to access the node.

Starting the MWTM Client on Windows

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

Discovering Your Network

This section provides details on using the MWTM to discover your ITP or RAN-O networks. It includes:

- [Discovery Overview, page 4-4](#)
- [Launching the Discovery Dialog, page 4-6](#)
- [Loading Seed Nodes and Seed Files, page 4-7](#)
- [Running Discovery, page 4-13](#)
- [Verifying Discovery, page 4-21](#)

Discovery Overview

The MWTM uses a Discovery process to populate the MWTM database, discovering the objects in your network.

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 the MWTM, see [Configuring MWTM User Account Levels \(Server Only\), page 2-5](#).)

To discover your network:

-
- Step 1** Start the MWTM client, as described in [Starting the MWTM Client, page 4-2](#).
 - Step 2** If you want to change SNMP settings, do so *before* running Discovery. See [Configuring SNMP Settings, page 3-15](#) for more information.
 - Step 3** If you want to discover ONS nodes and did not choose the option to discover your network during installation, you must add the ONS nodes and set the credentials before running discovery (see [Adding Nodes, page 3-22](#) for more information.)
 - Step 4** Choose **Network > Network Discovery** from the MWTM main menu. The MWTM displays the Discovery dialog box. See [Launching the Discovery Dialog, page 4-6](#) for more information.

- Step 5** Select the **Seed Settings** tab, if it is not already selected. You use the Seed Settings tab to create, save, load, and delete MWTM seed files. Load one or more seed nodes, or an existing seed file, by using the procedures in [Loading Seed Nodes and Seed Files, page 4-7](#).
- Step 6** Select the **Discovery** tab, or click **Next**. You use the Discovery tab to discover the objects in your network. See [Running Discovery, page 4-13](#) for more information.
- To specify the extent of the network discovery, check the **Entire Network** check box. See the description of the Entire Network check box in [Running Discovery, page 4-13](#) for more information.
 - To specify whether the MWTM should keep or delete the existing database when discovering the network, check the **Delete Existing Data** check box. See the description of the Delete Existing Data check box in [Running Discovery, page 4-13](#) 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. For more information, see the description of the Max. Hops text box in the [Running Discovery, page 4-13](#).
- Step 7** When the “Discovery In Progress” message disappears, Discovery is running. The Discovered Nodes table within the Discovery tab ([Figure 4-5](#)) lists all nodes that were discovered by the MWTM (all nodes, including new and excluded nodes, not just the nodes in the current view). See [Discovered Nodes, page 4-17](#) for more information.
- Step 8** Examine the Discovered Nodes table to verify that the MWTM discovered all of the nodes in the network. If you suspect that the MWTM did not discover all of the nodes, see [Verifying Discovery, page 4-21](#) for troubleshooting information. You might need to add more seed nodes and run Discovery again.
- Step 9** When you are satisfied that the MWTM discovered all of the nodes in the network, save the list of seed nodes in a seed file. See [Saving a Seed File, page 4-9](#) for more information.

**Note**

(ITP only) You can run Discovery multiple times to attempt to discover additional nodes based on the IP addresses defined in the Stream Control Transmission Protocol (SCTP) links. If you are using a separate management VLAN to manage your nodes, but private or unreachable IP addresses for your SCTP connectivity, uncheck the **Entire Network** check box in the Discovery dialog box. Otherwise, Discovery attempts to reach those nodes continuously. Instead, enter all nodes to be discovered directly into the seed list and do a nonrecursive Discovery.

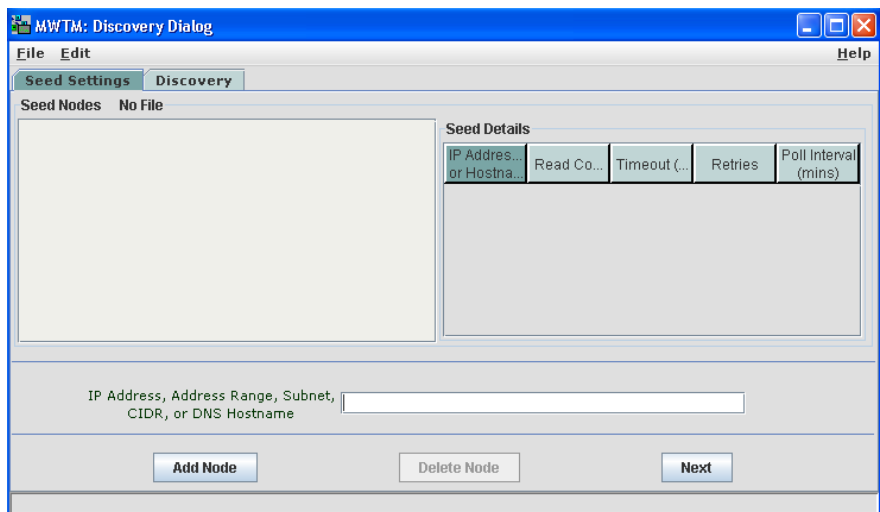
Related Topics:

- [Configuring SNMP Settings, page 3-15](#)
- [Backing Up or Restoring MWTM Files \(Server Only\), page 2-32](#)
- [Investigating Data Problems, page D-1](#)

Launching the Discovery Dialog

To launch the Discovery dialog box and begin the Discovery process, choose **Network > Network Discovery** from the MWTM main menu. The MWTM displays the Discovery dialog box.

Figure 4-1 Discovery Dialog with Seed Settings Displayed



You use the Discovery dialog box 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), the MWTM automatically opens the Discovery dialog box so you can run Discovery and populate the database.

The Discovery dialog box contains:

- [Discovery Dialog Menu, page 4-6](#)
- [Discovery Dialog Tabs, page 4-7](#)

Discovery Dialog Menu

The menu on the Discovery dialog box contains:

Menu Command	Description
File > Load Seeds (Ctrl-L)	Opens the Load File Dialog: Seed File List, enabling you to load a seed file into the MWTM: <ul style="list-style-type: none"> • Enter the name of the seed file, and click OK to load it. • Click Cancel to return to the Seed Settings tab without loading a seed file.
File > Save Seeds (Ctrl-S)	Opens the Save File Dialog: Seed File List, which you use to save changes you have made to the selected seed file.
File > Save As	Opens the Save File Dialog: Seed File List, which you use to save changes you have made to the selected seed file with a new name, or overwrite an existing seed file.

Menu Command	Description
File > Close (Ctrl-W)	Closes the current window.
Edit > Node SNMP and Credentials Editor (Alt-D)	Opens the Node SNMP and Credentials Editor dialog box. 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 box contains these tabs:

Tab	Description
Seed Settings	Displays the Seed Settings tab in the Discovery dialog box.
Discovery	Displays the Discovery tab in the Discovery dialog box.

Loading Seed Nodes and Seed Files

You use the MWTM to load one or more new seed nodes; or, to create, save, load, and delete existing MWTM seed files.

This section includes:

- [Loading a Seed Node, page 4-8](#)
- [Loading a Seed File, page 4-8](#)
- [Saving a Seed File, page 4-9](#)
- [Creating a New Seed File, page 4-11](#)
- [Creating a New Seed File, page 4-11](#)
- [Creating and Changing Seed Files Using a Text Editor, page 4-13](#)

Loading a Seed Node

To load a seed node, enter the name or IP address of the seed node in the IP Address, Address range, Subnet, CIDR, or DNS Hostname field, and click **Add Node** (or press **Enter**).



Note

Follow the guidelines for IP addresses in [SNMP Configuration Table, page 3-16](#).

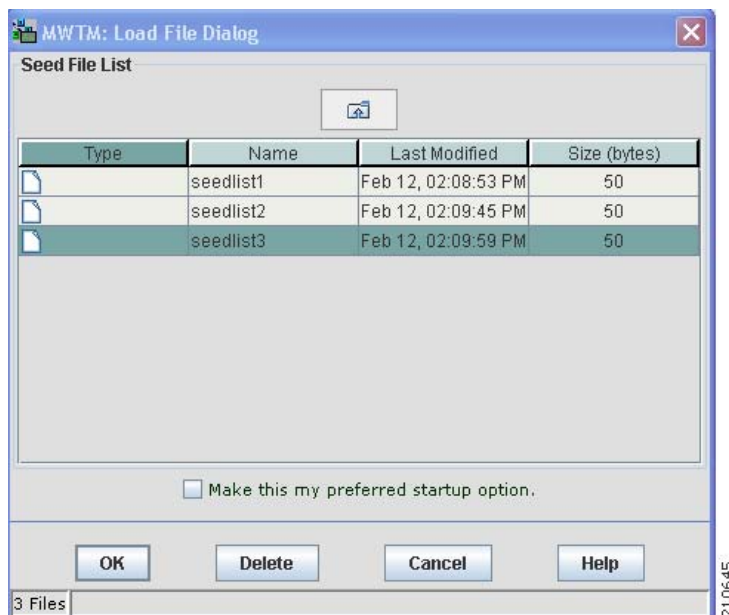
The MWTM displays details of the SNMP settings for the seed nodes in the Seed Details pane. Continue adding seed nodes until you are certain that the MWTM will be able to discover the entire network.

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 box is opened.

To load an existing seed file, choose **File > Load Seeds** from the Discovery Dialog menu. The MWTM displays the Load File Dialog: Seed File List dialog box.

Figure 4-2 Load File Dialog: Seed File List Dialog



The Load File Dialog: Seed File List contains:

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.

Field or Button	Description
Make this my preferred start option	Specifies whether the selected seed file should be loaded automatically whenever this MWTM client is started or the Discovery dialog box is opened. By default, this check box is unchecked for all seed files. That is, no seed file is loaded automatically when the MWTM client is started or the Discovery dialog box is opened.
Number of Files (appears 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 box. 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 . The MWTM saves any changes you made to the list of files, closes the Load File Dialog: Seed File List dialog box, loads the seed file, and returns to the Discovery dialog box. The MWTM lists all of the seed nodes in the seed file in the Seed Nodes pane, and displays details of the SNMP settings for the seed nodes in the Seed Details pane.
Delete	Deletes the selected file from the seed file list. The MWTM issues an informational message containing the name and location of the deleted file.
Cancel	Closes the dialog box without loading a seed file or saving any changes to the seed file list.
Help	Displays online help for the dialog box.

Saving a Seed File

You use the MWTM 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 box is opened.

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

- To save the changes you made to the seed file without changing the name of the file, choose **File > Save** from the Discovery Dialog menu.
- To save the changes you have made to the seed file with a new name, choose **File > Save As** from the Discovery Dialog menu. The MWTM displays the Save File Dialog: Seed File List dialog box (Figure 4-3).

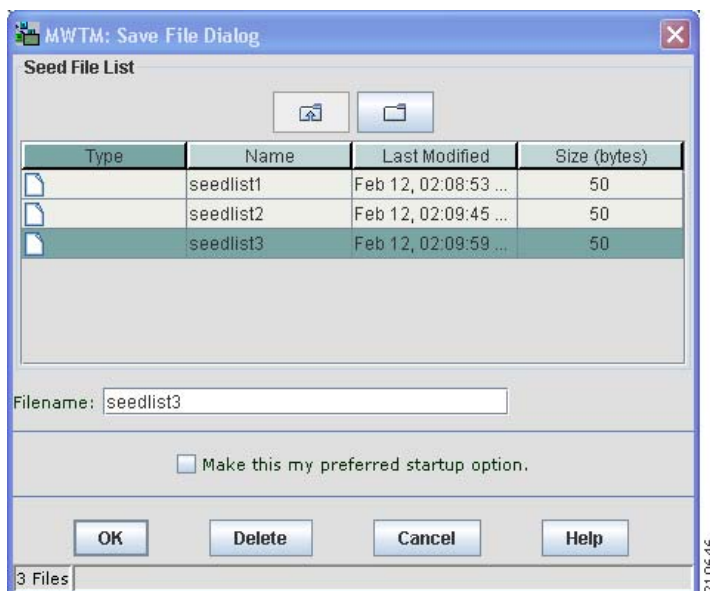
The MWTM stores the seed file in the seed file directory on the MWTM server:

- If you installed the MWTM in the default directory, */opt*, then the MWTM seed file directory is */opt/CSCOs/gm/seeds*.
- If you installed the 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, the 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.

Figure 4-3 Save File Dialog: Seed File List Dialog



The Save File Dialog: Seed File List contains:

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 filename, 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, the MWTM converts those spaces to hyphens. For example, the MWTM saves file <i>a b c</i> as <i>a-b-c</i> .
Make this my preferred start option	Specifies whether the selected seed file should be loaded automatically whenever this MWTM client is started or the Discovery dialog box is opened. By default, this check box is unchecked for all seed files. That is, no seed file is loaded automatically when the MWTM client is started or the Discovery dialog box is opened.

Field or Button	Description
Number of Files (displayed in bottom left corner)	Total number of seed files and folders.
OK	<p>Saves the seed file and any changes you made to the seed file list and closes the dialog box.</p> <p>To save the seed file with a new name, you can either save the file with:</p> <ul style="list-style-type: none"> • A completely new name. Enter the new name and click OK. • An existing name, overwriting an old seed file. Select the name in the list and click OK. <p>The MWTM:</p> <ul style="list-style-type: none"> • 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 • Returns to the Discovery dialog box
Delete	Deletes the selected file from the seed file list. The MWTM issues an informational message containing the name and location of the deleted file.
Cancel	Closes the dialog box without saving the seed file or saving any changes to the seed file list.
Help	Displays online help for the dialog box.

Creating a New Seed File

To create a new seed file in the MWTM, launch the Discovery dialog box, as described in [Launching the Discovery Dialog, page 4-6](#), then select the **Seed Settings** tab, if it is not already selected ([Figure 4-1](#)).

You use the Seed Settings tab within the Discovery dialog box to create, save, load, and delete MWTM seed files.

The Seed Settings tab on the Discovery dialog box contains:

Field or Button	Description
Seed Nodes	Lists the seed nodes currently defined in the MWTM.
IP Address Range or Hostname	<p>IP address of the seed node. The default value is *.*.*.*.</p> <p>Note Follow the guidelines for IP addresses in SNMP Configuration Table, page 3-16.</p>
Retries	Number of times the 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, the MWTM waits for a response from the seed node. The valid range is 0 (no timeout) to 9999. The default value is 1 second.

Field or Button	Description
Read Community	SNMP community name for read access to the information maintained by the SNMP agent on the node. This value can be up to 32 characters in length. Do not include special characters such as the opening single quote ('), at symbol (@), dollar sign (\$), caret (^), closing single quote ('), double quote ("), ampersand (&), or pipe (). 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	<p>Address or name of the selected seed node.</p> <p>To create a new seed file, enter the name or address of a seed node in this field. Examples of acceptable input include:</p> <ul style="list-style-type: none"> • IP Address: 1.2.3.4 (see the guidelines for IP addresses in SNMP Configuration Table, page 3-16). • 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 <p>The MWTM displays details of the SNMP settings for the seed node in the Seed Details pane.</p> <p>Continue to add as many seed nodes as necessary to discover your entire network.</p> <p>When you are ready to save the list of seed nodes in a new seed file, choose File > Save As from the Discovery Dialog menu. The MWTM displays the Save File Dialog: Seed File List dialog box (Figure 4-3). See Saving a Seed File, page 4-9 for more information about saving seed files.</p>
Add Node	Adds a new seed node to the MWTM.
Delete	Deletes the selected seed node. The MWTM deletes the seed node without asking for confirmation.
Next	<p>Displays the Discovery tab in the Discovery dialog box.</p> <p>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 tab.</p>

Changing an Existing Seed File

To modify an existing seed file in MWTM:

-
- Step 1** Load the seed file as described in [Loading a Seed File, page 4-8](#).
 - Step 2** To add another seed node to the seed file, enter the name or IP address of the seed node in the IP Address, Address range, Subnet, CIDR, or DNS Hostname field, and click **Add Node**.
 - Step 3** To delete a seed node from the seed file, select the seed node and click **Delete Node**.
 - Step 4** To save the modified seed file, use the procedure described in [Saving a Seed File, page 4-9](#).
-

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 by 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, remember:

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

When the MWTM loads the seed file, it verifies the syntax of the file, deleting blank lines and extraneous leading and trailing spaces as needed. The 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, the MWTM logs the erroneous entry and ignores it.

For example, given this seed file:

```
new-york-a<space>
<space>new-york-b
zzzzzzzzzzzz
<blank line>
<tab>chicago-c<tab>
```

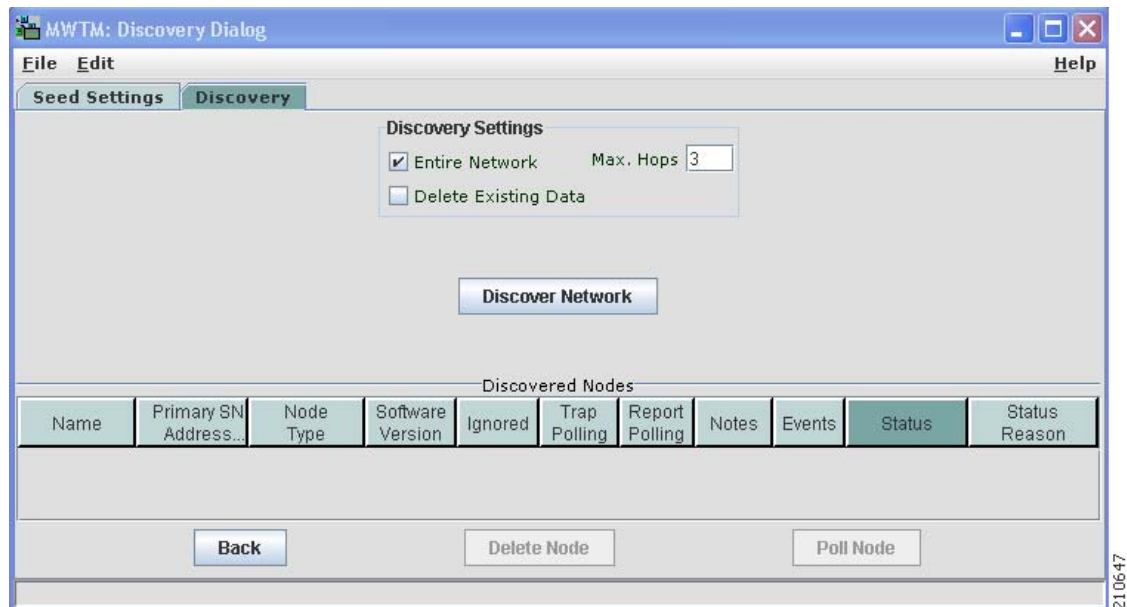
The MWTM loads these entries:

```
new-york-a
new-york-b
chicago-c
```

Running Discovery

Click the Discovery tab in the Discovery dialog box to discover the objects in your network.

To display the Discovery tab, launch the Discovery dialog box, as described in [Launching the Discovery Dialog, page 4-6](#), then select the **Discovery** tab in the Discovery dialog box, or click **Next** in the Seed Settings tab. (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 tab.)

Figure 4-4 Discovery Tab Before Discovery

The Discovery tab comprises:

- [Discovery Settings, page 4-15](#)
- [Discovered Nodes, page 4-17](#)

Related Topics:

- [Discovery Overview, page 4-4](#)
- [Polling a Node, page 8-70](#)

Discovery Settings

The Discovery Settings pane of the Discovery tab contains:

Field or Button	Description
Entire Network	<p>Check box used to specify the extent of the network discovery:</p> <ul style="list-style-type: none"> To discover the entire network, check this check box. This is called <i>recursive discovery</i>, and it is the default setting. <p>With this check box checked, the MWTM discovers all seed nodes and attempts to manage them; then attempts to discover and manage all nodes that are adjacent to those seed nodes (unless the nodes are connected by serial links only); then attempts to discover and manage all nodes that are adjacent to <i>those</i> nodes; and so on, until the Max Hops limit is reached.</p> <ul style="list-style-type: none"> To rediscover only seed nodes, uncheck this check box. This is called <i>nonrecursive discovery</i>. <p>With this check box unchecked, the MWTM discovers all seed nodes and attempts to manage them, then labels all nodes that are adjacent to those seed nodes as Unmanaged.</p>
Delete Existing Data	<p>Check box used to keep or delete the existing MWTM database when discovering the network:</p> <ul style="list-style-type: none"> To keep all existing network data in the MWTM database before rediscovering the network, uncheck this check box. This is the default setting. To delete all existing network data from the MWTM database before rediscovering the network, check this check box. Choose this option if you know that network elements have been deleted from your network since the last Discovery. <p>If you discover the network with Delete Existing Data selected, the MWTM stops any real-time polls that are running and issues appropriate messages.</p>
Max Hops	<p>The maximum number of hops from the seed node to search for other nodes to discover. Default is 3.</p>

Field or Button	Description
Discover Network	<p>Begins discovering the network.</p> <p>Click Discover Network to begin Discovery.</p> <p>If you have not defined at least one seed node in the Seed Settings tab, the MWTM prompts you to do so.</p> <p>When Discovery begins:</p> <ul style="list-style-type: none"> • The Discover Network button changes to Stop Discovery. • The <code>Discovery In Progress</code> message appears in the title bar of all MWTM client windows. <p>Discovery progresses in bursts. You might see a number of updates, followed by a pause, followed by more updates. The information that MWTM windows displays is not fully updated until Discovery is complete.</p> <p>By default, Discovery times out after 600 seconds (10 minutes). To change the Discovery timeout, change the value of the <code>DISCOVERY_TIMELIMIT</code> entry in the <i>Server.properties</i> file:</p> <ul style="list-style-type: none"> • If you installed the 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 the MWTM in a different directory, then the <i>Server.properties</i> file resides in that directory. <p>Because the 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 that MWTM clients display during Discovery might not always be synchronized.</p> <p>All other MWTM windows (Node, topology, and so on) are also populated with the newly discovered network data.</p>
Stop Discovery	<p>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.</p> <p>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, check the Delete Existing Data check box and run Discovery again.</p> <p>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.</p>

If you run Discovery with the Entire Network check box unchecked, and then you run Discovery with the Entire Network check box checked, 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 these procedures:

- Run Discovery again, with **Entire Network** and **Delete Existing Data** checked.
- Change the Unmanaged nodes to managed status. See [Unmanaging and Managing Nodes or ITP Signaling Points](#), page 6-38 for more information.
- Poll the nodes that were Unmanaged in the first Discovery. See [Polling a Node](#), page 8-70 for more information.

Discovered Nodes

The Discovered Nodes table in the Discovery tab (Figure 4-5) lists all nodes that the MWTM discovered (all nodes, including new and excluded nodes, not just the nodes in the current view). By default, this table is sorted by Status.

Figure 4-5 Discovery Tab After Discovery, with Discovered Nodes

The screenshot shows the 'MWTM: Discovery Dialog' window. The 'Discovery' tab is active, displaying 'Discovery Settings' where 'Entire Network' and 'Delete Existing Data' are checked, and 'Max. Hops' is set to 3. Below this is a 'Discover Network' button. The main area contains a 'Discovered Nodes' table with the following columns: Name, Primary SNMP Address, Node Type, Software Version, Ignored, Trap Polling, Report Polling, Notes, Events, Status, and Status Reason. The table lists numerous nodes, including IP devices, Cisco routers, and MWR nodes, with their current status (e.g., Unknown, Warning, Active) and reasons for that status (e.g., SNMP Timeout, Linkset Inactive, Remote alarm stat...). At the bottom of the table are 'Back', 'Delete Node', and 'Poll Node' buttons.

Name	Primary SNMP Address	Node Type	Software Version	Ignored	Trap Polling	Report Polling	Notes	Events	Status	Status Reason
ems1941kf	172.18.156.84	IPDevice	Unknown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Warning	Unknown	SNMP Timeout
ems1941kg	172.18.156.124	IPDevice	Unknown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Warning	Unknown	SNMP Timeout
emsskyla1	172.18.156.85	IPDevice	Unknown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Warning	Unknown	SNMP Timeout
172.17.18.7	172.17.18.7	IPDevice	Unknown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Warning	Unknown	SNMP Timeout
sgm-ansi-xua	172.18.17.15	IPDevice	Unknown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Warning	Unknown	MIB Data Error
sgm-76-91a	172.18.17.16	Cisco7604	12.2(25)S...	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		Warning	Warning	Linkset Inactive
sgm-72-91m	172.18.17.14	Cisco7206VXR	12.2(25)S...	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		Warning	Warning	Linkset Inactive
sgm-26-91e	172.18.17.6	Cisco2651XM	12.2(25)S...	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		Warning	Warning	SGMP Inactive
sgm-75-91a	172.18.17.2	Cisco7507	12.2(25)S...	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		Warning	Warning	Link Inactive
sgm-26-91f	172.18.17.7	Cisco2651XM	12.2(25)S...	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		Warning	Warning	Link Inactive
sgm-75-91b	172.18.17.3	Cisco7507mx	12.2(25)S...	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		Warning	Warning	Link Inactive
ems1941kb	172.18.156.21	CiscoMWR-194...	12.4(9)MR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Warning	Warning	Remote alarm stat...
ems1941ka	172.18.156.20	CiscoMWR-194...	12.4(9)MR	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Warning	Warning	Remote alarm stat...
ems15454ea	172.18.156.50	CiscoONS15454	7.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Warning	Warning	Remote alarm stat...
emsskyla2	172.18.156.101	RAN_SVC	12.2(29)SM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Warning	Warning	Remote alarm stat...
sgm-73-91l	172.18.17.13	Cisco7301	12.2(25)S...	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		Active	Active	None
sgm-73-91k	172.18.17.12	Cisco7301	12.4(6)SW	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		Active	Active	None
sgm-26-91j	172.18.17.11	Cisco2651XM	12.2(25)S...	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		Active	Active	None
sgm-26-91c	172.18.17.4	Cisco2651XM	12.2(25)S...	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		Active	Active	None
sgm-26-91h	172.18.17.9	Cisco2651XM	12.2(25)S...	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		Active	Active	None
sgm-26-91i	172.18.17.10	Cisco2651XM	12.2(25)S...	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		Active	Active	None
sgm-26-91d	172.18.17.5	Cisco2651XM	12.2(25)S...	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		Active	Active	None
sgm-26-91g	172.18.17.8	Cisco2651XM	12.2(25)S...	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		Active	Active	None
ems1941kr	172.18.156.52	CiscoMWR-194...	12.4(9)MR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Active	Active	None
ems1941kq	172.18.156.49	CiscoMWR-194...	12.4(9)MR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Active	Active	None
ems15454ed	172.18.156.80	CiscoONS15454	7.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Active	Active	None
ems15454ec	172.18.156.79	CiscoONS15454	7.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Active	Active	None

To see a tooltip for each column in the table, place the cursor over a column heading.

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

You can resize each column, or sort the table based on the information in one of the columns. By default, the MWTM displays all of the columns in the Discovered Nodes section except Internal ID, Uptime, Reboot Reason, Process Traps, and Last Status Change.

- To display hidden columns, right-click in the table heading and select the check boxes for the columns that you want to display.
- To hide columns, right-click in the table heading and uncheck the check boxes for the columns that you want to hide.

For detailed information on working within tables, see [Navigating Table Columns, page 5-23](#)

The Discovered Nodes section contains:

Column or Button	Description
Internal ID	Internal ID of the event. The internal ID is a unique ID for every object that the MWTM assigns 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 all MWTM clients share. Initially, all clients use the DEFAULT view. Users can then create their own views, which are subsets of the DEFAULT view, to meet their individual needs. However, you cannot modify the DEFAULT view stored on the MWTM server. The DEFAULT view is always available for users who need to view the entire network.
Primary SNMP Address	IP address of the node that SNMP uses to poll the node. (There might be other IP addresses on the node that are not the primary SNMP address.)
CLLI Code (ITP only)	COMMON LANGUAGE Location Identification Code for the node. A CLLI code is a standardized 11-character identifier that uniquely identifies the geographic location of the node. If the node has no CLLI code configured, this field is blank.

Column or Button	Description
Node Type	<p>Type of node. Node types can be specific to ITP, RAN-O, or generic to both.</p> <p>ITP specific nodes include:</p> <ul style="list-style-type: none"> • Cisco2650XM, Cisco2651XM • Cisco2811 • Cisco7204VXR, Cisco7206VXR • Cisco7301 • Cisco7507, Cisco7507mx, Cisco7507z, Cisco7513, Cisco7513mx, Cisco7513z • Cisco7604, Cisco7606, Cisco7609, Cisco7613 <p>RAN-O-specific nodes include:</p> <ul style="list-style-type: none"> • CiscoMWR-1941-DC-A—Cisco MWR-1941-DC-A series router • CiscoONS15454—Cisco ONS 15454 SONET multiplexer • Node B—The radio transmission and reception unit for communication between radio cells. • RAN_SVC—RAN Service Module in the Cisco ONS 15454 <p>Generic nodes include:</p> <ul style="list-style-type: none"> • IPDevice—IP device, other than those listed previously. 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 node type.
Software Version	Version of software (for example, IOS) that is installed on the node.
Uptime	Time the node has been up, in days, hours, minutes, and seconds.
Reboot Reason	Reason for the last reboot of the node.
Ignored	<p>Indicates whether the node should be included when aggregating and displaying MWTM status information:</p> <ul style="list-style-type: none"> • Uncheck the check box to include the node. This is the default setting. • Select the check box to exclude the node. <p>Note Not applicable for unmanaged nodes.</p> <p>Users with authentication level Power User (level 2) and higher can edit this field.</p>
Process Traps	<p>Indicates whether the MWTM should process traps from this node:</p> <ul style="list-style-type: none"> • Check the check box if you want the MWTM to process traps from this node. This is the default setting. • Uncheck the check box if you do not want the MWTM to process traps from this node. <p>Users with authentication level Power User (level 4) and higher can edit this field.</p>

Column or Button	Description
Trap Polling (RAN-O only)	<p>Indicates whether trap polling is enabled. This field is read-only. If you want to:</p> <ul style="list-style-type: none"> • Enable trap polling for the RAN-O node, set ipran-mib snmp-access to outOfBand on the node. • Disable trap polling for the RAN-O node, set ipran-mib snmp-access to inBand on the node.
Report Polling	<p>Indicates whether report polling is enabled on the web interface.</p> <p>For ITP nodes, the default setting is enabled (check box is checked). To disable ITP report polling, uncheck the check box.</p> <p>For RAN-O nodes, the check box is read only. If you want to:</p> <ul style="list-style-type: none"> • Enable trap polling for the RAN-O node, set ipran-mib snmp-access to outOfBand on the node. • Disable trap polling for the RAN-O node, set ipran-mib snmp-access to inBand on the node.
Notes	Indicates whether a note is associated with the node.
Events	<p>Indicates whether a recent event is associated with the node. (Even if the server purges all of the events associated with the node, the MWTM continues to display the event icon in this field.)</p> <p>During Discovery, the MWTM might flag most nodes with an event icon (orange triangle). If the event icons are too distracting, choose Edit > Clear All Events from the MWTM main menu to remove them.</p>
Last Status Change	Date and time that the status of the node last changed.
Status	<p>Current status of the node. Possible values are:</p> <p>Active (green)</p> <p>Discovering (cyan)</p> <p>Polling (cyan)</p> <p>Unknown (red)</p> <p>Unmanaged (gray)</p> <p>Waiting (gray)</p> <p>Warning (yellow)</p> <p>For detailed definitions of each status, see Status Definitions for Signaling Gateway Mated Pairs, page E-7.</p>

Column or Button	Description
Status Reason	<p>Reason for the current status of the signaling gateway-mated pair.</p> <p>For a full list of possible reasons, see the <i>stateReasons.html</i> file. If you installed the MWTM in:</p> <ul style="list-style-type: none"> The default directory, <i>/opt</i>, then the file is located at <i>/opt/CSCOs/gm/apache/share/htdocs/eventHelp</i> directory. A different directory, then the help directory and file reside in that directory. <p>If the cell is too small to show all of the status reason, place the cursor over the cell to see the full text in a tooltip.</p> <p>The status reasons are listed in order of decreasing severity. If two or more reasons apply, the reason of greatest severity appears.</p> <p>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 discovery of the network. If the status reason remains Unsupported Configuration, enter the mwtm clean command to restore the MWTM server to a state that would exist after a new installation of the MWTM, excluding the log files, which the MWTM retains. To also remove the log files, enter the mwtm cleanall command. For more information on the use of these commands, see the Command Reference, page B-1.</p>
Back	Displays the Seed Settings tab in the Discovery dialog box.
Delete	Deletes the selected node or nodes from the Discovery database. The MWTM deletes the nodes without asking for confirmation.
Poll Node	<p>Begins a poll of all nodes selected within the Discovered Nodes table in the Discovery tab.</p> <p>You cannot poll a node with a Primary SNMP Address of N/A. If you select:</p> <ul style="list-style-type: none"> A node with a Primary SNMP Address of N/A, then the Poll button is dimmed and cannot be selected. More than one node, and even one of them has a Primary SNMP Address of N/A, then the Poll button is dimmed and cannot be selected.

Verifying Discovery

After you discover the network (see [Discovery Overview, page 4-4](#)), examine the Discovered Nodes table to verify that the MWTM discovered all of the nodes in the network. If you suspect that the MWTM did not discover all of the nodes, verify that:

- No nodes are excluded from your current view.
- The MWTM server can ping the nodes.
- The nodes are running images that are compatible with the MWTM server.
- SNMP is enabled on the nodes.
- The MWTM is configured with the correct SNMP community name. See [Launching the Discovery Dialog, page 4-6](#) for details.

- (ITP only) The missing nodes are connected to the seed nodes by SCTP connections, not just serial connections. If they are not connected by SCTP connections, you must add the missing nodes to the seed file as seed nodes. See [Changing an Existing Seed File, page 4-12](#) for more information.
- You selected Entire Network when you ran Discovery. If you suspect that you did not, run Discovery again with Entire Network selected.

Displaying the MWTM Main Window

The MWTM main window ([Figure 4-7](#)) is the primary MWTM client window. It is the first window to appear when you launch the MWTM client. It displays information about the events and objects that the MWTM discovers. The MWTM main window is divided into two areas: the navigation tree in the left pane and the content area in the right pane. When you select an item in the navigation tree, MWTM displays detailed information about the item in the content area in the right pane, such as configuration details and real-time data.

The MWTM main window contains:

Element	Description
Title Bar	Displays: MWTM main window (ITP and/or RAN-O personality) - <server name>.
MWTM main menu	For details, see Using the MWTM Main Menu, page 4-33 .
Alarms	Displays a summary of all currently active alarms in your network, including the current status of the associated network object. For details, see Displaying Alarms, page 4-30 .
Events	Displays information about the events that the MWTM event logger and event processor deliver for all objects in the current network view. For details, see Chapter 9, “Managing Events.”
Summary Lists	Displays basic summary information about all discovered network objects, including their status, the total number of objects with that status, and the number of nodes with that status. For details, see Displaying Summary Lists, page 4-26 .
DEFAULT View (or named view)	Displays the view name and all objects within that view. For details about views, see Chapter 7, “Managing Views.”

When you start the MWTM for the first time, the MWTM displays the Discovery dialog box and the MWTM main window.

Figure 4-6 Discovery Dialog

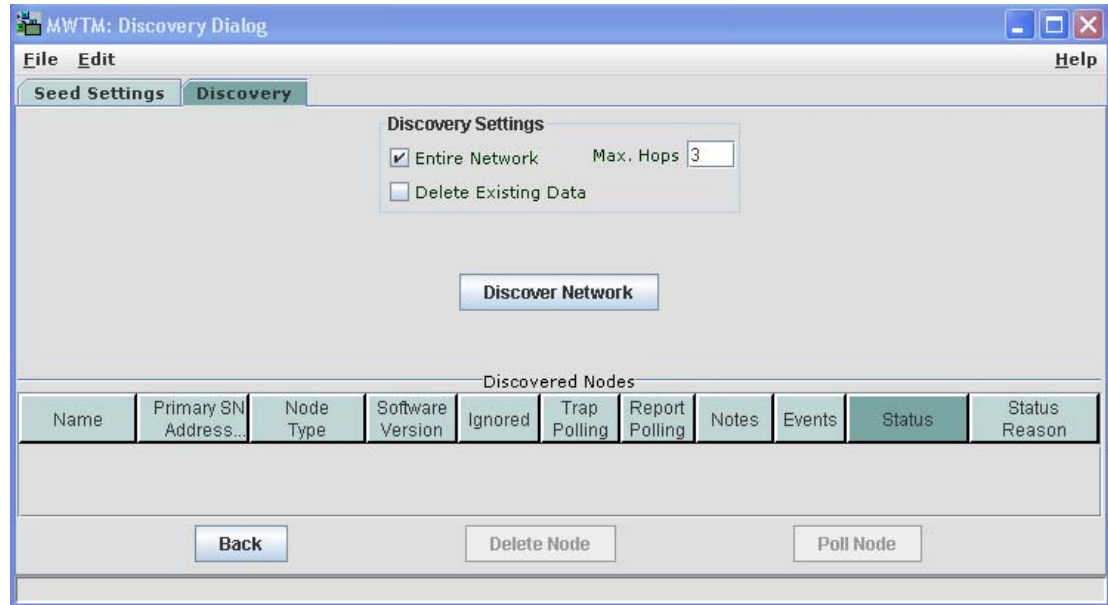
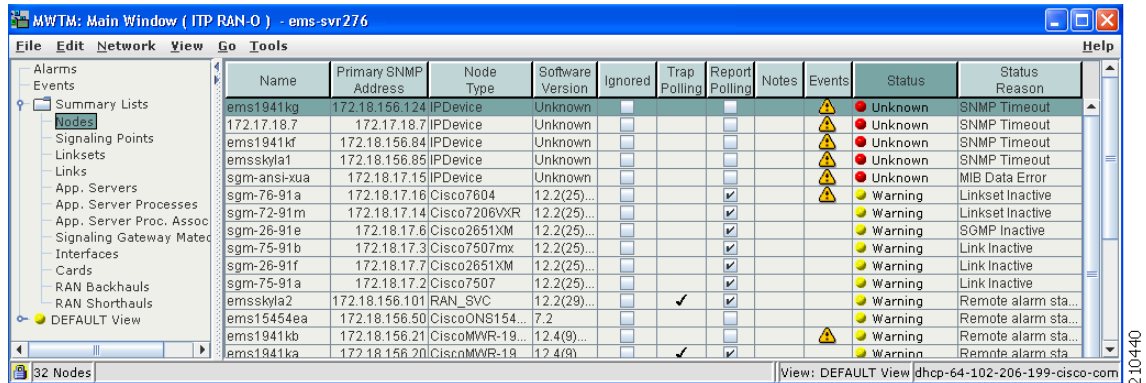


Figure 4-7 MWTM Main Window



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

When you start the 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; the MWTM displays the Discovery dialog box to make it easier for you to do so. In fact, any time you start the MWTM client and the MWTM database is empty, the MWTM automatically opens the Discovery dialog box so you can run Discovery and populate the database. For more information about Discovery, see [Discovering Your Network, page 4-4](#).

The events and objects that the MWTM discovers appear in the MWTM main window.

Navigational Features

To help you keep track of which view you are currently using, as well as other important information, most MWTM windows display the name of the system on which the MWTM server is running in the title bar. This information appears 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 visible in the window, if any.
- The number of files currently visible in the load or save files dialog box, if any.
- Status messages, as appropriate:
 - Informational messages are visible in black. For example:
`Discovery running`
 - Messages that indicate successful actions are visible in green. For example:
`View Saved`
 - Error messages are visible in red. For example:
`Node does not have a note`
 - The MWTM contains many fields into which you can 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, the MWTM alerts you of the incorrect value 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 you have modified but not yet saved a view. You must save the view if you want to save your changes. For details, see [Saving a View, page 7-7](#).
- A **New** icon, if there is at least one newly discovered node, signaling point, or application server process in the network that has not been added to your current view. To add or exclude the node to your current view, see [New on the Network Pane, page 7-13](#).

Clicking the **New** icon in the topology window opens the New Objects pane 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 node the user is using.
- If you have implemented MWTM user access security, the authentication level of the user.

If your personal default view has been deleted, then the next time you launch the client, the 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 Dialog: View List. For details, see [Loading a Client-Specific View, page 7-15](#).

MWTM Client Navigation Tree

The MWTM Client navigation tree displays objects in a variety of formats and views. The DEFAULT view, and other views that you can create, display a hierarchy of the objects that the MWTM manages. The highest objects within a view are nodes, which contain the following subtending objects:

- RAN-O nodes can contain:
 - **RAN SVC**—A RAN SVC node can contain a list of backhauls, a management interface folder, and a physical folder.
 - **RAN Backhaul**—The end-to-end RAN connection between the BTS or Node B at the cell site and the BSC or RNC at the aggregation site. The RAN backhaul contains one or more shorthaul objects and an IP backhaul object.
 - **IP Backhaul**—The IP link that carries RAN-O traffic between the RAN-O nodes (for example, between an MWR at the cell site and a RAN Service card in an ONS at the aggregation site).
- RAN backhauls can contain:
 - **GSM Abis Shorthaul**—In GSM technology, the interface between the BTS and the BSC.
 - **UMTS Iub Shorthaul**—In UMTS technology, the interface between the Node B and the RNC.



Note The MWTM does not manage BSC, BTS, RNC, or Node B objects but displays them in the topology window to help you visualize the network.

- ITP nodes can contain:
 - **Signaling Points**—A signaling point object contains a list of associated linksets, links, and other related objects.
 - **Application Server Processes**—An application server process object can contain application server process associations.
- ITP and RAN-O nodes can contain:
 - **Management Interfaces**—A folder that contains a list of interfaces that the MWTM uses to manage the node.
 - **Physical**—A folder that contains a list of the physical interfaces and cards that belong to the node. Slot numbers precede card objects (for example, *15 - RAN_SVC* or *02 - E1-42*).



Note All objects in the Physical folder are ignored *unless* they also appear outside of the Physical folder. The status of Physical folder-only objects does not contribute to the status of the parent node. These objects also do not appear in the Alarms view, but they do appear in the Events view. You can un-ignore the Physical folder, then re-ignore the objects you do not want to monitor. For more information, see [Why are objects in the Physical folder ignored?, page C-8](#).

You can easily navigate the features of the MWTM client with the navigation tree. To view detailed information about an object in the navigation tree, click the object in the tree. The content area in the right pane displays the details about the selected object. An icon just to the left of the object name indicates whether the object has subtending objects under its domain. This icon is called a turner. To expand the tree of objects, click the turner. Click the turner again to collapse the objects.

**Note**

For additional features that appear only in the navigation tree of the web interface, see [MWTM Web Interface Navigation Tree, page 11-3](#).

MWTM Client Content Area

The content area in the right pane displays detailed information about your network, such as configuration and historical data. To view detailed information for an object, click the object in the navigation tree. The content area in the right pane shows the details about the selected object.

The content area formats the information in a way that is easy to interpret. Descriptive information is usually organized into subpanes. Tabs along the top of the content area organize more complex sets of information. Large amounts of information are organized into tables with labeled columns and multiple rows of data.

For additional features that appear only in the content area of the MWTM web interface, see [MWTM Web Interface Content Area, page 11-4](#).

Displaying Summary Lists

You use the MWTM to view basic summary information about all discovered network objects, including their status and associated alarms and events.

- To see a summary of all network objects that the MWTM discovered, click Summary Lists in the navigation tree. The MWTM displays the Summary Statistics window in the content area.
- Right-click Summary Lists in the navigation tree to display a menu for the summary lists. For more information, see [Right-Click Menu for the Summary Lists, page 4-29](#).
- For details on the right-click menu for an object within a summary list, see [Viewing the Right-Click Menu for an Object, page 8-3](#).

**Note**

If an object of a given type has not been discovered, then the corresponding summary lists folder does not appear.

To view the summary lists, select Summary Lists in the navigation tree within the MWTM main window. The MWTM displays the Summary Statistics window.

Figure 4-8 Summary Statistics Window

The screenshot shows the MWTM Summary Statistics window. The window title is 'MWTM: Main Window (ITP RAN-0) - ems-svr276'. The left sidebar contains a tree view with 'Summary Lists' selected. The main area displays a table with three columns: Status, Total, and Nodes. The table is sorted by Status, with failures at the top. The status 'Warning' is highlighted in yellow.

Status	Total	Nodes
Unknown	5	5
Unavailable	0	0
Inactive	0	0
Failed	0	0
Down	0	0
Warning	10	10
Shutdown	0	0
Active	15	15
Unmanaged	2	2
NotPresent	0	0

The status bar at the bottom shows '10 Status Changed Sorting Order ems15454ed' and 'View: DEFAULT View dhcp-64-102-206-199-cisco-com'.

The Summary Statistics window provides basic summary information about all discovered network objects that the MWTM discovered. For detailed information on objects within Summary Lists, see [Displaying Object Windows, page 6-2](#).

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, and the MWTM displays all of the columns in the table except Signaling Points, Linksets, Links, Application Servers, Application Server Processes, Application Server Process Associations, and Signaling Gateway Mated Pairs.

**Note**

If you are viewing Summary Lists through the MWTM Web interface, all columns appear, assuming you have discovered all types of objects. For example, if you have no Cards discovered, the Cards column is not visible.

For detailed information on working within tables, see [Navigating Table Columns, page 5-23](#).

The summary list table contains:

Column	Description
Status	<p>Current status of the network objects. Possible values are:</p> <ul style="list-style-type: none"> Unknown (red) Unavailable (red) Inactive (red) Failed (red) Down (red) Blocked (red) Pending (red) Warning (yellow) Shutdown (blue) InhibitLoc (blue) InhibitRem (blue) Discovering (cyan) Polling (cyan) Waiting (gray) Unmanaged (gray) Active (green) <p>For detailed definitions of each status for each type of network object, see Appendix E, “Status Definitions.”</p>
Total	<p>Total number of network objects with the indicated status.</p> <p>Objects in hidden columns are not included in the totals.</p>
Nodes	Total number of discovered nodes with the indicated status.
Signaling Points (ITP only)	Total number of discovered signaling points with the indicated status.
Linksets (ITP only)	<p>Total number of discovered linksets with the indicated status.</p> <p>Linksets is a count of linkset pairs, not individual linksets; therefore, this count might differ from the number of linksets in the MWTM client navigation tree.</p>
Links (ITP only)	<p>Total number of discovered links with the indicated status.</p> <p>Links is a count of link pairs, not individual linksets; therefore, this count might differ from the number of links in the MWTM client navigation tree.</p>
Application Servers (ITP only)	Total number of discovered application servers with the indicated status.
Application Server Processes (ITP only)	Total number of discovered application server processes with the indicated status.
Application Server Process Associations (ITP only)	Total number of discovered application server process associations with the indicated status.

Column	Description
Signaling Gateway Mated Pairs (ITP only)	Total number of discovered signaling gateway-mated pairs with the indicated status.
Interfaces	Total number of discovered interfaces with the indicated status.
RAN Backhauls	Total number of discovered RAN backhauls with the indicated status.
RAN Shorthauls	Total number of discovered RAN shorthauls with the indicated status.
Cards	Total number of discovered cards with the indicated status.

Right-Click Menu for the Summary Lists

To see the right-click menu for the summary lists, select Summary Lists or any of the objects under Summary Lists in the navigation tree and press the right mouse button. The menu provides:

Menu Command	Description
Show In New Window	Opens the current window in a new window.
Back > List of Windows	Navigates back to a window viewed in this session. The MWTM maintains a list of up to 10 Back windows.
Forward > List of Windows	Navigates forward to a window viewed in this session. The MWTM maintains a list of up to 10 Forward windows.

Displaying Alarms


Note

For details about viewing alarms using the MWTM web interface, see [Displaying Alarms, page 11-27](#).

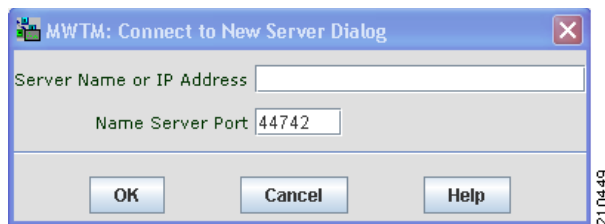
You use the MWTM to view a summary of all currently active alarms in your network, including the current status of the associated network object. An active alarm is a network object with this status:

- A node or interface that is Warning (yellow) or worse and is not Ignored.
- A node or interface that is Pending (red) or worse and is not Ignored.
- An application server process, application server process association, link, or signaling gateway-mated pair that is Warning (yellow) or worse and is not Ignored.
- An application server, linkset, node, or signaling point that is Pending (red) or worse and is not Ignored.

To see a summary of all currently active alarms, click Alarms in the navigation tree. The MWTM displays the Active Alarms window in the content area (see [Figure 4-9](#)).

- Right-click Alarms in the navigation tree to display the right-click menu for all alarms. For more information, see [Right-Click Menu for All Alarms, page 4-32](#).
- Right-click an alarm in the content area to display the right-click menu for a specific alarm. For more information, see [Right-Click Menu for a Specific Alarm, page 4-32](#).

Figure 4-9 **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. The MWTM updates the information in the window at least once every minute.

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 the MWTM displays all of the columns in the table except Last Status Change.

See [Navigating Table Columns, page 5-23](#) for more information about resizing, sorting, displaying, or hiding columns.

The active alarms table contains:

Column	Description
Type	<p>Type of network object associated with the selected alarm.</p> <p>To see all higher-level alarms associated with the network object, select the turner beside the object. The MWTM displays the higher-level alarms below the selected alarm. For example, if you select the turner beside a link, the MWTM displays the alarms for the linkset, signaling point, and node associated with that link.</p>
Name	Name of the network object associated with the selected alarm.
Status	<p>Current status of the network object associated with the selected alarm.</p> <p>Possible values are:</p> <ul style="list-style-type: none"> Unknown (red) Unavailable (red) Inactive (red) Failed (red) Down (red) Blocked (red) Pending (red) Warning (yellow) Shutdown (blue) InhibitLoc (blue) InhibitRem (blue) Discovering (cyan) Polling (cyan) Waiting (gray) Unmanaged (gray) Active (green) <p>For detailed definitions of each status for each type of network object, see Appendix E, "Status Definitions."</p>

Column	Description
Status Reason	<p>Reason for the current status of the network object associated with the selected alarm.</p> <p>For a full list of possible reasons, see the <i>stateReasons.html</i> file. If you installed the MWTM in:</p> <ul style="list-style-type: none"> • The default directory, <i>/opt</i>, then the file is located at <i>/opt/CSCOs/gm/apache/share/htdocs/eventHelp</i> directory. • A different directory, then the help directory and file are located in that directory. <p>If the cell is too small to show all of the status reason, place the cursor over the cell to see the full text in a tooltip.</p> <p>The status reasons are listed in order of decreasing severity. If two or more reasons apply, the reason of greatest severity appears.</p> <p>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 discovery of the network. If the status reason remains Unsupported Configuration, enter the mwtm clean command to restore the MWTM server to a state that would exist after a new installation of the MWTM, excluding the log files, which the MWTM retains. To also remove the log files, enter the mwtm cleanall command. For more information on the use of these commands, see the Command Reference, page B-1.</p>
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.

Right-Click Menu for All Alarms

To see the right-click menu for all active alarms, select **Alarms** in the navigation tree and press the right mouse button. For details on the menu options, see [Right-Click Menu for the Summary Lists, page 4-29](#).

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 press the right mouse button. The alarm right-click menu provides the same options as the right-click menu for the associated network object, plus these:

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

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 dimmed 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 contains:

Menu Command	Description
File > Load DEFAULT View (Ctrl-D)	Loads the DEFAULT view, which is the view into which the 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 the clients cannot modify it.
File > Load View (Ctrl-L)	Loads an already existing view. The MWTM prompts you for the name of the view you want to load: <ul style="list-style-type: none"> • 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 View (Ctrl-S)	Saves the current view: <ul style="list-style-type: none"> • If you have not already saved the current view, opens the Save File dialog box: View List, in which you enter or select a filename under which to save the current view. • If you have already saved the current view, saves the view to that filename. <p>If you have implemented MWTM User-Based Access, this option is available to users with authentication level Power User (level 2) and higher.</p>
File > Save View As	Opens the Save File Dialog: View List, which you use to enter or select a filename under which to save the current view. <p>If you have implemented MWTM User-Based Access, this option is available to users with authentication level Power User (level 2) and higher.</p>
File > Connect to New Server (Ctrl-O)	Connects to a new server. The MWTM prompts you for the new server's name or IP address, and UDP port number. <p>The MWTM stops the MWTM client, then restarts the client connected to the new server.</p>

Menu Command	Description
File > Print (Ctrl-P)	<p>Opens the Print window where you can:</p> <ul style="list-style-type: none"> • Specify options for printing • Print the current window • Save the current window to a file <p>The MWTM printing options require that you define a printer on your system. If you choose File > Print and the Print window does not appear, ensure you have defined a printer on your system.</p>
File > Exit (Ctrl-Q)	<p>Exits the MWTM application, after prompting you for confirmation.</p> <p>If you are working in a custom view (that is, not the DEFAULT view), the MWTM automatically saves any changes you made to the view.</p>
Edit > Views (Ctrl-M)	<p>Opens the View Editor window to allow you to edit any views that you have created.</p>
Edit > Clear All Events (Ctrl-E)	<p>Deletes the event icon (orange triangle) from MWTM displays for all known objects. The actual events are not deleted from the MWTM, only the event icon for all known objects.</p> <p>Note During Discovery, the 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.</p>
Edit > Find (Ctrl-F)	<p>Opens the Find dialog box, in which you find a specific object, event, or text in the window.</p> <p>If you select an object in the navigation tree within the MWTM main window, this option is dimmed and cannot be selected.</p>

Menu Command	Description
Edit > Delete (Delete)	<p>Deletes the currently selected element or elements from the MWTM database. The MWTM displays the Confirm Deletion dialog box. To:</p> <ul style="list-style-type: none"> • Delete the selected elements, click Yes. The items are deleted from the MWTM database and the Confirm Deletion dialog box is closed. • Retain the selected elements, click No. The items are kept in the MWTM database and the Confirm Deletion dialog box closes. • Prevent the MWTM from displaying the Confirm Deletion dialog box, select the Do not show this again check box. <p>Note If you select the Do not show this again check box, and you later decide you want the MWTM to begin displaying the Confirm Deletion dialog box again, you must select the Confirm Deletions check box in the General GUI settings in the Preferences window. For more information, see the description of the Confirm Deletions check box in Startup/Exit Settings, page 5-4.</p> <p>To permanently delete all elements marked for deletion from the MWTM database, you can also run the mwtm purgedb command (see mwtm purgedb, page B-41).</p> <p>If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Administrator (level 4) and higher.</p>
Edit > Preferences (Ctrl-H)	Opens the Preferences window.
Network> Node SNMP and Credentials Editor (Alt-S)	Opens the SNMP Configuration dialog box. 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 box. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Administrator (level 4) and higher.
Network > Poll Nodes > Normal Poll (Alt-L)	Polls all selected nodes. 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
Network > Poll Nodes > Clean Poll (Alt-C)	<p>Polls all selected nodes and removes any Unknown objects after the completion of the poll.</p> <p>If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Operator (level 3) and higher.</p>
Network > Node Archive Management	<p>Opens the Node Archive Management dialog box, allowing you to view archived GTT files, route table files, or MLR address table files and perform various functions on the files.</p> <p>If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Administrator (level 4) and higher.</p>
Network > Node File Management	<p>Opens the Node File Management dialog box, allowing you to view GTT files, route table files, or MLR address table files and perform various functions on the files.</p> <p>If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Administrator (level 4) and higher.</p>
View > Show Topology (Ctrl-T)	Opens the topology window.
View > MWTM Server > Connect via Telnet (Ctrl+Shift+T)	Opens a Telnet window to the server.
View > MWTM Server > Connect via SSH (Ctrl+Shift+S)	<p>Opens a Secure Shell (SSH) window to the server.</p> <p>Note The key size on the SSH server must be a minimum of 512 bits and a maximum of 2048 bits.</p>
View > MWTM Server > Status	Opens the Server Status Information window.
View > Web > Home	Displays the MWTM web interface home page in a web browser.
View > Web > Administrative	Displays the MWTM web administrative page in a web browser.
View > Web > Reports	Displays the MWTM web reports main page in a web browser.
View > Web > Archived Events > Status Changes	Displays the archived status changes in a web browser.
View > Web > Archived Events > SNMP Traps	Displays the archived SNMP traps in a web browser.
View > Web > Archived Events > Status Changes and SNMP Traps	Displays both the archived status changes and archived SNMP traps in a web browser.
View > Web > Software Versions	Displays the MWTM software versions for the server you are connected to, and which is currently running the MWTM server, in a web browser.
View > Message of the Day	Opens the Message of the Day dialog box.

Menu Command	Description
View > Cisco.com	Displays the Cisco.com Home Page in a web browser.
Go > Back (Alt-Left Arrow) ¹	Navigates back to the last window viewed in this session.
Go > Forward (Alt-Right Arrow) ¹	Navigates forward to the last window viewed in this session.
Go > Back > <i>List of Windows</i>	Navigates back to a window viewed in this session. The MWTM maintains a list of up to 10 Back windows.
Go > Forward > <i>List of Windows</i>	Navigates forward to a window viewed in this session. The MWTM maintains a list of up to 10 Forward windows.
Tools > Route Table > From Archive (Alt-J) (ITP only)	Opens the Load Route Table from Archive wizard. If you select an Unmanaged node, this option is dimmed and cannot be selected. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Administrator (level 4) and higher.
Tools > Route Table > From Node (Alt-O) (ITP only)	Opens the Route Table dialog box by using a route table from an ITP node. If you select an Unmanaged node, this option is dimmed and cannot be selected. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Administrator (level 4) and higher.
Tools > Route Table > From File (Alt-I) (ITP only)	Opens the Route Table dialog box by using a route table from a file. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Administrator (level 4) and higher.
Tools > Global Title Translator Editor (Ctrl-G) (ITP only)	Launches the GTT client. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Operator (level 3) and higher.
Tools > Address Table Editor (Alt-A) (ITP only)	Launches the Address Table Editor, which you use to create new address table files, load existing address table files, perform semantic checks, save address table files, and deploy address table files to an ITP. 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
Tools > Event Editor (Alt-B)	<p>Launches the Event Editor, which you use to:</p> <ul style="list-style-type: none"> • Customize the visible category, severity, color, and message associated with events • Configure sounds for the MWTM to play for different types of events • Load, save, and deploy customized event configurations. <p>If you have implemented MWTM User-Based Access, this option is available to users with authentication level Network Operator (level 3) and higher.</p>
Tools > Event Sounds (Ctrl-U)	<p>Opens the Event Sound Filters dialog box, which you use to define sounds that the MWTM client should play when specific events are logged.</p>
Tools > Virtual RAN Backhaul Editor (Ctrl-B)	<p>Launches the Virtual RAN Backhaul Editor, which you use to create a virtual RAN backhaul by grouping real backhauls.</p>
Tools > CiscoWorks > Device Center (Ctrl-2)	<p>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. The MWTM prompts you for a CiscoWorks user ID and password before linking to CiscoWorks.</p> <p>The link to CiscoWorks has these prerequisites. CiscoWorks must:</p> <ul style="list-style-type: none"> • Be installed somewhere in the network. • Monitor the specific device. <p>This option is dimmed if the selected node is not an ITP or RAN-O node, or in Unmanaged status or has a Device Type of Unknown. (CiscoWorks cannot monitor a non-ITP, Unmanaged, or Unknown node.)</p> <p>This option is not visible 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>Installation Guide for the Cisco Mobile Wireless Transport Manager 6.0</i> for more information.</p>

Menu Command	Description
Tools > CiscoWorks > CiscoView (Ctrl-3)	Links to CiscoView, which provides a real-time, color-coded, graphical representation of Cisco objects. You can use CiscoView to quickly identify an incorrect status on a port or interface. This option is dimmed if the selected node is not an ITP or RAN-O node, or in Unmanaged status or has a Device Type of Unknown. (CiscoWorks cannot monitor Unmanaged or Unknown nodes or nodes that are not ITP or RAN-O nodes.) This option is not visible 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>Installation Guide for the Cisco Mobile Wireless Transport Manager 6.0</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.

1. In the UNIX environment (Solaris or Linux), this key combination can be mapped to a different function based on the Common Desktop Environment (CDE) that a user might have. For example, in Solaris CDE, Alt-Left Arrow and Alt-Right Arrow combinations are typically mapped to move back and forward through the different desktops. To remap the keys for use with the MWTM, see your UNIX Desktop Environment guide.

Accessing the MWTM through a Web Browser

You can manage network nodes through one of two graphical user interfaces:

- **MWTM client interface**—The standard interface for accessing MWTM data. (This interface is described in [Displaying the MWTM Main Window](#), page 4-22.)
- **MWTM web interface**—A browser interface for accessing MWTM data. (This interface is introduced here and fully described in [Chapter 11, “Accessing Data from the Web Interface.”](#))

A comparison of the GUI features supported in each interface is shown in this matrix:

GUI Features	Web Interface	Client Interface	Notes
Main window	X	X	Slight differences exist between the interfaces (in the navigation tree and content area displays).
Discovery window		X	Client-only feature, but the nodes that appear in the web interface are refreshed after a discovery is performed in the client interface.

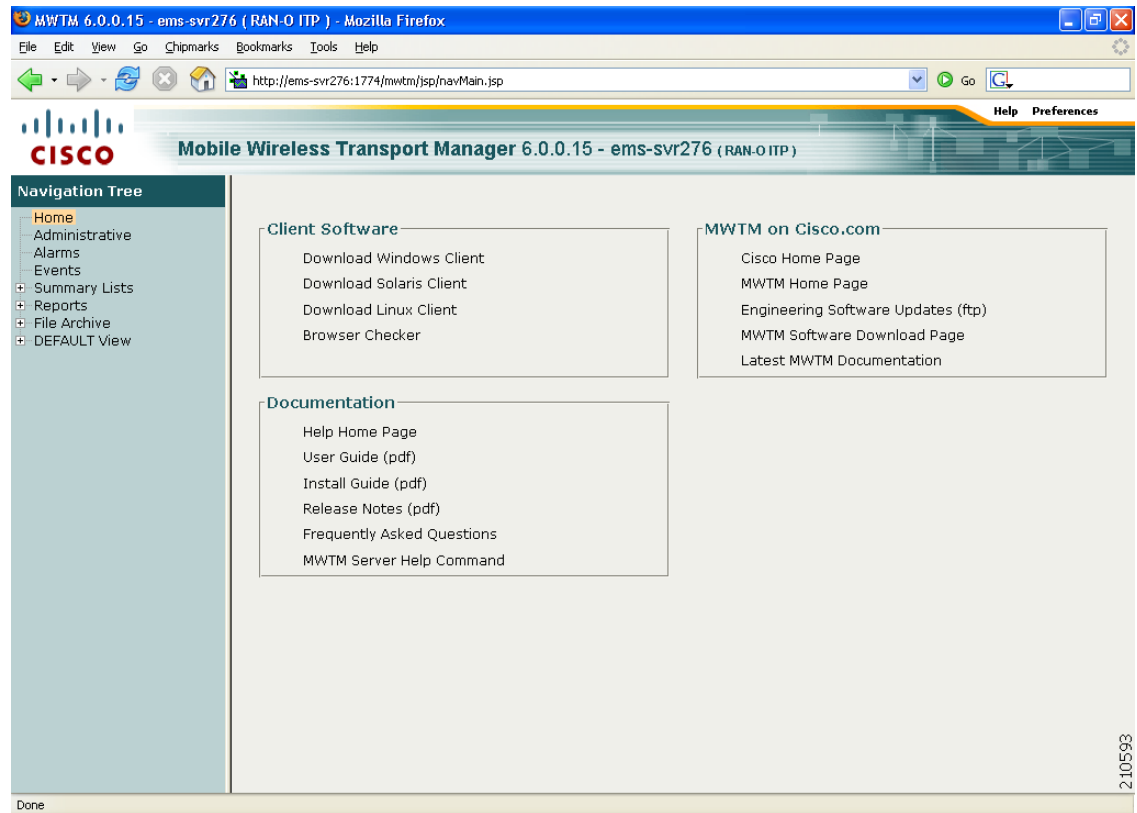
GUI Features	Web Interface	Client Interface	Notes
Historical Data	X		You enter a start and stop time for the data you are interested in, and the MWTM retrieves the data from its database. You can access the web interface display from the right-click menus in the client interface.
Real-time Data		X	The MWTM periodically polls the node for real-time data, and updates the charts and graphs as new data is received.
Topology		X	Client-only feature.
High-level editors		X	These editors appear under the Tools menu of the MWTM main window: <ul style="list-style-type: none"> • Route Table Editor • GTT Title Editor • Address Table Editor • Event Editor
Provisioning	X		Web-only feature for ITP objects. To launch web provisioning from the MWTM client, select the ITP object in the navigation tree and choose the Provision option from the right-click menu.

You access the web interface using one of two methods:

- Open a browser and enter **http://server_name:1774** in the Address field.
- From the MWTM client interface, choose **View > MWTM Server > Home Page**.

The web interface window opens in the browser window.

Figure 4-10 MWTM Web Interface



For detailed information about the MWTM web interface, see [Chapter 11, “Accessing Data from the Web Interface.”](#)

Loading and Saving MWTM Files

You use the MWTM to quickly and easily load and save MWTM files. The files are on the MWTM server and you can load them on any connected MWTM client.

To display a Load File dialog box, use one of these procedures:

Launched From	Choose	Window Launched	Notes
Address Table Editor (ITP only)	File > Load > Load from File	Load File Dialog: Address Table File List	See Loading an Existing Address Table File , page 15-8.
Discovery dialog box	File > Load Seeds	Load File Dialog: Seed File List	See Loading Seed Nodes and Seed Files , page 4-7.
Event Filter dialog box	Load	Load File Dialog: Load Filter	See Loading an Existing Event Filter , page 9-16.
GTT Editor (ITP only)	File > Load	Load File Dialog: GTT File List	See Loading an Existing GTT File , page 14-33.

Launched From	Choose	Window Launched	Notes
Preferences window	File > Load System Default Prefs	None	See Displaying the Preferences Menu , page 5-3.
Route Table dialog box	File > Load	Load File Dialog: Route Table File List	See Loading an Existing Route Table File , page 13-12.
View Editor window	File > Load	Load File Dialog: View List	See Loading a Client-Specific View , page 7-15.

**Note**

To load the DEFAULT network view, choose **File > Load DEFAULT View** from the MWTM main menu. The MWTM loads the DEFAULT view.

To display a Save File dialog box, use one of these procedures:

Launched From	Choose	Window Launched	Notes
Address Table Editor (ITP only)	File > Save As	Save File Dialog: Address Table File List	See Saving an Address Table File , page 15-23.
Discovery dialog box	File > Save As	Save File Dialog: Seed File List	See Saving a Seed File , page 4-9.
Event Filter dialog box	File > Save As	Save File Dialog: Save Filter	See Saving an Event Filter File , page 9-17.
GTT Editor (ITP only)	File > Save As	Save File Dialog: GTT File List	See Saving a GTT File , page 14-46.
Route Table dialog box	File > Save As	Save File Dialog: Route Table File List	See Saving a Route Table File , page 13-14.
View Editor window	File > Save As	Save File Dialog: View List	See Closing the View Editor Window , page 7-15.

Using the Windows Start Menu

This section includes:

- [Changing the Default MWTM Server Name, page 4-43](#)
- [Launching the MWTM Client, page 4-43](#)
- [Launching the MWTM DOS Prompt, page 4-44](#)
- [Launching the MWTM Event Editor, page 4-44](#)
- [Launching the MWTM SSL Certificate Tool, page 4-44](#)
- [Displaying the MWTM README File, page 4-44](#)
- [Uninstalling the MWTM, page 4-44](#)

Changing the Default MWTM Server Name

If the IP address or hostname to which your MWTM client is bound fails, you can change the default MWTM server name from the Windows Start menu.

To change the default MWTM server name:

-
- Step 1** Close all open MWTM windows.
- Step 2** Choose **Start > Programs > Cisco MWTM Client > Modify Default MWTM Server Name**. The 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**. The MWTM sets the default server to the new name that you entered.
-



Tip

See [Connecting to a New Server, page 5-42](#) for more information about changing the default MWTM server name.

Launching the MWTM Client

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

Launching the MWTM DOS Prompt

To launch a DOS prompt for the MWTM from the Windows Start menu, choose **Start > Programs > Cisco MWTM Client > MWTM DOS Prompt**. The 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\MWTMClient\bin*.
- If you installed the MWTM client in a different directory, then the `\bin` directory is located in that directory.

Launching the MWTM Event Editor

To launch the MWTM Event Editor, choose **Start > Programs > Cisco MWTM Client > Launch MWTM Event Editor** from the Windows Start menu. The MWTM launches the MWTM Event Editor.

Launching the MWTM SSL Certificate Tool

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

Displaying the MWTM README File

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

Uninstalling the MWTM

You can uninstall the MWTM from the Windows Start menu. For details, see the “Uninstalling the MWTM Client” section of the *Installation Guide for the Cisco Mobile Wireless Transport Manager 6.0*.

Exiting the MWTM Client

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

-
- Step 1** From the MWTM main menu, choose **File > Exit**. The Exit MWTM confirmation window appears.
- Step 2** Click **Yes** to close the MWTM client application.
-

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