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

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 *x.x.x.x*, where each *x* 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 *.*.*.*, 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

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/CSCOsgm/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 *recursive discovery*, 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 *those* nodes; and so on, until MWTM has discovered the entire network. • To rediscover only seed nodes, clear this checkbox. This is called *nonrecursive discovery*. 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 *Server.properties* file: • If you installed MWTM in the default directory, */opt*, then the location of the *Server.properties* file is */opt/CSCOsgm/properties/Server.properties*. • If you installed MWTM in a different directory, then the *Server.properties* 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 *stateReasons.html* file: • If you installed MWTM in the default directory, */opt*, then the file is located at */opt/CSCOsgm/apache/share/htdocs/eventHelp* directory. • If you installed MWTM in a different directory, then the help directory and file are located in that directory. If the cell is too small to show all of the status reason, place the cursor over the cell to see the full status reason in a mouse over help popup. The status reasons are listed in order of decreasing magnitude. If two or more reasons apply, the reason of greatest magnitude is displayed. If the status reason is **Unsupported Configuration**, correct the configuration and enter the **mwtm cleandiscover** command to delete all current network data and begin a clean discovery of the RAN-O network. If the status reason is still **Unsupported Configuration**, enter the **mwtm clean** command to restore the MWTM server to a "clean" state, such as would exist after a new installation of MWTM. For more information on the use of these commands, see the "MWTM Command Reference" section on page C-1.
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.