CHAPTER 8

Viewing the Topology of the Network

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

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

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

MWTM displays the Topology Window.

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

The Topology Window is composed of the following sections:

MWTM provides the following functions related to the topology map:

Related Topics:

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

Topology Menu

The Topology Window uses the MWTM Main Menu. See the "Using the MWTM Main Menu" section on page 3-7 for detailed descriptions of the options it provides.

Topology Toolbar Buttons

The Topology Window contains the following toolbar buttons:

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

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

Topology View Table

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

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

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

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

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

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

You can resize each column, or sort the table based on the information in one of the columns. By default, MWTM displays only the **Type**, **Name**, **Node Name**, and **Status** columns in the topology view table.

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

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

The topology view table contains the following columns:

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

Column	Description
Status	Current status of the object. Possible values are: **Active** **Unknown** **Unmanaged** **Warning** For detailed definitions of each status, see the "MWTM Status Definitions" section on page A-1.
Status Reason	Reason for the current status of the object. For a full list of possible reasons, see the *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.
Ignored	Indicates whether the object is to be included when aggregating and displaying MWTM status information: • Clear the checkbox to include the object. This is the default setting. • Select the checkbox to exclude the object. This field can be edited by users with authentication level Power User (Level 2) and higher.

Topology New Objects Panel

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

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

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

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

To exclude a newly discovered object, use the View Editor Window. See the "Creating a New View" section on page 4-31 for more details.

Topology Excluded Objects Panel

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

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

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

Topology Map

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

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

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

For detailed definitions of each status, see the "Status Definitions for Views" section on page A-4.

See the "Creating a New View" section on page 4-31 for more information about excluding objects.

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

Note You can turn off mouse over help. For details, see the "Topology Settings" section on page 11-9.

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

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

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

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

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

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

To save the topology map as a JPEG file, use the Save as JPEG dialog. See the "Saving the Topology Map as a JPEG File" section on page 8-18 for more details.

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

To align two or more objects on the topology map, use the Align Objects dialog. See the "Aligning Objects on the Topology Map" section on page 8-25 for more details.

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

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

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

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

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The color of a graphical element indicates its current status. For detailed definitions of each status, see the "MWTM Status Definitions" section on page A-1.

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

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

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

- Topology Right-Click Menu: Map, page 8-9
- Topology Right-Click Menu: View, page 8-10

Topology Right-Click Menu: Map

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

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

Topology Right-Click Menu: View

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

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

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

Menu Command	Description
Event History > SNMP Trap Messages	Displays the MWTM Network Status Log for SNMP Trap Messages in a Web browser, with messages displayed for only the selected node.
Event History > Status and Trap Messages	Displays the MWTM Network Status Log for Status Change Messages and SNMP Trap Messages in a Web browser, with messages displayed for only the selected node.
Event History > Network Status Metrics	Displays the MWTM Network Status Log for Metrics in a Web browser, with messages displayed for only the selected node.
Ignore	Ignores the selected view at the next polling cycle. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Power User (Level 2) and higher.
Unignore	Stops ignoring the selected view at the next polling cycle. If you have implemented MWTM User-Based Access, this option is available to users with authentication level Power User (Level 2) and higher.
Drill-Down > Show Syslog Messages	Opens the Node Details: Syslog table, which polls the selected node and displays all messages in its system log. This option is not available if the node is in **Unknown** or **Unmanaged** status.
Drill-Down > Show CPU Processes	Opens the Node Details: CPU Processes panel, which polls the selected node for information about its CPU processes. This option is not available if the node is in **Unknown** or **Unmanaged** status.
Drill-Down > Show Trap Configuration	Opens the Node Details: Trap Configuration panel, which displays all trap settings for the node, as well as all hosts and port numbers to which the node sends traps. If you have implemented MWTM User-Based Access, this option is available to users with authentication level System Administrator (Level 5). This option is not available if the node is in **Unknown** or **Unmanaged** status.
Latest Reports > RAN Capacity Planning	Displays the RAN Capacity Planning Report for the node, in a Web browser. This option is not available if the node is in **Unknown** or **Unmanaged** status.
Latest Reports > RAN Statistics	Displays the RAN Backhaul 15 Minutes Statistics report associated with the node, in a Web browser. This option is not available if the node is in **Unknown** or **Unmanaged** status.

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

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

Creating a Custom Layout

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

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

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

Step 1 Press and hold down the **Shift** key on your keyboard.

Step 2 Still holding down **Shift**, click the left mouse button to select the nodes you want to move in the map.

Step 3 Still holding down **Shift**, select one of the nodes you want to move and hold down the left mouse button.

Step 4 Still holding down both **Shift** and the left mouse button, move the mouse to move the nodes to their new position. The moved nodes keep their positions relative to each other.

Step 5 Release both **Shift** and the left mouse button.

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

Finding an Object

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

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

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

The Find Objects dialog contains the following fields and buttons:

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

Using the Selection Dialog

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

The Selection Dialog contains the following field and buttons:

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

Related Topics:

- Finding an Object, page 8-15

Scrolling in the Topology Map

To scroll around in the topology map, use one of the following procedures:

- Use the scroll bar with your mouse.
- Click anywhere in the map, then click the arrow, **Page Up**, and **Page Down** keys on your keyboard.

Centering the Topology Map on an Object

To redraw the topology map centered on a specific node, double-click the object in a table in the left pane of the window.

Displaying Detailed Information About a Topology Map Element

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

- Double-click a node to display the MWTM Main window details for that object.
- Double-click a single line, or a diamond, circle, or arrowhead at the end of a single line, to display the MWTM Main window details for that interface.

Displaying the Topology New Objects Panel

To display the topology New Objects panel, select the **New Objects** tab in the left pane, or click the "New!" icon in the bottom of the window. The topology New Objects panel displays graphical elements for newly discovered objects, based on the following criteria:

- If you are using an MWTM client with the DEFAULT view set, this panel never contains any objects. In the DEFAULT view, MWTM adds all newly discovered objects to the topology map as soon as they are discovered.
- If you are using an MWTM client with a custom view set, this panel contains all objects discovered since the Topology Window was opened in this session that have *not* been excluded in the Excluded from View table of the View Editor Window, or that are not in the current view.
- To add a newly discovered object to the topology map, select one or more objects in the topology New Objects panel and drag them to the map while holding down the left mouse button.
- To exclude a newly discovered object from the topology New Objects panel, see the "Creating a New View" section on page 4-31.

Displaying the Topology Excluded Objects Panel

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

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

Printing the Topology Map

To print the topology map, see the "Printing MWTM Windows" section on page 3-31.

Saving the Topology Map as a JPEG File

MWTM enables you to save the topology map to a JPEG file. You can save the entire topology map, or just the current window.

To save the topology map to a JPEG file, select **Topology Tools > Save as JPEG** from the MWTM Main Menu.

MWTM displays the Save as JPEG dialog.

The Save as JPEG dialog contains the following fields and buttons:

Field or Button	Description
All	Saves the entire topology map as a JPEG file. The default setting is for this checkbox to be selected.
Current Window	Saves just the portion of the topology map displayed in the current window as a JPEG file. The default setting is for this checkbox to be cleared (that is, save the entire map, not just the current window).
Quality	Specifies the quality of the JPEG file, from 0 (lowest quality) to 1.0 (highest quality). The default setting is 0.7, which is sufficient for most JPEG files.
Max. Size	Specifies the size of the JPEG file, in pixels. Choose a value from the drop-down list box. The valid range is 400 pixels to 2400 pixels. The default value is 400 pixels, which is sufficient for most JPEG files.
Name	Enter a name for the JPEG file, or accept the default filename, *out.jpg*. The default directory for the JPEG file is the directory in which you installed the MWTM client: • In Solaris/Linux, the default installation directory for the MWTM client is */opt/CSCOsgmClient*. • In Windows, the default installation directory for the MWTM client is *C:\Program Files\SGMClient*. • If you installed the MWTM client in a different directory, then the installation directory is located in that directory. If you do not want to save the JPEG file to the default directory, click **Browse** to select a different directory.
Browse	Opens the Save dialog for a topology map, which enables you to specify or select a name when you save the JPEG file. If you do not want to save the JPEG file to the default directory, click **Browse** to select a different directory.
Save	Saves the JPEG file and closes the Save as JPEG dialog.
Cancel	Closes the Save as JPEG dialog without saving the JPEG file.

Selecting a Directory for the JPEG File

MWTM enables you to specify or select a name or directory when you save a topology map to a JPEG file. You can save the entire topology map, or just the current window.

To specify a name or directory for the JPEG file, click **Browse** in the Save as JPEG dialog.

MWTM displays the Save dialog for a topology map.

The Save dialog for a topology map contains the following fields and buttons:

Field or Button	Description
Save In	Enables you to select the directory in which you want to save the topology map JPEG file. Either accept the default directory, or select a new directory from the drop-down list box.
File Name	Enter a name for the JPEG file, or select a file from those listed in the **Save In** field.
Files of Type	Specifies the type of file to save, and displays all files of that type in the selected directory. Select a file type from the drop-down list box: • **All files**—Displays all files in the selected directory, and saves the topology map file as a JPEG file. • **jpg files**—Displays only JPEG files in the selected directory, and saves the topology map file as a JPEG file. This is the default value.
Up One Level	Displays the sub-folders and files that are in the folder that is up one level from the currently displayed folder.
Desktop	Displays the sub-folders and files that are on your workstation desktop.
Create New Folder	Creates a new sub-folder in the currently displayed folder.
List	Displays only icons for sub-folders and files.
Details	Displays detailed information for sub-folders and files, including their size, type, date they were last modified, and so on.
Save	Saves the file and closes the Save dialog for a topology map. When you are satisfied with the settings, click **Save**. MWTM closes the Save dialog for a topology map and populates the **Name** field in the Save as JPEG dialog with the new name and directory.
Cancel	Closes the Save dialog for a topology map without saving the file.

Related Topics:

- Saving the Topology Map as a JPEG File, page 8-18

Activating a Magnetic Grid on the Topology Map

MWTM enables you to activate the magnetic topology grid, and change how it is displayed. With the grid activated, when you move objects on the topology map they "snap" to align with the grid.

Note Magnetic grid settings are *not* saved when you save the view.

To activate or change the magnetic topology grid, select **Topology Tools > Magnetic Grid** from the MWTM Main Menu. MWTM displays the Magnetic Grid Settings dialog.

The Magnetic Grid Settings dialog contains the following fields and buttons:

Field or Button	Description
Grid Activated	Specifies whether the magnetic topology grid is activated: • To activate the grid, select this checkbox. • To deactivate the grid, clear this checkbox. This is the default setting.
Display Grid	Specifies whether the grid is to be displayed on the topology map: • To display the grid, select this checkbox. This is the default setting. • To hide the grid, clear this checkbox. If **Grid Activated** is not selected, this checkbox is grayed-out.
Grid Spacing	Specifies the spacing between lines on the grid, in pixels. To specify the spacing between lines on the grid, in pixels, select the **Grid Activated** checkbox, then select a **Grid Spacing** level. The valid range is 0 pixels to 150 pixels. The default setting is 50 pixels, which is sufficient for most topology maps.
Grid Color	Opens the Select Grid Color dialog. To specify a color for the grid, select the **Grid Activated** checkbox, then click **Change Color** in the **Grid Color** field. MWTM opens the Select Grid Color dialog.
OK	Sets the new grid settings and closes the Magnetic Grid Settings dialog. When you are satisfied with the magnetic grid settings, click **OK**.
Cancel	Closes the Magnetic Grid Settings dialog without changing any settings.

Specifying a Color for the Magnetic Grid

MWTM enables you to customize the color of the magnetic topology grid.

Note The grid color is *not* saved when you save the view.

To specify a color for the grid, select the **Grid Activated** checkbox in the Magnetic Grid Settings dialog, then click **Select** in the **Grid Color** field.

MWTM opens the Select Grid Color dialog.

The Select Grid Color dialog is composed of the following sections:

- Swatches Panel (Recommended), page 8-21
- HSB Panel, page 8-21
- RGB Panel, page 8-22
- Select Grid Color Field and Buttons, page 8-22

Related Topics:

- Activating a Magnetic Grid on the Topology Map, page 8-20

Swatches Panel (Recommended)

The Swatches panel of the Select Grid Color dialog enables you to select a grid color from a set of color swatches. This is the recommended method for selecting a grid color.

To display the Swatches panel, click the **Swatches** tab in the Select Grid Color dialog.

To select a grid color, select a swatch. The selected color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**.

HSB Panel

The HSB panel of the Select Grid Color dialog enables you to select a grid color based on color hue, saturation, and brightness (HSB).

To display the HSB panel, click the **HSB** tab in the Select Grid Color dialog.

To select a grid color, use one of the following procedures:

- Select a color range on the vertical color bar, then select a specific color by moving the cursor around on the color square.
- Enter specific values in the hue (**H**), saturation (**S**), and brightness (**B**) fields.

The selected color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**.

RGB Panel

The RGB panel of the Select Grid Color dialog enables you to select a grid color based on the red, green, and blue (RGB) content of the color.

To display the RGB panel, click the **RGB** tab in the Select Grid Color dialog.

To select a grid color, select values for the **Red**, **Green**, and **Blue** fields. The selected color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**.

Select Grid Color Field and Buttons

The Select Grid Color dialog contains the following field and buttons:

Field	Description
Preview	Displays a preview of the current selected grid color. Whichever method you choose to select a grid color, the selected color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**.
OK	Sets the grid color as shown in the **Preview** field, and closes the Select Grid Color dialog.
Cancel	Closes the Select Grid Color dialog without selecting a grid color.
Reset	Resets the grid color to its initial setting.

Specifying a Background Color for the Topology Map

MWTM enables you to customize the background color of the topology map.

Note The background color is *not* saved when you save the view.

To specify a background color for the topology map, right-click in a blank area of the topology map, then select **Change Background Color** from the right-click menu.

The Select Background Color dialog is composed of the following sections:

- Swatches Panel (Recommended), page 8-23
- HSB Panel, page 8-24
- RGB Panel, page 8-24
- Select Background Color Field and Buttons, page 8-25

Swatches Panel (Recommended)

The Swatches panel of the Select Background Color dialog enables you to select a background color from a set of color swatches. This is the recommended method for selecting a background color.

To display the Swatches panel, click the **Swatches** tab in the Select Background Color dialog.

To select a background color, select a swatch. The selected color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**.

HSB Panel

The HSB panel of the Select Background Color dialog enables you to select a background color based on color hue, saturation, and brightness (HSB).

To display the HSB panel, click the **HSB** tab in the Select Background Color dialog.

To select a grid color, use one of the following procedures:

- Select a color range on the vertical color bar, then select a specific color by moving the cursor around on the color square.
- Enter specific values in the hue (**H**), saturation (**S**), and brightness (**B**) fields.

The selected color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**.

RGB Panel

The RGB panel of the Select Background Color dialog enables you to select a background color based on the red, green, and blue (RGB) content of the color.

To display the RGB panel, click the **RGB** tab in the Select Background Color dialog.

To select a background color, select values for the **Red**, **Green**, and **Blue** fields. The selected color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**.

Select Background Color Field and Buttons

The Select Background Color dialog contains the following field and buttons:

Field	Description
Preview	Displays a preview of the current selected background color. Whichever method you choose to select a background color, the selected color is displayed in the **Preview** field. When you are satisfied with the color, click **OK**.
OK	Sets the background color as shown in the **Preview** field, and closes the Select Background Color dialog.
Cancel	Closes the Select Background Color dialog without selecting a background color.
Reset	Resets the background color to its initial setting.

Aligning Objects on the Topology Map

Note To un-align objects, simply drag and drop the object to move it on the topology map.

MWTM enables you to align two or more objects on the topology map. You can align the objects based on their left, right, top, or bottom edges, or you can center them in the map. The alignment is saved when you save the view.

To align objects, select the objects you want to align, then select **Topology Tools > Align** from the MWTM Main Menu. MWTM displays MWTM opens the Align Dialog.

The Align Dialog contains the following field and buttons:

Field	Description
Vertically: None	Does not align the selected objects vertically.
Vertically: Left	Aligns the selected objects vertically, aligned with the left-most edge of the left-most selected object.
Vertically: Center	Aligns the selected objects vertically, with centers aligned.
Vertically: Right	Aligns the selected objects vertically, aligned with the right-most edge of the right-most selected object.
Vertically: Side by side	Aligns the selected objects vertically, aligned side-by-side, with no horizontal space between the objects. (There might still be vertical space between the objects.)
Horizontally: None	Does not align the selected objects horizontally.
Horizontally: Top	Aligns the selected objects horizontally, aligned with the top-most edge of the top-most selected object.
Horizontally: Center	Aligns the selected objects horizontally, with centers aligned.

Field	Description
Horizontally: Bottom	Aligns the selected objects horizontally, aligned with the bottom-most edge of the bottom-most selected object.
Horizontally: Side by side	Aligns the selected objects horizontally, aligned side-by-side, with no vertical space between the objects. (There might still be horizontal space between the objects.)
Apply	Aligns the selected objects and keeps the Align Dialog open, enabling you to continue aligning objects.
OK	Aligns the selected objects and closes the Align Dialog.
Cancel	Closes the Align Dialog. Changes you applied are saved; other changes are not saved.
Help	Opens the Help window for this object.

Hiding and Redrawing Lines When Redrawing

MWTM enables you to hide lines as you drag an object around the topology map, then draw the link lines when you drop the object in its final position. To do so, click the **Node Dragging Optimizer** button to turn it on. This is the default setting.

To have MWTM continually redraw lines as you drag an object around the topology map, click the **Node Dragging Optimizer** button to turn it off.

This setting, with the Node Dragging Optimizer on or off, is saved automatically with your preferences.

Hiding and Showing Lines When Redrawing

MTWM enables you to hide lines that connect to objects that are not in the current view, called dangling connections. To do so, click the **Hiding/Showing Dangling Connections** button to set it to **Hide**. This is the default setting.

To show dangling connections, click the **Hiding/Showing Dangling Connections** button to set it to **Show**. MWTM draws the lines in shades of gray to distinguish them from actual objects in the current view.

This setting, with the Hiding Dangling Connections set to **Show** or **Hide**, is *not* saved when you save the view.

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

Locking and Unlocking the Position of an Icon

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

- To lock the position of an icon on the topology map, right-click an unlocked icon, then select **Lock Position**.

- To unlock the position of an icon on the topology map, right-click a locked icon, then select **Unlock Position**. This is the default setting.

This setting, with icon positions locked or unlocked, is saved when you save the view.

Turning Off Antialiasing to Improve Performance

Antialiasing, which is on by default, improves the appearance of the icons and connections in the topology map. However, antialiasing can impact the performance of the MWTM client on a remote workstation (that is, a Solaris/Linux workstation using **xhost**, or a Windows workstation using an X-Window system emulator such as eXceed or Reflection X).

MWTM enables you to turn off antialiasing to improve the performance of the MWTM client on a remote workstation. To do so, select the **X Performance Enhancer (AntiAliasing Off)** checkbox in the Topology settings in the Preferences window. For more information, see the "Topology Settings" section on page 11-9.

To turn antialiasing back on, clear the checkbox.

Keep in mind that performance is always better if you access MWTM by installing the MWTM client on the remote workstation.

Saving the Topology Map

When you are ready to close the Topology Window, select **File > Save View** from the MWTM Main Menu. MWTM prompts you to save any changes you made to the network view, including any changes you have made to the topology map layout, and closes the window.

For more information, see the "Closing the View Editor Window" section on page 4-39.

Restoring the Topology Map

MWTM enables you to restore the topology map to the way it looked in the last saved view. To do so, select **Topology Tools > Restore Positions** from the MWTM Main Menu. MWTM restores the view.