CHAPTER 9

Managing Alarms and Events

You can use the Cisco Mobile Wireless Transport Manager (MWTM) to view information about alarms and events, including their associated network objects and related information.

This chapter contains:

Basic Concepts and Terms

This section contains these topics:

Event Definition

Events are created when the status of a device changes and when a user performs certain actions. MWTM detects device status changes by receiving notifications from devices and by periodically polling the devices. Examples of events include:

- An interface status changes.
- A node is unreachable by MWTM.
- A user deletes a node from the MWTM inventory.

The MWTM writes events to the MWTM database once, and they never change. By definition, an event is a historical instance in time, and the MWTM does not modify any information about the event. It is important to understand that an event, once it occurs, does not change its status even when the conditions that triggered the event are no longer present.

To view a list of recent events, click **Event History** in the navigation tree of the client or web interface. To view archived events, click **Archived** in the web interface toolbar.

Alarm Definition

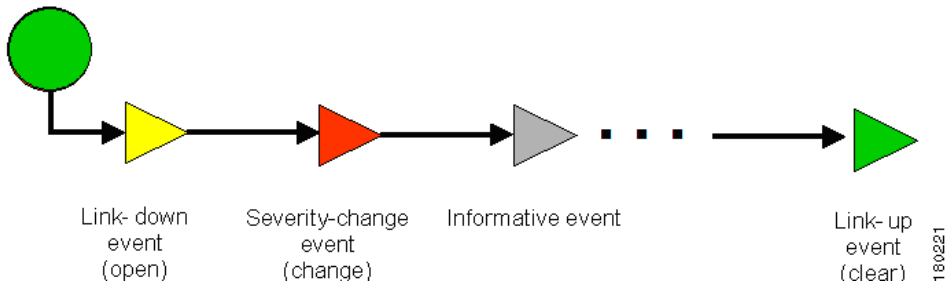
An alarm is a sequence of events, each representing a specific occurrence in the alarm lifecycle.

An alarm represents a series of correlated events that describe a fault occurring in the network or management system. An alarm describes the complete fault life cycle, from the time that the alarm is raised (when the fault is first detected) until the alarm is cleared. Examples of alarms include:

- An interface is operationally down.
- A node is unreachable by MWTM.
- There is a device fan failure.

Figure 9-1 shows an example of a sequence of correlated events that describe the lifecycle of one alarm.

Figure 9-1 Example of Alarm



The MWTM constructs alarms from a sequence of correlated events. A complete event sequence for an alarm includes a minimum of two events:

- Alarm open (for example, a link-down event raises an alarm).
- Alarm clear (for example, a link-up event clears the alarm).

The lifecycle of an alarm can include any number of correlated events that are triggered by changes in severity, updates to services, and so on. When a new related event occurs, the MWTM correlates it to the alarm and updates the alarm severity and message text based on the new event. If you manually clear the alarm, the alarm severity changes to normal. You can still view the events that formed this alarm in the Event History table.

Tip Remember that an alarm can change over time as new correlated events occur; but events, by definition, can never change. Events are historical instances in time.

To view all alarms, click **Active Alarms** in the navigation tree. By default, the navigation tree is sorted by alarm severity, with objects having the most severe alarms appearing at the top of the tree.

Note While some events correlate to a single alarm, there are events that do not raise alarms at all.

Displaying Active Alarms and Event History

You use the MWTM to view a network summary of active alarms and historical events. The contents of the Active Alarms window and the Event History window are very similar in appearance (the Active Alarms table shows fewer entries than the Event History table because multiple events are associated with a single alarm.)

Here are a few helpful facts about alarms and events:

- The MWTM displays the number of alarms or events in the message area (lower left area of the GUI).
- Not all events raise alarms.
- Alarms can be manually or automatically cleared and removed from the MWTM; events cannot be cleared, but they can be manually or automatically deleted.

To see a summary of all active alarms, in the MWTM client or web interface, click **Active Alarms** in the navigation tree. The MWTM shows the Active Alarms window in the right pane.

The Active Alarms window provides basic information about all 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. For more information about the Active Alarms window, see:

- Toolbar Buttons, page 9-8
- Right-click Menus, page 9-11

To see a summary of all the recent events, in the MWTM client or web interface, click **Event History** in the navigation tree. The MWTM shows the Event History window in the right pane.

For more information about the Event History window, see:

- Toolbar Buttons, page 9-8
- Right-click Menus, page 9-11

Note You can view multiple Event History windows at the same time, with different event filtering in each window or dialog box.

If you select a specific object in the navigation tree and click the Alarms tab or Recent Events tab, the MWTM shows information about the alarms or events for that object only.

You can resize each column (except when using the web interface), or sort the table based on the information in one of the columns.

Note For more information about resizing, sorting, displaying, or hiding columns, see Navigating Table Columns, page 4-23.

To see detailed information about an alarm or event, in the:

- MWTM client interface, right-click the event in a window, then select **Alarm and Event Properties** in the right-click menu.

- Web interface, select the alarm or event by checking its check box, then click the **Alarm and Event Properties** icon  in the toolbar.

Note When using the web interface to select an alarm or event in the table, you check the check box for the row. You can select multiple rows. To clear the selection, click Clear Selection in the toolbar. In the client interface, use the Shift key to select multiple rows. To clear the selection, left-click anywhere in the table.

The table columns of the Active Alarms, Alarms tab, Event History, and Recent Events tabs include:

Column	Description
Internal ID	Internal ID of the alarm or event. The internal ID is a unique ID that the MWTM assigns for its own internal use. This ID can also be useful when the Cisco Technical Assistance Center (TAC) is debugging problems.
Ack	Indicates whether the alarm or event has been acknowledged. To: • Acknowledge an unacknowledged alarm or event, use the Acknowledge toolbar button. • Make a previously acknowledged event unacknowledged, use the Unacknowledge toolbar button. This column is displayed by default.
Name	Name of the alarm or event. This column is displayed by default under Active Alarms and Alarms tab.
Alarm Nature	Nature of the alarm. The alarm nature is determined when the alarm is created. The valid values are: • ADAC - automatically detected and automatically cleared • ADMC - automatically detected and manually cleared • Undefined - undefined This column is present under Active Alarms and Alarms tab.
Alarm Type	The type of the alarm. The valid values (X.733 alarm types) are: • Communications • Processing Error • Environmental • QOS • Equipment • Undefined
Element Name	Network element name associated with the event.

Column	Description
Category	Type of the event. Default values include: • Create—Creation event, such as the creation of a seed file. • Delete—Deletion event, such as the deletion of an object or file. • Discover—Discovery event, such as Discovery beginning. • Edit—Edit event. A user has edited an object. • Ignore—Ignore event. A user has Ignored a link or linkset. • LaunchTerminal—An event related to the MWTM telnet or ssh terminal service. • Login—Login event. A user has logged in to the MWTM. • LoginDisable—LoginDisable event. The MWTM has disabled a user's User-Based Access authentication as a result of too many failed attempts to log in to the MWTM. • LoginFail—LoginFail event. An attempt by a user to log in to the MWTM has failed. • Logout—Logout event. A user has logged out of the MWTM. • OverWrite—OverWrite event. An existing file, such as a seed file or route file, has been overwritten. • Performance—Performance event. • Poll—Poll event, such as an SNMP poll. • Purge—Purge event. A user has requested Discovery with Delete Existing Data selected, and the MWTM has deleted the existing the MWTM database. • Provision—An event related to the MWTM device provisioning subsystem. • Status—Status change message generated. • Trap—SNMP trap message generated. You can customize this field (see Changing Event Categories, page 9-31). This column is displayed by default in the Event History window.
Feature	The feature name of the event. This column is displayed by default.

Column	Description
Severity	Severity of the alarm or event. Possible severities are:  Critical  Major  Minor  Warning  Normal  Indeterminate  Informational You can customize this field (see Right-Click Menu for a Specific Alarm or Event, page 9-11). To change the severity of an alarm, in the: • MWTM client interface, right-click the alarm and choose Change Severity > *new severity* from the menu. • Web interface, select the event by checking its check box, choose a new severity from the Severity drop-down menu, then click the **Change Severity** button. **Note** You cannot change the severity of an event. This column is displayed by default.
Original Severity	Original severity of the event.
Count	Number of events in the sequence of events for an alarm. This column is displayed by default in the Active Alarms window and the Alarms tab.
Note	Indicates whether a note is associated with the event.
Create Time *timezone*	Time at which this event was received. This column is displayed by default in the Event History window and the Events tab.
Create Time (Node Time Zone)	The node time zone at which the event was received.
Change Time *timezone*	Time at which this event was last updated. This column is displayed by default in the Active Alarms window and the Alarms tab.
Change Time (Node Time Zone)	The node time zone at which the event was updated.
Ack By	If you have not implemented the MWTM User-Based Access, name of the node that last acknowledged the event. If you have implemented the MWTM User-Based Access, name of the user who last acknowledged the event. If no one has acknowledged the event, this field is blank.
Ack Time *timezone*	The time at which the event was acknowledged.
Ack Time (Node Time Zone)	The node time zone at which the event was acknowledged.
Clear By	The user who cleared the event. This column is present in Active Alarms and Alarms tab and is hidden by default.

Column	Description
Clear Time	The time at which the event was cleared. This column is present in Active Alarms and Alarms tab.
Clear Time (Node Time Zone)	The node time zone at which the event was cleared. This column is present in Active Alarms and Alarms tab and is hidden by default.
Node	Name of the node associated with the alarm or event. If no node is associated with the alarm or event, None appears. This column is displayed by default.
Card (RAN-O only)	Card associated with this alarm or event.
SP (ITP only)	Name of the signaling point associated with the alarm or event. If no signaling point is associated with the alarm or event, None appears.
Linkset (ITP only)	Name of the linkset associated with the alarm or event. If no linkset is associated with the alarm or event, None appears.
Link (ITP only)	Name of the link associated with the alarm or event. If no link is associated with the alarm or event, None appears.
SGMP (ITP only)	Name of the signaling gateway-mated pair associated with the alarm or event. If no signaling gateway-mated pair is associated with the alarm or event, None appears.
ASP (ITP only)	Name of the application server process associated with the alarm or event. If no application server process is associated with the alarm or event, None appears.
AS (ITP only)	Name of the application server associated with the alarm or event. If no application server is associated with the alarm or event, None appears.
ASPA (ITP only)	Name of the application server process association associated with the alarm or event. If no application server process association is associated with the alarm or event, None appears.
Interface	Interface associated with this alarm or event.
RAN Backhaul (RAN-O only)	RAN backhaul associated with this alarm or event.
Message	The message associated with the alarm or event.

Toolbar Buttons

The Active Alarms and Event History windows in the client and the web interfaces provide these toolbar buttons:

Button	Description
 Set Filter or Modify Filter	Opens the Alarm and Event Filter dialog box.
 Apply Filter or Remove Filter	Activates and deactivates the event filter specified in the Event Filter dialog box. If: • The filter is activated, the MWTM shows only those alarms or events that pass the filter. • The filter is deactivated, the MWTM shows all alarms or events. • You activate a filter in an object's Recent Events table in the MWTM main window, the filter is activated in all Recent Events tables in the MWTM main window for all other objects. The filter is not activated in Recent Events tables in Show In New Window windows or Real-Time Data and Charts windows.
 Show only Archived Events or Show only Archived Alarms (Client interface only)	In the Active Alarms page, the Show only Archived Alarms button takes you to the Archived Alarms page in the web. In the Event History page, the Show only Archived Events button takes you to the Archived Events page in the web.
Archived (web interface only)	This option appears in the tool bar when you are viewing the Event History table or the Active Alarms table. Click the Archived button to display a table of archived events or alarms. Click the Archived button again to switch back and forth. **Caution** In the *Server.properties* file, you can limit the number of rows in the archived events table with the MAX_ ARCHIVED_EVENT_DB_ROWS property. The default value is 200,000. Increasing this value can have severe impact on server performance and can cause the server to run out of memory.
 Refresh (web interface only)	Forces a refresh of the current web page. Click this icon to refresh the current page.
 Pause Resume	Pauses or resumes the table. While the table is paused, the MWTM does not display new alarms or events in the table (unless you apply a filter or edit your preferences). When the table is resumed, all new alarms or events since the table was paused are added to the display. If alarms or events are deleted while the table is paused, they are not removed from the table. Instead, they are dimmed and cannot be acknowledged or edited. Deleted alarms or events are removed from the table when you resume the table.
All	Filters the page by all severities.

Button	Description
Critical (*alarm count*) (*alarm percentage*)	Filters the page to include only the alarms with Critical severity. This opens the Active Alarms filtered by Critical Severity page. **Note** The alarm count and the alarm percentage are not displayed in the Event History table.
Major (*alarm count*) (*alarm percentage*)	Filters the page to include only the alarms with Major severity. This opens the Active Alarms filtered by Major Severity page. **Note** The alarm count and the alarm percentage are not displayed in the Event History table.
Minor (*alarm count*) (*alarm percentage*)	Filters the page to include only the alarms with Minor severity. This opens the Active Alarms filtered by Minor Severity page. **Note** The alarm count and the alarm percentage are not displayed in the Event History table.
Warning (*alarm count*) (*alarm percentage*)	Filters the page to include only the alarms with Warning severity. This opens the Active Alarms filtered by Critical Severity page. **Note** The alarm count and the alarm percentage are not displayed in the Event History table.
Informational (*alarm count*) (*alarm percentage*)	Filters the page to include only the alarms with Informational severity. This opens the Active Alarms filtered by Critical Severity page. **Note** The alarm count and the alarm percentage are not displayed in the Event History table.
Indeterminate (*alarm count*) (*alarm percentage*)	Filters the page to include only the alarms with Indeterminate severity. This opens the Active Alarms filtered by Indeterminate Severity page. **Note** The alarm count and the alarm percentage are not displayed in the Event History table.
Normal (*alarm count*) (*alarm percentage*)	Filters the page to include only the alarms with Normal severity. This opens the Active Alarms filtered by Normal Severity page. **Note** The alarm count and the alarm percentage are not displayed in the Event History table.
Acknowledge	Makes the chosen alarms or events acknowledged.
Unacknowledge	Makes the chosen alarms or events unacknowledged.
Clear	Clears the chosen alarms in the Active Alarms table. When you clear an alarm, the alarm no longer affects the severity of the object (its severity changes to normal), but the alarm remains visible in the Active Alarms table. This option is not available for events.
Delete	Deletes the chosen alarms or events. When you delete an alarm or event, you remove it from the table, and the MWTM archives the alarm or event in its database. Also, the alarm or event no longer affects the severity of the object.

Button	Description
 Clear and Delete	Clears the chosen alarms and also deletes them from the Active Alarms table. Use the Clear and Delete button if you need to designate an alarm as manually cleared before deleting it. When you use the Clear and Delete button, the MWTM changes the alarm severity of the object to normal, sends an alarm log message to */opt/CSCOsgm/logs/messageLog.txt*, and sends a trap to a northbound host to indicate that the alarm cleared. This option is not available for events.
 Event Properties	Opens the Alarm and Event Properties window, Properties tab.
 Events for Alarm	Launches a dialog that shows a table of events that are associated with the selected alarm. (This button is only available in alarm tables.)
 Edit Notes	Opens the Alarm and Event Properties window, Notes tab.
 Time Difference	Shows the time difference in days, minutes, hours, and seconds between two alarms or events. In the client interface, use the Ctrl key to select two alarms or events. In the web interface, check the check boxes of two alarms or events. Then click the Time Difference button.
 Find (Client interface only)	Finds specified text in the Active Alarms or Event History table.
 Create Sound Filter (Client interface only)	Opens the Event Sound Filters dialog box, with fields populated based on the chosen event.
 Adjust Row Height (Client interface only)	Adjusts the table row height and wraps the message text. Click: • Once to double the row height and wrap the message text. • Again to triple the row height and wrap the message text. • Again for single row height and no message text wrapping. This is the default setting. This setting is saved automatically with your preferences.
 Export the report as a CSV file (Web interface only)	Exports the alarms and events related table data to a report with comma-separated values (CSV file). You can save this file to disk or open it with an application that you choose (for example, Microsoft Excel).
 Help for Event	Shows context-sensitive help for the chosen alarm or event in a separate browser window.

Right-click Menus

In the MWTM client interface navigation tree, to display the right-click menu for all:

- Alarms, right-click Active Alarms (see Right-Click Menu for All Alarms and Events, page 9-11).
- Events, right-click Event History (see Right-Click Menu for All Alarms and Events, page 9-11).

In the MWTM client interface, to display the right-click menu for a specific alarm or event, right-click the alarm or event in the right pane (see Right-Click Menu for a Specific Alarm or Event, page 9-11).

Note Right-click menus are available only in the MWTM client interface.

Right-Click Menu for All Alarms and Events

To see the right-click menu for all active alarms, in the MWTM client interface, select Active Alarms or Event History in the navigation tree and right-click the mouse button.

Menu Command	Description
Show In New Window	Opens the Active Alarms or Event History 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.

Right-Click Menu for a Specific Alarm or Event

To see this menu, in the MWTM client interface, select an alarm or event and right-click the mouse button.

The right-click menu provides these options:

Menu Command	Description
Edit Notes	Opens the Edit Alarm and Event Notes dialog for the chosen alarm or event.
Go To > *Object*	Shows the window for the object associated with the chosen alarm or event. If no object is associated with the alarm or event, this option is not visible.
Change Severity	Changes the alarm severity to critical, major, minor, warning, informational, indeterminate, or normal. **Note** This right-click menu option appears only in the Active Alarms window.
Acknowledge	Makes the chosen alarms or events acknowledged.
Unacknowledge	Makes the chosen alarms or events unacknowledged.
Clear	Clears the chosen alarm in the Active Alarms table. When you clear an alarm, the alarm no longer affects the severity of the object (its severity changes to normal). The alarm remains visible in the Active Alarms table for 24 hours. After 24 hours, the MWTM archives the alarm in its database. This option is not available for events. **Note** This right-click menu option appears only in the Active Alarms window.

Menu Command	Description
Delete	Deletes the chosen alarm or event. When you delete an alarm or event, you remove it from the table, and the MWTM archives the alarm or event in its database. Also, the alarm or event no longer affects the severity of the object.
Clear and Delete	Clears the chosen alarm and also deletes it from the Active Alarms table. Use the Clear and Delete button if you need to designate an alarm as manually cleared before deleting it. When you use the Clear and Delete button, the MWTM changes the alarm severity of the object to normal, sends an alarm log message to */opt/CSCOsgm/logs/messageLog.txt*, and sends a trap to a northbound host to indicate that the alarm cleared. This option is not available for events. **Note** This right-click menu option appears only in the Active Alarms window.
Properties	Opens the Alarm and Event Properties dialog.
Create Sound Filter	Opens the Event Sound Filters dialog box, with fields populated based on the chosen event.
Help for Event	Shows context-sensitive help for the chosen event in a separate browser window.

Managing Filters for Alarms and Events

You can use the MWTM to create filters to customize the information visible for events and alarms.

- Setting Alarm or Event Filters, page 9-12
- Loading Existing Filters, page 9-19
- Saving Filter Files, page 9-20

Setting Alarm or Event Filters

You can use the MWTM Alarm and Event Filter dialog box to change the way alarm or event information appears.

Note You can access the Alarm and Event Filter dialog box through the client interface or the web interface. Minor differences that exist are noted in this section.

To change the way the MWTM presents event information, click **Event History** in the navigation tree, then click the Modify event filter tool  at the top of the Event History window. The Alarm and Event Filter dialog box appears (in the client interface, the window appears with the Properties tab chosen).

Note The Selected Objects tab is available only in the client interface.

For more information about the Alarm and Event Filter dialog box, see these sections:

- Alarm and Event Filter Buttons, page 9-13
- Alarm and Event Filter Panes, page 9-13
- Selected Objects Settings, page 9-16
- Event Filter Example, page 9-19

Related Topics

- Loading Existing Filters, page 9-19
- Saving Filter Files, page 9-20
- Viewing Properties for Alarms and Events, page 9-21

Alarm and Event Filter Buttons

The Alarm and Event Filter dialog box contains:

Button	Description
Select All	Checks all check boxes in the section.
Deselect All	Unchecks all check boxes in the section.
OK	Applies any changes you made to the filter and closes the Alarm and Event Filter dialog box.
Load	Opens the Load File Dialog, which you use to load an already existing filter file. If you are viewing events for a specific object in the navigation tree of the MWTM main window, this button is not available.
Save	Opens the Save File Dialog, which you use to save the filter file with a new name, or overwrite an existing filter file. If you are viewing events for a specific object in the navigation tree of the MWTM main window, this button is not available.
Cancel	Closes the Alarm and Event Filter dialog box without applying any changes to the filter.
Help	Shows online help for the current dialog box.

Alarm and Event Filter Panes

You use the Alarm and Event Filter panes in the Alarm and Event Filter dialog box to specify the types of alarms or events the MWTM should display in the Active Alarms or Event History window, including the category, feature, and severity of the alarm or event.

The Alarm and Event Filter dialog box contains these panes:

- Categories, page 9-13
- Severities, page 9-14
- Features, page 9-14
- Other, page 9-15

Categories

Use the Categories pane of the Alarm and Event Filter dialog box to specify which event categories you want to display in the Active Alarms or Event History window.

The following categories are available:

- Status
- Trap
- Create

- Delete
- Discover
- Edit
- Ignore
- Login
- LoginDisable
- LoginFail
- Logout
- OverWrite
- Poll
- Purge
- Provision
- LaunchTerminal
- Performance

All categories are checked by default. You can click Deselect All, or Select All.

Note These are the default categories; there might be additional categories that the MWTM system administrator defines. For information about custom categories, see Changing Event Categories, page 9-31.

Severities

Use the Severities pane of the Alarm and Event Filter dialog box to specify which alarm/event severities you want to display in the Active Alarms or Event History window.

The Severities pane contains these default fields:

Check box	Description
Informational	Indicates whether events of the specified severity appear in the Active Alarms/Event History window. Check boxes are checked by default.
Normal	
Indeterminate	
Warning	
Critical	
Minor	
Major	

Features

Use the Features pane of the Alarm and Event Filter dialog box to specify which event features you want to display in the Active Alarms or Event History window.

The following features are available:

- Unknown

- ITP
- CSR
- ONS
- RAN_SVC
- GGSN
- CSG1
- CSG2
- CDT
- BWG
- HA
- mSEF
- IP-RAN
- MetroE-Switch
- Generic
- PDSN
- PDNGW
- SGW
- PCRF

All categories are checked by default. You can click Deselect All, or Select All.

Other

Use the Other pane of the Alarm and Event Filter dialog box to further define the filter for the Active Alarms or Event History window. These settings are applied to all alarm/event displays in the current view.

Field	Description
Acknowledged	Check box indicating whether only acknowledged alarms/events appear in the Active Alarms/Event History window. This check box is unchecked by default.
Unacknowledged	Check box indicating whether only unacknowledged alarms/events appear in the Active Alarms/Event History window. This check box is checked by default.
Time Before	Check box indicating whether only alarms/events that the MWTM logs prior to a specified date and time appear in the Active Alarms/Event History window. This check box is unchecked by default.
Time Before	Specifies the date and time prior to which alarms/events that the MWTM logs appear in the Active Alarms/Event History window. This field is dimmed unless the Time Before check box is checked.
Time After	Check box indicating whether only alarms/events that the MWTM logs after a specified date and time appear in the Active Alarms/Event History window. This check box is unchecked by default.
Time After	Specifies the date and time after which alarms/events that the MWTM logs appear in the Active Alarms/Event History window. This field is dimmed unless the Time After check box is checked.

Field	Description
Name or Message Matches	Check box indicating whether only alarms/events that contain the specified message text appear in the Active Alarms/Event History window. This check box is unchecked by default. The Name or Message Matches field value is retained after a message filter is set.
Match Case	Check box indicating whether only alarms/events that match the case of the text in the Name or Message Matches field should appear in the Active Alarms/Event History window. This field is dimmed unless the Name or Message Matches check box is checked. The default setting for Match Case check box is unchecked, if the Name or Message Matches check box is checked. Also, the check box is disabled, if the Match Regex check box is checked. The Active Alarms/Event History table is filtered properly based on the text entered in the Name or Message Matches text box (case sensitive), if Match case check box is selected. The check box Match Case is retained after a message filter is set.
Match Regex	Check box indicating whether only alarms/events that match the regular expression of the text in the Name or Message Matches field should appear in the Active Alarms/Event History window. This field is dimmed unless the Name or Message Matches check box is checked. The default setting for Match Regex check box is unchecked, if the Name or Message Matches check box is checked. Also, the check box is disabled, if the Match Case check box is checked. The Active Alarms/Event History table is filtered properly based on the regular expression entered in the Name or Message Matches text box (case sensitive), if Match Regex check box is selected. The check box Match Regex is retained after a message filter is set. **Note** If invalid regex is provided then Active Alarms/Event History table does not contain any row.
Suppress for unmanaged nodes	Check box for suppressing alarms/events for any objects that have been set to the unmanaged state (see Unmanaging and Managing Nodes or ITP Signaling Points, page 8-58, for steps to set an object to the unmanaged state). To suppress alarms/events for unmanaged objects, check the check box. To retain alarms/events for unmanaged objects, uncheck the check box. If you are viewing alarms/events for a specific object in the navigation tree of the MWTM main window, this button is not available.

Selected Objects Settings

Note The Selected Objects tab is not available in the Events dialog box if you are viewing events:

- For a specific object in the navigation tree of the MWTM main window.
- Using the web interface.

To specify an object for which the MWTM should display alarms or events in the Active Alarms/Event History window:

Step 1 Click **Active Alarms** or **Event History** or in the navigation tree.

The Active Alarms or Event History window appears in the right pane.

Step 2 Click the Set Filter tool  at the top of the window.

The Alarm and Event Filter dialog box appears with the Properties tab chosen.

Step 3 Click the **Selected Objects** tab.

The Selected Objects settings contains:

Field or Button	Description
Node	Drop-down list box of all nodes that the MWTM has discovered. If you: • Want to filter alarms/events based on a node, select a node from the drop-down list box. • Do not want to filter alarms/events based on a node, select None. The MWTM grays-out the other object fields. This is the default setting.
ApplicationServerProcess (ITP only)	Drop-down list box of all application server processes associated with the chosen node: • If you want to filter alarms/events based on an application server process, select an application server process from the drop-down list box. • If you do not want to filter alarms/events based on an application server process, select None. This is the default setting.
SignalingGatewayMatedPair (ITP only)	Drop-down list box of all signaling gateway-mated pairs associated with the chosen node: • If you want to filter alarms/events based on a signaling gateway-mated pair, select a signaling gateway-mated pair from the drop-down list box. • If you do not want to filter alarms/events based on a signaling gateway-mated pair, select None. This is the default setting.
SignalingPoint (ITP only)	Drop-down list box of all signaling points associated with the chosen node: • If you want to filter alarms/events based on a signaling point, select a signaling point from the drop-down list box. • If you do not want to filter alarms/events based on a signaling point, select None. This is the default setting.
Linkset (ITP only)	Drop-down list box of all linksets associated with the chosen signaling point: • If you want to filter alarms/events based on a linkset, select a linkset from the drop-down list box. • If you do not want to filter alarms/events based on a linkset, select None. This is the default setting.
Link (ITP only)	Drop-down list box of all links associated with the chosen linkset: • If you want to filter alarms/events based on a link, select a link from the drop-down list box. • If you do not want to filter alarms/events based on a link, select None. This is the default setting.
ApplicationServer (ITP only)	Drop-down list box of all application servers associated with the chosen signaling point: • If you want to filter alarms/events based on an application server, select an application server from the drop-down list box. • If you do not want to filter alarms/events based on an application server, select None. This is the default setting.

Field or Button	Description
ApplicationServerProcess Association (ITP only)	Drop-down list box of all application server process associations associated with the chosen application server: • If you want to filter alarms/events based on an application server process association, select an application server process association from the drop-down list box. • If you do not want to filter alarms/events based on an application server process association, select None. This is the default setting.
Card (RAN-O only)	Drop-down list box of all cards associated with the chosen node: • If you want to filter alarms/events based on a card, select a card from the drop-down list box. • If you do not want to filter alarms/events based on a card, select None. This is the default setting.
Interface	Drop-down list box of all interfaces (including subinterfaces) associated with the chosen node or card: • If you want to filter alarms/events based on an interface, select an interface from the drop-down list box. • If you do not want to filter alarms/events based on an interface, select None. This is the default setting.
Backhaul (RAN-O only)	Drop-down list box of all RAN backhauls associated with the chosen node or card: • If you want to filter alarms/events based on an interface, select an interface from the drop-down list box. • If you do not want to filter alarms/events based on an interface, select None. This is the default setting.
Selected Objects: Object Type	Indicates the type of object, if any, on which the filter is based.
Selected Objects: AS (ITP only)	Indicates the application server, if any, on which the filter is based.
Selected Objects: ASP (ITP only)	Indicates the application server process, if any, on which the filter is based.
Selected Objects: ASPA (ITP only)	Indicates the application server process application, if any, on which the filter is based.
Selected Objects: Link (ITP only)	Indicates the link, if any, on which the filter is based.
Selected Objects: Linkset (ITP only)	Indicates the linkset, if any, on which the filter is based.
Selected Objects: Node	Indicates the node, if any, on which the filter is based.
Selected Objects: SGMP (ITP only)	Indicates the signaling gateway-mated pair, if any, on which the filter is based.
Selected Objects: SP (ITP only)	Indicates the signaling point, if any, on which the filter is based.
Selected Objects: SP (GGSN, PDNGW, SGW only)	Indicates the access point name, if any, on which the filter is based.

Field or Button	Description
Selected Objects: Card (RAN-O only)	Indicates the card, if any, on which the filter is based.
Selected Objects: Interface	Indicates the interface or subinterface, if any, on which the filter is based.
Selected Objects: Backhaul (RAN-O only)	Indicates the RAN backhaul, if any, on which the filter is based.

Event Filter Example

This example shows how to set an event filter to display trap messages for warning events for a specific node. You perform this procedure by using the MWTM client interface.

Step 1 Choose **Event History** in the navigation tree of the MWTM main window of the client interface.

Step 2 Click the Event Filter tool  at the top of the Event History window.

The Event Filter dialog box appears with the Properties tab chosen.

Step 3 In the Categories pane, uncheck all check boxes except for the Trap check box.

Step 4 In the Severities pane, uncheck all check boxes except for the Warning check box.

Step 5 Click the Selected Objects tab.

Step 6 In the drop-down list box, choose a node from the list of discovered nodes.

Step 7 To activate the event filter and close the Event Filter dialog box, click **OK**.

Step 8 To save the event filter for future use:

a. In the Event Filter dialog box, click **Save**. This action opens the Save Filter dialog box.

b. In the Save Filter dialog box, enter a meaningful name in the Filename text box (for example, Node109-WarningTraps).

c. Click **OK** to close the Save Filter dialog box.

d. Click **OK** to close the Event Filter dialog box.

In the future, to view traps for warning events for Node109, click **Load** in the Event Filter dialog box, choose the Node109-WarningTraps filter, then click **OK**. The Events window will only display warning traps for Node109 until you load a different event filter or change the current one.

Loading Existing Filters

You use the MWTM client interface to load a specific filter file and change the list of filter files.

To load an existing filter, click **Load** in the Alarm and Event Filter dialog box. The Load File Dialog: Load Filter dialog box appears.

The Load File Dialog: Load Filter contains:

Field or Button or Icon	Description
Type	Icon indicating whether the item in the table is a file or a folder.
Name	Name of the filter file or folder.
Last Modified	Date and time the filter file or folder was last modified.
Size (bytes)	Size of the filter file or folder, in bytes.
Number of Files (appears in lower left corner)	Total number of filter files and folders.
OK	Loads the chosen filter, saves any changes you made to the list of files, and closes the dialog box. To load an filter file, double-click it in the list, select it in the list and click **OK**, or enter the name of the file and click **OK**. The MWTM loads the filter file, saves any changes you made to the list of files, closes the Load File Dialog: Load Filter dialog box, and returns to the Alarm and Event Filter dialog box.
Delete	Deletes the chosen file from the filter file list. The MWTM issues an informational message containing the name and location of the deleted file.
Cancel	Closes the dialog box without loading an filter file or saving any changes to the filter file list.
Help	Shows online help for the dialog box.

Saving Filter Files

You use the MWTM client interface to save a specific filter file and change the list of filter files.

When you are satisfied with the filter settings, click **Save** in the Alarm and Event Filter dialog box. The Save File Dialog:Save Filter dialog box appears.

The Save File Dialog: Save Filter contains:

Field or Button or Icon	Description
Type	Icon indicating whether the item in the table is a file or a folder.
Name	Name of the filter file or folder.
Last Modified	Date and time the filter file or folder was last modified.
Size (bytes)	Size of the filter file or folder, in bytes.
Filename	Name by which you want to save the filter file. If you create a new filter 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 dashes. For example, the MWTM saves file *a b c* as *a-b-c*.
Number of Files (visible in bottom left corner)	Total number of filter files and folders.

Field or Button or Icon	Description
OK	Saves any changes you made to the current filter file and closes the dialog box. To save the filter file with a new name, use one of these procedures. To save the file with: • A completely new name, enter the new name and click **OK**. • An existing name, overwriting an old filter file, select the name in the list and click **OK**. The MWTM saves the filter file with the new name, saves any changes you made to the list of files, closes the Save File Dialog: Save Filter dialog box, and returns to the Alarm and Event Filter dialog box.
Delete	Deletes the chosen file from the filter 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 filter file or saving any changes to the filter file list.
Help	Shows online help for the dialog box.

Viewing Properties for Alarms and Events

You use the MWTM to view detailed information about a chosen alarm or event, including its associated object, status, and other information.

To view detailed information about an alarm or event, in the:

- MWTM client interface, right-click the alarm or event in a window, then select **Event Properties** in the right-click menu.
- Web interface, select an alarm or event by checking its check box, then click the **Event Properties** icon  in the toolbar.

The Event Properties dialog box appears. The Event Properties dialog box contains:

Tab, Field, or Button	Description
Message	Message text for the alarm or event. You can customize this field (see Changing the Way the MWTM Processes Events, page 9-24).
Properties	Tab that shows detailed information about the chosen alarm or event.
Notes	Tab that shows notes associated with this alarm or event. If no note is currently associated with this alarm or event, this field shows the value *No Notes*. In the Notes tab, the date and time the Notes field for this alarm or event was last updated. If no note is currently associated with this alarm or event, this field shows the value *Not Set*.
Details	Tab that shows specific alarm or event attributes.
Events for Alarm	Tab that shows a table of events that are associated with the selected alarm. This tab does not appear in the Event Properties dialog box selected via Event History link.

Tab, Field, or Button	Description
Category	Type of the alarm or event. Default values are: • **Create**—Creation event, such as the creation of a seed file. • **Delete**—Deletion event, such as the deletion of an object or file. • **Discover**—Discovery event, such as Discovery beginning. • **Edit**—Edit event. A user has edited an object. • **Ignore**—Ignore event. A user has ignored a link or linkset. • **Login**—Login event. A user has logged in to the MWTM. • **LoginDisable**—LoginDisable event. The MWTM has disabled a user's User-Based Access authentication as a result of too many failed attempts to log in to the MWTM. • **LoginFail**—LoginFail event. A user's attempt to log in to the MWTM has failed. • **Logout**—Logout event. A user has logged out of the MWTM. • **OverWrite**—OverWrite event. An existing file, such as a seed file or route file, has been overwritten. • **Poll**—Poll event, such as an SNMP poll. • **Purge**—Purge event. A user has requested Discovery with Delete Existing Data selected, and the MWTM has deleted the existing MWTM database. • **Status**—Status change message generated. • **Trap**—SNMP trap message generated. You can customize this field (see Changing Event Categories, page 9-31).
Severity	Severity of the alarm or event. Possible severities are:  Critical  Major  Minor  Warning  Normal  Indeterminate  Informational You can customize this field (see Right-Click Menu for a Specific Alarm or Event, page 9-11).
Original Severity	Original severity of the alarm or event.
Create Time	Date and time the event was logged.
Change Time	Date and time the alarm last changed. **Note** This field is important only for alarms.
Acknowledged	Indicates whether the alarm or event has been acknowledged.
Acknowledged By	Name of the node that last acknowledged the alarm or event. If no one has acknowledged the alarm or event, this field is not shown.
Acknowledge Time	The time at which the event was acknowledged.
Cleared By User ID	The user who cleared the event.
Cleared Time	The time at which the event was cleared.

Tab, Field, or Button	Description
Internal ID	An internal identification that the MWTM uses for the alarm or event.
Name	The name for the alarm or event, for example, InterfaceState.
Alarm Nature	Nature of the alarm.
Alarm Type	Type of the alarm.
Count	Number of events in the sequence of events for an alarm. **Note** This field is important only for alarms because an event count will always be 1.
Element Name	Name of the managed element, for example, the node name.
object name	Name of the object associated with the alarm or event. The object can be: • Node or Interface • ITP objects: SP, Linkset, Link, AS, ASP, ASPA, SGMP • RAN-O objects: RAN Backhaul, Card • APN objects are applicable for GGSN
Node	Name of the node associated with the alarm or event.
Create Time (Node Time Zone)	The node time zone at which the event was received.
Change Time (Node Time Zone)	The node time zone at which the event was updated.
Acknowledge Time (Node Time Zone)	The node time zone at which the event was acknowledged.
Clear Time (Node Time Zone)	The node time zone at which the event was cleared.

Attaching Notes to Alarms or Events

You use the MWTM to annotate an alarm or event, attaching a descriptive string to it.

To annotate an alarm or event in the:

- MWTM client, right-click an alarm or event in the Event History window, then select **Edit Notes** in the right-click menu. The Edit Event dialog box appears.
- Web interface, select an alarm or event in the Event History window by checking its check box, then click the **Edit Notes** icon  . The Event Properties dialog box appears, with the Notes tab chosen.

Note You can add a note to an alarm or event by using either the MWTM client or the web interface. You can also view the note from either interface.

The Edit Event Dialog contains:

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

Related Topic

Viewing Properties for Alarms and Events, page 9-21

Viewing Archived Event Files on the Web

The All Network Event Archived Files page provides access to archived alarm and event files for the server to which you are connected.

To access archived event files:

Step 1 In a web browser, navigate to the MWTM web interface (for details, see Accessing the MWTM Web Interface, page 11-2).

Step 2 Choose **File Archive > Events** from the web navigation tree.

In the Last Modified Date column, choose the day you want to view archived event files for.

Step 3 Adjacent to the date you have chosen, click the **Status Changes and SNMP Traps** link under **View**. The Network Status Archive page appears, showing a list of the status and trap messages in the archive.

Changing the Way the MWTM Processes Events

The types of MWTM events are:

- **Trap events**—Incoming events that the MWTM does not solicit
- **Status events**—Status changes that the MWTM detects
- **User Action events**—Events that user actions trigger

In those broad types, there occur subordinate types of events, each with a default category, severity, color, message text, and event help file. You use the MWTM to change the default characteristics of each type of event, tailoring them to meet your needs.

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

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

- Choose **Tools > Event Editor** from the MWTM main menu of the client interface
- Choose **Start > Programs > Cisco MWTM Client > MWTM Event Editor** in Windows.
- Enter the **mwtm eventeditor** command (see mwtm eventeditor, page B-30).

The MWTM launches the MWTM Event Editor in the client interface. The Event Editor is not available in the web interface.

Note To use the Event Editor, you must be a power user (level 2) or higher.

You use the Event Editor to customize the visible category, severity, color, and message associated with events; and load, save, and deploy customized event configurations. You can also specify a list of SNMP servers to which the MWTM should forward events in the form of traps.

The high-level MWTM event processing settings appear in the navigation tree in the left pane in the MWTM Event Editor window. The detailed settings for each high-level setting appear in the content area in the right pane.

The MWTM Event Editor menu provides these options:

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

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

This section provides this information:

Changing Event Limits

To change limits for the MWTM event database, click the turner beside Event Configuration, then click **Limits**. The Limits Configuration window appears in the right pane.

Field	Description
MaxEventDbRecords	Sets the maximum number of events allowed in the in-memory or active database. You can observe these events in the client NBAPI. The MWTM archives deleted events. By default, the active database can hold a maximum of 10,000 events. If the database exceeds 10,000 events, the MWTM archives the oldest events until the database is reduced to 10,000 events. To change the size of the active database, enter the new size, in number of events, in this field. The valid range is 0 events (that is, no limit) to an unlimited number of events. The default setting is 10,000 events. **Note** As you increase the size of the event database, you negatively impact the performance of the MWTM server and clients.
MaxAlarmDbRecords	Sets the maximum number of alarms allowed in the in-memory or active database. You can observe these alarms in the client NBAPI. The MWTM archives deleted alarms. By default, the active database can hold a maximum of 10,000 alarms. If the database exceeds 10,000 alarms, the MWTM archives the oldest alarms until the database is reduced to 10,000 alarms. To change the size of the active database, enter the new size, in number of alarms, in this field. The valid range is 0 alarms (that is, no limit) to an unlimited number of alarms. The default setting is 10,000 alarms. **Note** As you increase the size of the alarm database, you negatively impact the performance of the MWTM server and clients.
MaxEventTimeToLive	Sets the maximum length of time, in days, the MWTM should retain events in the in-memory or active database.You can observe these events in the client NBAPI. The MWTM archives deleted events. By default, the active database retains events a maximum of 7 days. The MWTM archives events that are older than 7 days. To change the maximum age for events, enter the new age, in days, in this field. The valid range is 0 days (events are purged at each maintenance interval) to an unlimited number of days. The default setting is 7 days.
CompressEventDbInterval	Sets the length of time, in minutes, between maintenance checks of the in-memory or active database. The MWTM archives these events and alarms when this task runs. Also, the oldest archived events and alarms may be deleted from the database. By default, the MWTM performs maintenance on the active database every 15 minutes, archiving all events and alarms in excess of 10,000, all events older than 7 days, and all alarms older than 14 days. To change the maintenance interval, enter the new interval, in minutes, in this field. The valid range is 0 minutes (perform continual maintenance; not advised) to an unlimited number of minutes. The default setting is 60 minutes. **Note** The smaller the maintenance interval, the greater the negative impact on the performance of the MWTM server and clients.

Field	Description
AutomationTimeout	Sets the maximum length of time, in seconds, the MWTM should allow an event automation script to run. By default, the MWTM event database allows an event automation script to run for 300 seconds (5 minutes) before canceling the script and moving on. To change the event automation timeout interval, enter the new interval, in seconds, in this field. The valid range is 0 seconds (no automation) to an unlimited number of seconds. The default setting is 300 seconds. **Note** The MWTM runs each automation script sequentially, not in parallel. Therefore, the longer the automation timeout interval, the greater the chance that a failed script can delay subsequent scripts.
ProcessUndiscovered	Determines whether the MWTM should process events from undiscovered nodes: • **False**—Do not process events from undiscovered nodes. This setting is the default. • **True**—Begin processing events from undiscovered nodes.
Send Updates	Determines whether the MWTM should send traps northbound: • **False**—Do not send traps northbound when an event is updated or deleted. Only send traps when an event is new. This setting is the default. • **True**—(Default setting) Send traps northbound when an event is updated, deleted, or new.
ProcessUnrecognizedTraps	Determines whether the MWTM should create events for unrecognized traps: • **False**—Do not create events for unrecognized traps. • **True**—(Default setting) Create events for unrecognized traps.
TrapGenThrottle	A delay (in milliseconds) between each trap sent to a northbound host. This value is helpful if the MWTM is sending traps faster than the northbound host can receive them. The default is 10 milliseconds.
HeartbeatTrapInterval	A delay (in seconds) between each heartbeat trap sent to a northbound host. If this value is zero or less than one, no heartbeat trap is sent. The default is 0.
MaxArchivedRecords	The maximum number of alarms and events allowed in the archive database. The default is 200,000.
MaxAlarmAge	The maximum age, in days, of all active alarms in the database. The default is 14 days.
CloneAlarms	⚠ **Caution** This feature is for advanced users (Cisco developers and third-party integrators). Determines whether the MWTM should create separate alarm instances from underlying events: • **False**—No alarms are created. • **True**—Alarms are created from underlying events. This setting is the default.

Field	Description
AllowEventDeduplication	**Caution** This feature is for advanced users (Cisco developers and third-party integrators). Determines whether the MWTM should eliminate redundant (duplicate) events if a correlation key has been specified and enabled: • **False**—The MWTM does not eliminate duplicate alarms. This setting is the default. • **True**—The MWTM eliminates duplicate alarms.
AllowStateAggregation	**Caution** This feature is for advanced users (Cisco developers and third-party integrators). Determines whether the MWTM should allow alarms to change the state of the node: • **False**—Alarms will not affect the node state. • **True**—Alarms will affect the node state. This setting is the default.
ClearedAlarmsTimetoLive	The time, in minutes, before the MWTM archives cleared alarms. The default setting is 1440 minutes (24 hours).
SendEvents	Determines whether the MWTM should send events to a northbound system: • **False**—(Default setting) Does not send events to the northbound system. • **True**—Sends events to the northbound system.
SendAlarms	Determines whether the MWTM should send alarms to a northbound system: • **False**—Does not send alarms to the northbound system. • **True**—(Default setting) Sends alarms to the northbound system.
UseAlternateTrapOids	When set to true, allows user-specified trap OIDs (SNMPv1 trap enterprise/specific type or SNMPv2 snmpTrapOID)
ClearAlarmsOnUpdate	When set to true, automatically clears outstanding alarms when a new event in the alarm sequence occurs.
DeleteAlarmsOnUpdate	When set to true, automatically deletes outstanding alarms when a new event in the alarm sequence occurs.
SendAlarmSetsAndClears	When set to true, sends a northbound notification only when an alarm is raised and when it is cleared.
ArchiveActiveAlarms	Determines whether the MWTM should archive alarms. • **True**—(Default setting) Allows alarm achiving in accordance with both MaxAlarmAge and MaxAlarmDbRecords. • **False. Ignore MaxAlarmAge**—Does not archive alarms until they are manually or automatically cleared through alarm correlation. • **False. Ignore MaxAlarmAge and MaxAlarmDbRecords**— Never automatically archive an active alarm.

Field	Description
FilterIgnoredNEs	Determines whether the MWTM should propagate alarms to a northbound system: • **False**—(Default setting) Propagates alarms to the northbound system. • **True**—Does not propagate alarms to the northbound system.
ThrottleAlarmCountThreshold	Threshold count for Alarms. If the trap count exceeds the threshold, the traps need to be forwarded to NorthBound.
ThrottleAlarmTimeThreshold	Threshold time for Alarms. If *X* traps are received within configured time, traps need to be forwarded to NorthBound, where *X* is ThrottleAlarmCountThreshold.
NodeDisplayName	The name from the Node object to be assigned to the NodeDisplayName variable for inclusion in event messages. The values are: • CustomName—Custom name of the device. • NodeName—Node name of the device. • SysName—SysName of the device.

Specifying SNMP Servers for Trap Forwarding

You use the MWTM to specify a list of SNMP servers, or hosts, to which the MWTM should forward events in the form of traps.

For more information about enabling MWTM trap forwarding, see Forwarding Events as Traps to Other Hosts, page 9-37.

To specify the list of hosts, click the turner beside Event Configuration, then click **SNMP Servers**. The SNMP Servers Configuration window appears in the content area in the right pane.

Field or Button	Description
Host	Name of the host NMS that should receive traps from the MWTM. The host must be IP-routable, and the name must be a valid IP address or DNS name.
Port	Host port number to which the MWTM should forward traps.
Community	SNMP community string that the MWTM should include in forwarded traps.
Version	Trap version to forward. Valid values are 1 and 2c.
Trap Type	Type of trap that the MWTM should forward to this host. Valid trap types are: • CISCO-SYSLOG: The CISCO-SYSLOG-MIB clogMessageGenerated trap. • CISCO-EPM: CISCO-EPM-NOTIFICATION-MIB ciscoEpmNotificationRev1 trap.
Add	Adds a new hostname to the bottom of the list. Type over the default values with the new values.
Delete	Deletes the chosen hostname from the list.

Field or Button	Description
Send a trap for all events	Checks the **Send Traps** check box for all MWTM events. Click this button if you want the MWTM to forward all events to the list of hosts. If you click this radio button, and then you uncheck even a single **Send Traps** check box for any event, the MWTM unchecks this button. This radio button is mutually exclusive with the **Send a trap for no events** button.
Send a trap for no events	Unchecks the **Send Traps** check box for all MWTM events. Click this button if you do not want the MWTM to forward any events to the list of hosts. This is the default setting. If you click this radio button, and then you check even a single **Send Traps** check box for any event, the MWTM unchecks this button. This radio button is mutually exclusive with the **Send a trap for all events** button.

Changing Event Categories

To change categories for the MWTM event database, click the turner beside Event Configuration, then click **Categories**. The Categories Configuration window appears in the content area in the right pane.

Field or Button	Description
Category Name	Lists the names of the currently defined MWTM event categories. By default, the MWTM provides these event categories: • **Status**—Status change message generated. • **Trap**—SNMP trap message generated. • **Create**—Creation event, such as the creation of a seed file. • **Delete**—Deletion event, such as the deletion of an object or file. • **Discover**—Discovery event, such as Discovery beginning. • **Edit**—Edit event. A user has edited an event, linkset, or node. • **Ignore**—Ignore event. A user has Ignored a link or linkset. • **Login**—Login event. A user has logged in to the MWTM. • **LoginDisable**—LoginDisable event. The MWTM has disabled a user's User-Based Access authentication as a result of too many failed attempts to log in to the MWTM. • **LoginFail**—LoginFail event. An attempt by a user to log in to the MWTM has failed. • **Logout**—Logout event. A user has logged out of the MWTM. • **OverWrite**—OverWrite event. An existing file, such as a seed file or route file, has been overwritten. • **Poll**—Poll event, such as an SNMP poll. • **Purge**—Purge event. A user has requested Discovery with Delete Existing Data selected, and the MWTM has deleted the existing the MWTM database. To change the name of an existing event category, highlight the category name and type over it with the new name. For example, you could replace every occurrence of LoginFail with BadLogin.

Field or Button	Description
Add	Adds a new category name to the bottom of the list. Type over the default category name with the new name.
Delete	Deletes the chosen category name from the list. If events in the MWTM database use the deleted category name, the Entry Substitution dialog box appears. Use this dialog box to select a new category name in place of the deleted category name. Select an existing category name from the drop-down list box, or enter a new category name. If you enter a new category name, the MWTM adds it to the Category Name field.

Configuring Trap, Status Alarm, or User Action Events

The MWTM can detect these event types:

- **Traps**—Events that are triggered by SNMP traps or notifications
- **Status Alarms**—Events that are triggered by status changes
- **User Actions**—Events that are triggered by user actions

You can choose to view all traps, all status alarms, and all user actions, or you can view these based on network type (RAN-O, ITP, and so on.)

To configure the event parameters for any of these event types:

Step 1 Choose **Tools > Event Editor** from the MWTM main menu in the client interface.

Step 2 Click the turner beside Event Configuration.

Step 3 Click the turner beside the event type that you want to configure:

- All Traps
- All Status Alarms
- All User Actions
- Common (lists all traps, status alarms, and user actions common to all networks)
- IPRAN
- ITP
- CSG1
- CSG2
- GGSN
- BWG
- HA
- PDSN
- PDNGW
- SGW
- PCRF

The MWTM lists the currently defined traps, status alarms, or user actions in the navigation tree under the event type.

Step 4 Click the turner beside the specific trap, status alarm, or user action for which you want to configure an event.

The MWTM lists the currently defined events in the navigation tree under the chosen event type.

Step 5 To add an event to an event type, right-click the event name and select **Add** from the right-click menu.

The MWTM adds the chosen event to the list of configured events and creates a default entry for the event in the left pane.

Step 6 Click the default entry in the left pane.

The Event Configuration pane appears in the right pane.

Step 7 Configure the event by adjusting the parameters.

Step 8 To delete an event, right-click the event in the left pane and click **Delete**.

The Event Configuration pane contains:

Field or Button	Description
Name	Fixed, internal name of the event, such as cItpRouteStateChange. You cannot change this field.
Event Keys and Setting	**Caution** This feature is for advanced users (Cisco developers and third-party integrators). Names of the event keys, such as RouteDestinationState, and their settings, such as False. You cannot change the names of the event keys, but you can change their settings. To change an event key setting, select a new setting from the drop-down list box. For example, you can change the setting for RouteDestinationState from Accessible to Unknown.
Alarm Nature	Nature of the alarm. The alarm nature is determined when the alarm is created. The valid values are: • ADAC - automatically detected and automatically cleared • ADMC - automatically detected and manually cleared • Undefined - undefined
Alarm Type	The type of the alarm. The valid values (X.733 alarm types) are: • Communications • Processing Error • Environmental • QOS • Equipment • Undefined
Category	Category of the event (for example, from Trap to Status). To change the category, select a new category from the drop-down list box.
Severity	Severity of the event (for example, from Warning to Minor). To change the severity, select a new severity from the drop-down list box.

Field or Button	Description
Event Name	User-specified name for the event, that the MWTM uses for trap forwarding, also used in the MWTM client. If you want the MWTM to forward this event in the form of a trap to another host, you can specify a new, more meaningful name for the event. The new name can be from 1 to 30 characters, and can contain any letters (upper- or lowercase), any numbers, and any special characters. If you do not specify a new name, the MWTM uses the default name, `MWTM`. For more information about trap forwarding, see Forwarding Events as Traps to Other Hosts, page 9-37.
Message	Message text associated with the event. To change the message text, type over the message text. You can also right-click in the field and choose **Launch Text Editor**, where you can update, clear, or discard your text changes. You can also insert variable text in the message. To do so, right-click in the message text area. A popup menu of the valid substitutions for this event appears. To insert a variable in the text area, select from the popup menu.
Help File	Help file associated with the event. By default, the MWTM provides extensive type-specific help for events. However, you can use the MWTM to provide your own enterprise-specific instructions to operators in the help file. To change the help file, create a new HTML help file or change the default MWTM help file. If you installed the MWTM in: • The default directory, */opt*, then the default help files are in the */opt/CSCOsgm/apache/share/htdocs/eventHelp* directory. • A different directory, then the default help directory and files are located in that directory. If you use an MWTM help file as a basis for your help file, rename it when you save it; do not use the existing MWTM name. If you do, the next time you install the MWTM, the MWTM overwrites the file and you lose your changes. When you have created your new help files, store them in the */opt/CSCOsgm/apache/share/htdocs/customHelp* directory. This directory and its contents are preserved when you upgrade to a new MWTM release. If you do not store your new help files in the */customHelp* directory, the files are lost the next time you upgrade to a new MWTM release. When you have created your new help files and stored them in the */customHelp* directory, enter the new help file path and filename in the Help File field. After you deploy the new event settings and restart the MWTM server, whenever you display help for the trap, the MWTM shows your new, custom help file.
Open	Opens the help file associated with the event. To see the help file, click **Open**. The MWTM shows context-sensitive help for the chosen event in a separate web browser.

Field or Button	Description
Action: Run	Automation command or script for the event that a UNIX process runs. You use the MWTM to automate events. That is, you can configure the MWTM to call a UNIX script to drive automatic paging or e-mail, for example, whenever the MWTM logs an event for which you have defined an automation script. To configure automation for an event, enter a Run line with this format: *UNIXCommand EventParameters* where: • *UnixCommand* specifies either a binary command name or a shell script. • *EventParameters* are information from the event that the MWTM sends to *UnixCommand* as parameters. The set of *EventParameters* is the same as the set of Message element parameters, and they are specified the same way.
Action: Run (continued)	For example, this Run line: `/users/johndoe/auto-inhibit.exp $NodeDisplayName $User` causes these automatic actions whenever the MWTM logs the associated event: • The MWTM spawns a UNIX process to execute the */users/johndoe/auto-inhibit.exp* script. • The MWTM passes the $NodeDisplayName and $User parameters to the script. After you deploy the new event settings and restart the MWTM server, the specified event causes the automation script to run. When configuring automation for events, remember: • Detailed information about event automation scripts, including the times they start and stop and any output produced by the scripts, is recorded in the MWTM system event automation log file (see Viewing the Event Automation Log, page 12-11). • The MWTM event automation scripts run separately from all other MWTM processes. • If the MWTM logs more than one automated event in rapid succession, the MWTM runs each automation script sequentially, not in parallel. The MWTM spawns a new UNIX process for each script, and waits for it to complete before running the next script. • By default, the MWTM allows an event automation script to run for 300 seconds (5 minutes) before canceling the script and moving on to the next script. To change the maximum run-time for event automation scripts, see Changing Event Limits, page 9-26. You can right-click in the field and choose **Launch Text Editor**, where you can update, clear, or discard your text changes.
Action: Poll (available only for Trap events)	Check box indicating whether MWTM should poll the associated nodes. If you: • Want MWTM to poll the nodes when this event occurs, check the check box. • Do not want MWTM to poll the nodes when this event occurs, uncheck the check box.
Action: Send Trap	Check box indicating whether the MWTM should forward the event as a trap to other systems. If you: • Want MWTM to forward the event, check the check box. • Do not want MWTM to forward the event, uncheck the check box. This is the default setting.

Field or Button	Description
Raise Alarm	⚠ **Caution** This feature is for advanced users (Cisco developers and third-party integrators). If the Raise Alarm check box is checked, then, when this event happens, the MWTM raises an alarm that appears in the Active Alarms table.
Correlate	⚠ **Caution** This feature is for advanced users (Cisco developers and third-party integrators). When you check this check box, you can then define a key in the Key field.
Key	⚠ **Caution** This feature is for advanced users (Cisco developers and third-party integrators). You can define a key to correlate appropriate events. The EPM notification includes this key for use by the north-bound system. Right-click in the text field to select a key. You can also right-click in the field and choose **Launch Text Editor**, where you can update, clear, or discard your text changes.
Disable	Check box to disable this event without removing the event configuration from the */opt/CSCOsgm/etc* file.
Personalities	Clicking Edit opens the Personalities Editor, where you can select from the following networks by checking the box: • IPRAN • ITP • CSG1 • CSG2 • GGSN • BWG • HA • PDNGW • SGW • PCRF Check the networks you want to include, then click **Update**, or click **Discard** to exit the window without saving your changes.

Field or Button	Description
Detect Flapping	**Note** This field is only active if you have defined a key. If you check the Detect Flapping check box, the following fields appear: • Flapping Threshold—Number of correlated events raised if the value matches or exceeds what is set for the Flapping Time Span in seconds value. • Flapping Time Span in seconds—At most, you can get one flapping event per flapping time span period. • Flapping Event Name—Name of flapping event. • Flapping Severity—Severity of flapping event. • Flapping Message—Detailed message for the flapping event.
Errors	Error messages associated with the event. Correct all errors before deploying the new event configuration.

Forwarding Events as Traps to Other Hosts

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

To forward MWTM events to other hosts:

Step 1 Specify the list of SNMP servers, or hosts, to which you want the MWTM to forward traps (see Specifying SNMP Servers for Trap Forwarding, page 9-30).

Step 2 Specify the events you want to forward, using one of these procedures. To forward:

a. All MWTM events, click the **Send a trap for all events** radio button in the SNMP Servers Configuration window of the MWTM Event Editor. For more information, see Specifying SNMP Servers for Trap Forwarding, page 9-30.

b. Only chosen events, edit the events in the MWTM Event Editor and check the **Send Trap** check box. For more information, see the description of the Send Trap field in Configuring Trap, Status Alarm, or User Action Events, page 9-32.

Step 3 (Optional) Specify new, more meaningful names for the events that you want to forward. If you do not specify a new message name for an event, the MWTM uses the default message name, MWTM. For more information, see the description of the Message Name field in Configuring Trap, Status Alarm, or User Action Events, page 9-32.

Step 4 Save your new event settings, deploy them to the MWTM server, and restart the MWTM server.

Step 5 MWTM allows you to specify source address for trap forwarding. You can specify the source address in SOURCE_SERVER field present in the Server Properties (*/opt/CSCOsgm/properties/Server.properties*) file.

Note For more details, see the *OSS Integration Guide for the Cisco Mobile Wireless Transport Manager 6.1.5*.

Setting Sounds for Events at an MWTM Client

You use the MWTM client interface to create and change event sound filters for the MWTM client. Event sound filters determine the sounds that the MWTM client plays when specific events are logged. The MWTM client plays the sounds even if the Event History window is not currently visible.

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

This section includes:

From the MWTM web interface, you can modify the sound to be played when the client loses its connection to the MWTM server as explained in Events and Alarms, page 11-25.

Listing Event Sound Filters

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

To work with the list of event sound filters, choose **Tools > Event Sounds** from the MWTM main menu. The Event Sound Filters List dialog box appears.

The Event Sound Filters List dialog box lists all event sound filters that have been defined.

Field or Button	Description
Sound filters applied in order	Indicates the order in which sound filters are to be applied, from top to bottom. If an event matches two or more filters in the list, the top-most filter determines the sound that the MWTM client plays. This field is blank until you have created at least one new sound filter for events.
Move Up	Moves the chosen event sound filter up in the Sound filters applied in order list.
Move Down	Moves the chosen event sound filter down in the Sound filters applied in order list.
New	Opens the Event Sound Filters dialog box, which you use to create a new event sound filter.
Edit	Opens the Event Sound Filters dialog box, which you use to change an existing event sound filter in the Sound filters applied in order list.
Delete	Deletes the chosen event sound filter from the Sound filters applied in order list.
Mute Sounds	Check box indicating whether the MWTM client should play event sounds. To: • Play event sounds, check the check box. This is the default setting. • Not play event sounds, uncheck the check box.

Field or Button	Description
Client Disconnect Sound	Drop-down menu of sound files to choose from. When the connection to the MWTM server is lost, an error popup appears and the selected sound plays in a loop for as long as the MWTM client window remains open. **Note** After a server connection loss, you must set this sound again; otherwise, no sound will play the next time the server connection is lost.
Set Sound	Button to set the sound you chose for loss of server connection.
OK	Applies any changes you made to the event sound filters list and closes the Event Sound Filters List dialog box. When you are satisfied with the changes you made to the event sound filters list, click **OK**.
Apply	Applies any changes you made to the event sound filters list without closing the Event Sound Filters List dialog box.
Cancel	Closes the Event Sound Filters List dialog box without applying any changes to the event sound filters list.
Help	Shows online help for the current window.

Related Topics

- Setting Sounds for Events at an MWTM Client, page 9-38
- Managing Alarms and Events, page 9-1

Creating New Event Sound Filters

You use the MWTM client interface to create a new event sound filter. Open the Event Sound Filters List dialog box, as described in Listing Event Sound Filters, page 9-38, then click **New**. The Event Sound Filters dialog box appears.

The Event Sound Filters dialog box contains:

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

Button or Field	Description
Play this sound:	Drop-down list box indicating the sound to play if an event matches this event sound filter. The MWTM client sound files are stored in the MWTM client's */sounds* directory. If you installed the MWTM client: • For Solaris/Linux in the default directory, */opt*, then the sound file directory is */opt/CSCOsgmClient/sounds*. • For Windows in the default directory, */Program Files*, then the sound file directory is *C:\Program Files\MWTMClient\sounds*. To add a sound file to the MWTM, add it to the */sounds* directory (see Adding Sound Files to the MWTM, page 9-41).
Play	Plays a sample of the sound chosen in the Play this sound drop-down list box.
OK	Applies any changes you made to the event sound filter criteria and closes the Event Sound Filters dialog box. When you are satisfied with the changes you made to the event sound filters, click **OK**.
Cancel	Closes the Event Sound Filters dialog box without applying any changes to the event sound filter criteria.
Help	Shows online help for the current window.

Related Topics

- Listing Event Sound Filters, page 9-38
- Managing Alarms and Events, page 9-1

Adding Sound Files to the MWTM

You can add sound files to an MWTM client. The MWTM clients can play these sound file formats:

- AIFC
- AIFF
- AU
- SND
- WAV

Note WAV files encoded using MPEG Layer-3 are not supported.

The MWTM client sound files are stored in the MWTM client's */sounds* directory. If you installed the MWTM client:

- For Solaris/Linux in the default directory, */opt*, then the sound file directory is */opt/CSCOsgmClient/sounds*.
- For Windows in the default directory, */Program Files*, then the sound file directory is *C:\Program Files\MWTMClient\sounds*.
- In a different directory, then the sound file directory is located in that directory.

Note Sound files used by the MWTM web client must also be copied to the MWTM server sound directory at */opt/CSCOsgm/sounds*.

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

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

Related Topics

- Creating New Event Sound Filters, page 9-39
- Managing Alarms and Events, page 9-1

Changing an Existing Event Sound Filter

You use the MWTM client interface to change an existing event sound filter. Open the Event Sound Filters List dialog box, as described in Listing Event Sound Filters, page 9-38, select the filter in the **Sound filters applied in order** list, then click **Edit**. The MWTM shows the Event Sound Filters dialog box, populated with the chosen filter's settings.

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

Deleting Event Sound Filters

You use the MWTM client interface to delete an existing event sound filter. Open the Event Sound Filters List dialog box, as described in Listing Event Sound Filters, page 9-38, select the filter in the **Sound filters applied in order** list, then click **Delete**. The MWTM deletes the chosen filter.

Playing and Muting Event Sounds

You use the MWTM client interface to specify whether you want the MWTM client to play event sounds. To do so, open the Event Sound Filters List dialog box, as described in Listing Event Sound Filters, page 9-38. To:

- Play event sounds, uncheck the **Mute Sounds** check box. This is the default setting.
- Not play event sounds, check the **Mute Sounds** check box.

Event Processing

This section contains these topics:

Event Queue Congestion

Event processing in the MWTM may occasionally experience congestion (for example, during discovery of very large networks). If the number of events exceeds the threshold of the event queue, the event congestion icon  appears in the lower left of the MWTM client and web windows. If the icon appears, the presentation of event information in the MWTM GUI will lag behind the actual state of network objects until the congestion clears. The event congestion icon will disappear from MWTM client and web windows when the congestion clears. No user action is necessary.

The event queue threshold is stored in the EVENT_QUEUE_THRESHOLD_LIMIT property in the */opt/CSCOsgm/properties/Server.properties* file. The default setting is 1000 events.

Trap Rate Limits

If one or more nodes in the managed network begin to malfunction, these nodes can generate numerous trap notifications that trigger:

- An excessive number of events
- Excessive SNMP polling
- Increased database access

This condition is called a trap storm. In a large network, a trap storm can adversely affect the performance of the MWTM server. To minimize the effect of trap storms, the MWTM provides a server property to limit the trap rate of network nodes.

If a node in the network exceeds the trap rate threshold, the MWTM stops processing traps from that node. The MWTM raises an alarm (TrapStatusAlarm) to indicate that the node is generating excessive traps and that the MWTM has disabled trap processing for the node.

When you have corrected the problem with the faulty node and the trap rate is measured at a rate less than the TRAP_RATE_LIMIT_COUNT minus the TRAP_RATE_ABATE_OFFSET, the trap rate limit alarm will automatically clear and trap processing will automatically resume.

Though optional, you can clear the trap status alarm and re-enable trap processing for the node as described below:

Step 1 In the navigation tree of the MWTM client, select the node.

Step 2 Click the **Alarms** tab.

Step 3 In the content pane, right-click the trap status alarm and choose **Clear** from the menu.

Step 4 In the navigation tree, right-click the node and choose **Allow Trap Processing** from the menu.

The */opt/CSCOsgm/properties/Server.properties* file provides these properties to limit the trap rate of managed nodes:

Server Property	Description
TRAP_RATE_ABATE_OFFSET	This is an offset value from the trap rate limit count. The abate threshold limit is calculated by subtracting this value from the TRAP_RATE_LIMIT_COUNT. The default value is 200 indicating if a node generates 2000-200 = 1800 or more traps it is still considered to be faulty and MWTM stops further trap processing for these nodes.
TRAP_RATE_LIMIT_COUNT	The threshold limit for a node. The default setting is 2,000. If a node generates 2,000 traps (or more) in the trap rate limit interval, the MWTM: • Raises a trap status alarm for the node • Disables trap processing for the node
TRAP_RATE_LIMIT_INTERVAL	The time interval for trap limitation. The default setting is 30 minutes. The MWTM scans its managed nodes every 30 minutes to determine if any nodes are exceeding the trap rate limit count.
TRAP_RATE_MINOR_LIMIT_COUNT	The threshold limit for the trap rate minor alarm. By default, if a node generates 1,000 or more traps, MWTM raises a minor alarm.

Database Archiving

Database archiving describes the process by which the MWTM archives alarms and events in its database. The archival process for alarms and events follows this basic sequence:

1. An alarm or event occurs.
2. The alarm or event remains active for a configurable time period.
3. The MWTM archives the alarm or event in its database.
4. The alarm or event remains in archive for a configurable time period.
5. The MWTM deletes the alarm or event from the MWTM database.

The following sections go into greater detail about the archival process, including the differences between event and alarm archiving:

- Event Archival Process, page 9-44
- Alarm Archival Process, page 9-45

Event Archival Process

When you click Event History in the navigation tree of the MWTM client or MWTM web interface, the right pane displays a tabular list of recent events. The events that appear in this table remain active for seven days (this is the default setting). After seven days, the MWTM removes active events from the Event History table and archives them in the MWTM database. To view the archived events, go to the MWTM web interface, click Event History in the navigation tree, then click the Archived link in the tool bar.

If a user manually deletes an event from the Event History table, the MWTM removes the event from the table and archives it in the MWTM database.

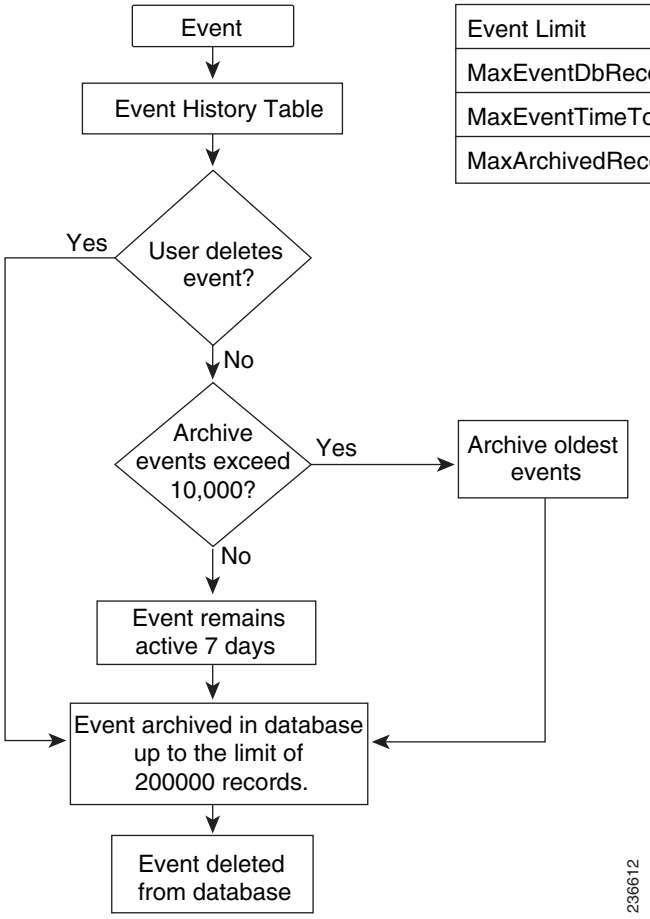
Also, if the number of active events exceeds 10,000 (this is the default setting), the MWTM archives the oldest events regardless of how long they have been active. This mechanism ensures optimal performance of the MWTM server and its clients.

The MWTM archives events in the MWTM database upto the limit of 200,000 records. After 200,000 records, the MWTM deletes the archived events from the MWTM database.

To change the default settings for archiving events, change the appropriate event limit. See Changing Event Limits, page 9-26.

Figure 9-2 illustrates the archival process for events and lists the event limits associated with the event archival process.

Figure 9-2 Event Archival Process



Event Limit	Default
MaxEventDbRecords	10,000
MaxEventTimeToLive	7 days
MaxArchivedRecords	200000

Alarm Archival Process

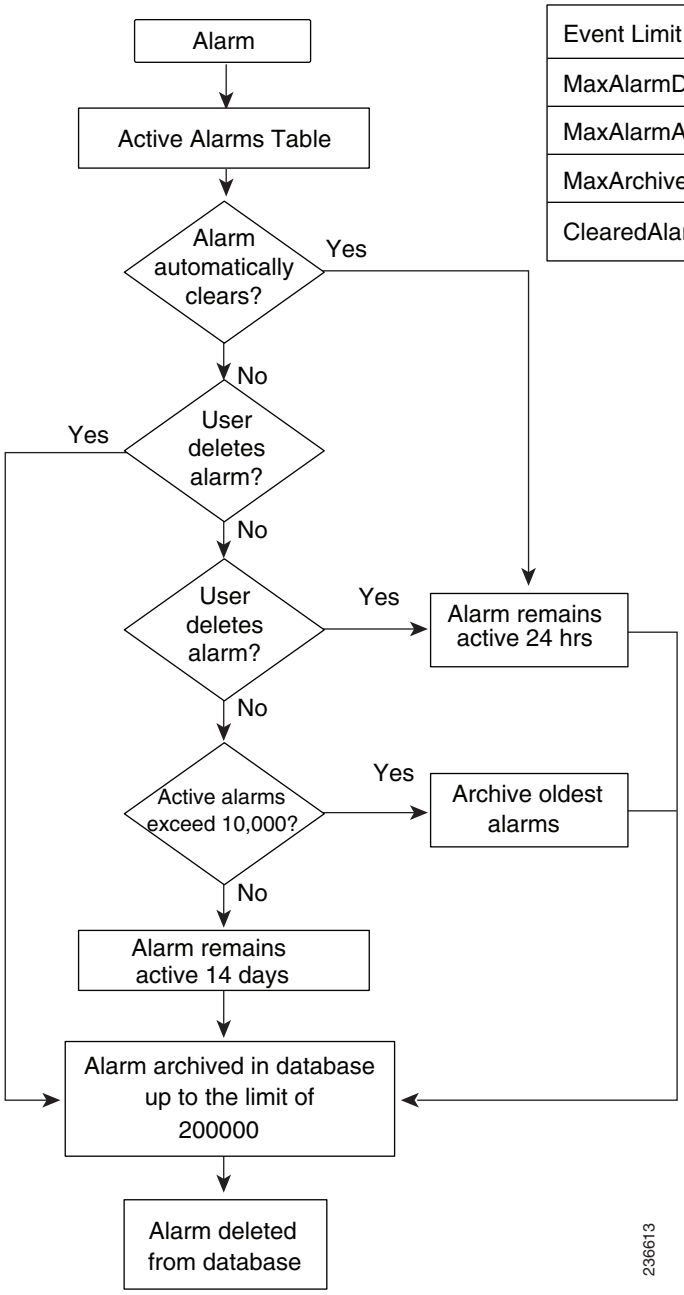
The archival process for alarms is very similar to the process for events. When you click Active Alarms in the navigation tree of the MWTM client or MWTM web interface, the right pane displays a tabular list of active alarms. The alarms that appear in this table remain active for 14 days (the default setting). After 14 days, the MWTM removes alarms from the Active Alarms table and archives them in the MWTM database. To view the archived alarms, go to the MWTM web interface, click Active Alarms in the navigation tree, then click the Archived link in the tool bar.

If the alarm automatically clears or if you manually delete the alarm from the Active Alarms table, the MWTM removes the alarm from the table and archives it in the MWTM database.

Likewise, if the alarm automatically clears or you manually clear an alarm from the Active Alarms table, the MWTM retains the alarm in the table for 1440 minutes, which is 24 hours (the default setting). After 24 hours, the MWTM removes the cleared alarm from the table and archives it in the MWTM database.

Figure 9-3 illustrates the archival process for alarms and lists the event limits associated with the alarm archival process.

Figure 9-3 Alarm Archival Process



Event Limit	Default
MaxAlarmDbRecords	10,000
MaxAlarmAge	14 days
MaxArchivedRecords	200000
ClearedAlarmsTimeToLive	1440 mins.

Also, if the number of active alarms exceeds 10,000 (this is the default setting), the MWTM archives the oldest alarms regardless of how long they have been active. This mechanism ensures optimal performance of the MWTM server and its clients.

The MWTM archives alarms in the MWTM database upto the limit of 200,000 records. After 200,000 records, the MWTM deletes the archived alarms from the MWTM database.

To change the default settings for archiving alarms, change the appropriate event limit. See Changing Event Limits, page 9-26.

File-based Archiving

The MWTM exports events and alarms from its database archives once a day and consolidates them into a CSV-based file. File-based archiving allows administrators to access archived events and alarms in a file format. For example, an administrator may want to process the contents of a file archive by using third-party scripting tools.

To view file-based archives, choose **File Archive > Events** from the MWTM web interface. The MWTM displays file archives in the right pane. These examples illustrate the file-naming convention:

```
Status+Trap.WedJun04.log.csv.zip
Status+Trap.TueJun03.log.csv.zip
Status+Trap.MonJun02.log.csv.zip
```

The MWTM stores file archives in this directory:

/opt/CSCOsgm/logs/netstatus

If you want to change the default directory, use the mwtm msglogdir command.

The MWTM retains file archives for 31 days. (This default setting is the same value that is used for database archiving.) After 31 days, the MWTM deletes the files. If you want to change the default setting, use the mwtm msglogage command.

Another approach would be to configure the aging parameters of the file and database archives with different values. For example, you could use the default setting of 31 days to retain database archives but configure the file archive retention to 90 days (assuming your server has sufficient disk space). This file-based approach for long-term archiving is more efficient than retaining archives in the database beyond the 31-day default setting.

If required, you could retrieve file archives before the MWTM deletes them by using a backup system or a network file system that performs automatic file backups.