

# **Managing Events and Alarms**

By configuring how events are reported, you can monitor those events more effectively and take corrective action, if necessary. Cisco Fabric Manager provides the following features for reporting and responding to network events:

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- SNMP events—These are preconfigured notifications, including SNMPv2 traps and SNMPv3 informs.
- RMON alarms—These are configurable notifications that you can set based on thresholds for various network events.
- Call Home—This is a feature that lets you configure automatically generated e-mail messages or other responses to specific events.
- Syslog—This is a standard message log that records various network and system events.



The Fabric Manager allows you to manage events on multiple Cisco MDS 9000 Family switches. The Device Manager allows you to manage events on a single Cisco MDS 9000 Family switch.

This chapter describes how to configure events using the Fabric Manager and Device Manager. For information about events and configuring them using the command-line interface (CLI), refer to the *Cisco 9000 Family Configuration Guide*.

This chapter includes the following sections:

- Managing Events, page 8-1
- Enabling RMON Alarms, page 8-7
- Managing RMON Alarms and Events, page 8-10
- Configuring the Call Home Feature, page 8-17
- Configuring the Syslog, page 8-23

# **Managing Events**

This section describes how to manage events and includes the following topics:

- Viewing the Events Log, page 8-2
- Configuring Event Destinations, page 8-3
- Configuring Event Security, page 8-5
- Configuring Event Filters, page 8-6

## Viewing the Events Log

To view the events log from the Device Manager, choose **SNMP Log** from the Events menu. The Events Log dialog box displays a log of events for a single switch and shows the display-only information described in Table 8-1.

Table 8-1 Events > SNMP Log — Display-Only Attributes

Display-Only Attribute	Description
DateAndTime	Displays the local date and time the event was logged.
Туре	Displays the type of notification that occurred.
Details	Displays the details of the event that was logged.

To manage the SNMP log, choose **SNMP Log** from the Events menu and click the **Controls** tab. The Controls tab provides summary statistics about the SNMP log and allows you to change the default settings for the log.

The dialog box shows the display-only information described in Table 8-2.

Table 8-2	Events > SNMP Log	-Display-Only Attributes
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Display-Only Attribute	Description
NotificationsLogged	The number of log entries. The same event written to multiple logs is counted multiple times.
NotifcationsBumped	The number of log entries discarded to make room for a new entry due to lack of resources or reaching the maximum log size. This does not include entries discarded due to the value set for the AgeOut attribute.

Table 8-3 describes the configurable attributes for the SNMP log.

Caution

Changing these values from different Fabric Manager workstations at the same time may cause unpredictable results.

Table 8-3	Events > SNMP Log	—Display-Only Attributes
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Display-Only Attribute	Description
EntryLimit	The maximum number of notification entries stored in the log. A value of 0 means no limit.
AgeOut	The number of minutes an event is kept in a log before it is automatically removed. A value of 0 means entries are not aged out.

## **Configuring Event Destinations**

Cisco MDS 9000 Family switches, like other SNMP-enabled devices, send events (traps and informs) to configurable destinations, called trap receivers in SNMPv2. To configure event destinations from the Fabric Manager, choose **Events** > **Destinations** on the menu tree. To configure event destinations from the Device Manager, choose **Destinations** from the Events menu.

The dialog box from the Fabric Manager displays event destination information for multiple switches. Figure 8-1 shows the dialog box with the Addresses tab selected from the Device Manager. This dialog box displays event destinations for a single switch.

ļ	switch2 - Event Destinations						
	Addresses Security	(Advanced)	1				
	🕼 🔮 😫	<b>3</b>					
			Turner	Ir	Informs		
	Address/Port	Security	Types	Timeout	RetryCount	Status	
	12.234.80.4/1162	v2c	trap	1500	3	active	
	171.71.48.65/2162	v2c	trap	1500	3	active	
	171.71.49.34/1162	v2c	trap	1500	3	active	
	171.71.49.34/2162	v2c	trap	1500	3	active	
	171.71.49.35/2162	v2c	trap	1500	3	active	
	171.71.58.95/2162	v2c	trap	1500	3	active	
e	Create Delete Apply Refresh Help Close 000						

Figure 8-1 Events > Destinations Dialog Box, Device Manager

Both dialog boxes show the display-only information described in Table 8-4.

 Table 8-4
 Events > Destinations – Display-Only Attributes

Display-Only Attribute	Description
Switch	Displays the switch name or IP address. This attribute is only displayed from the Fabric Manager.
Security	Displays the security.
Types	Displays the type of notification to be generated for an event (traps for v2c or informs for v3).

Table 8-5 describes the configurable attributes for event destinations.

Table 8-5 Events > Destinations – Configu	urable Attr	ibutes
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Configurable Attribute	Description
Address/Port	Specifies the IP address and port of the event destination.
Security	Identifies the version of SNMP, such as v2c for version 2c, or v3 for version 3.
Types	Identifies the type of events (traps for v2c or informs for v3).

Description
Specifies the amount of time an application must wait for a response.
<b>Note</b> The timeout value can be based on a particular retransmission algorithm and on the number of timeouts that have occurred. Consider the type of message when configuring the timeout value. For example, if a message has a security level that requires both authentication and privacy, you should increase the timeout value to compensate for the extra processing time needed for the authentication and encryption processing.
Specifies the default number of retries to be attempted when a response is not received for a generated message. If an application provides its own retry count, the value of this attribute is ignored.
Specifies the row status. Valid values are: • active • notInService • notReady • createAndGo • createAndWait

#### Table 8-5 Events > Destinations – Configurable Attributes (continued)

To create an event destination, click **Create** on the Device Manager dialog box or click the **Create Row** button on the Fabric Manager toolbar.

From Device Manager, you see the dialog box shown in Figure 8-2.

#### Figure 8-2 Create Destinations Dialog Box, Device Manager

🌎 switch2 - Create Event Destinati 🗴
Address/Port: 171.71.49.34
Security: v2c 💌
Types: 🔿 inform 💿 trap
Timeout: 1500 1/100 sec
RetryCount: 3 0255
Apply OK Close

The dialog box from the Fabric Manager lets you select a switch.

The Timeout option lets you specify the length of time in 1/100 seconds that the system should wait to make a connection. The Retry Count option lets you specify how many times the system should retry.

See Table 8-4 for information about the other fields on this dialog box.

Complete the fields and click **Apply** to create the event destination or click **OK** to create the destination and close the window.

## **Configuring Event Security**



This is an advanced function that should only be used by administrators having experience with SNMPv3.

To configure event security from the Fabric Manager, choose **Events** > **Security** on the menu tree. To configure event security from the Device Manager, choose **Destinations** from the Events menu and click the **Security** tab.

The dialog box from the Fabric Manager displays event security information for multiple switches. The dialog box from Device Manager displays event security for a single switch.

Both dialog boxes show the display-only information described in Table 8-6.

Table 8-6 Events > Security – Display-Only Attributes

Display-Only Attribute	Description
Switch	Displays the switch ID. This attribute is only displayed from the Fabric Manager.
Name	Displays the principal on whose behalf the SNMP messages are generated.

Table 8-7 describes the configurable security attributes for event destinations.

 Table 8-7
 Event Destinations Security – Configurable Attributes

Configurable Attribute	Description
MPModel	Specifies the message processing model to be used when generating SNMP messages.
SecurityModel	Specifies the security model to be used when generating SNMP messages.

Configurable Attribute	Description	
SecurityName	Specifies the community string (v1, v2) or user name (v3) on whose behalf SNMP messages are generated.	
SecurityLevel	Specifies the level of security to be used when generating SNMP messages. Valid values are:	
	<ul> <li>NoAuthNoPriv—No authorization with no privacy (encryption)</li> </ul>	
	• authNoPriv—Authorization with no privacy (encryption)	
	• authPriv—Authorization with privacy (encryption)	

### Table 8-7 Event Destinations Security – Configurable Attributes (continued)

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# **Configuring Event Filters**

To configure event filters from the Fabric Manager, choose **Events** > **FC Filters** or **Other Filters** on the menu tree. To configure event filters from the Device Manager, choose **Filters** from the Events menu.

Figure 8-3 shows the Event Filters dialog box from the Device Manager, which displays event filters for a single switch. Fabric Manager displays two different dialog boxes, which list the same event filters for multiple switches, in different order.

Figure 8-3 Event Filters Dialog Box

switch2 - Event Filters	×
FSPF - Nbr State Changes	
🔲 Domain Mgr - ReConfig Fabrics	
🔲 Zone Server - Request Rejects	
🔲 Zone Server - Merge Failures	
🔲 Zone Server - Merge Successes	
🔲 Zone Server - Default Zone Behaviour Change	
🔲 FabricConfigServer - Request Rejects	
🔲 RSCN - ILS Request Rejects	
🔲 RSCN - ELS Request Rejects	
FRU Changes	
SNMP - Community Auth Failure	
VRRP	
Apply Refresh Help Close	

To configure event filters, check the check box next to the appropriate filter name. The event filters are described in Table 8-8.

Event Filter	Description				
FSPF - Nbr State Changes	Issues a notification when the local switch learns of a change in the neighbor's state on an interface on a VSAN.				
Domain Mgr - ReConfig Fabrics	Issues a notification when sending or receiving a ReConfigureFabric request on a VSAN.				
Zone Server - Request Rejects	Issues a notification when a zone server request is rejected.				
Zone Server - Merge Failures	Issues a notification when a zone merge fails.				
Zone Server - Merge Successes	Issues a notification when a zone merge occurs.				
Zone Server - Default Zone Behavior Change	Issues a notification when default zone behavior is changed (exclusive or inclusive).				
FabricConfigServer - Request Rejects	Issues a notification when a fabric configuration server request is rejected.				
RSCN - ILS Request Rejects	Issues a notification when an RSCN ILS request is rejected.				
RSCN - ELS Request Rejects	Issues a notification when an RSCN ELS request is rejected.				
SNMP - Bad Logins	Enables or disables generation of an SNMP authenticationFailure trap.				
	<b>Note</b> We recommend that you save this attribute in nonvolatile memory so that it remains constant across reinitializations of the network management system.				
VRRP	Specifies whether a VRRP-enabled router can generate SNMP traps.				

#### Table 8-8 Event Filters

# **Enabling RMON Alarms**

This section describes how to define and enable preconfigured RMON alarms and includes the following topics:

- Enabling RMON Alarms by Port, page 8-8
- Enabling RMON Alarms for VSANs, page 8-9
- Enabling RMON Alarms for Physical Components, page 8-10

The "Managing RMON Alarms and Events" section on page 8-10 provides information about changing the default controls for RMON alarms, viewing the alarm events that have been defined, defining custom event severity levels, and viewing the event log.

# **Enabling RMON Alarms by Port**

To enable alarm notifications by port from the Device Manager, choose **Threshold Manager** from the Events menu and click the **Ports** tab. (See Figure 8-4.)

Figure 8-4 RMON Threshold Manager, Ports Tab

All C	xE O Fx 💿 Sele	cted:					
umm	ary						_
Select	Variable		1	Value	Sample (sec)	Severity	
Г	R× Utilization%		- 1	90	10	WARNI	NG
Γ	Tx Utilization%	>=	•	90	10	WARNI	NG
Γ	InErrors	>=	-	1	10	WARNI	NG
Γ	OutErrors	>=	-	1	10	WARNI	NG
	Class2	>=	•	1	10	WARNI	NG
	Class3	>=	-	1	10	WARNI	NG
	ClassF	>=	-	1	10	WARNI	NG
rror D	etail						_
Select	Variable			Value	Sample (sec)	Severity	
Г	LinkFailures		>=	1	10	WARNING	
Γ	SyncLosses		>=	1	10	WARNING	
	SigLosses		>=	1	10	WARNING	
	InvalidTxWords		>=	1	10	WARNING	
Γ	InvalidCrcs		>=	1	10	WARNING	
Γ	DelimiterErrors		>=	1	10	WARNING	
	AddressIdErrors		>=	1	10	WARNING	
	LinkResetIns		>=	1	10	WARNING	
	LinkResetOuts		>=	1	10	WARNING	
	OlsIns		>=	1	10	WARNING	
	OlsOuts		>=	1	10	WARNING	
	RuntFramesIn		>=	1	10	WARNING	
	JabberFramesIn		>=	1	10	WARNING	
	TxWaitCount		>=	1	10	WARNING	
	FramesTooLong		>=	1	10	WARNING	
	FramesTooShort		>=	1	10	WARNING	
	LRRIn		>=	1	10	WARNING	

To configure an RMON alarm for one or more ports, follow these steps:

#### **Step 1** Select the ports to monitor.

- a. Click the Selected radio button.
- **b.** Click the button to the right of the Selected field to display all ports.
- c. Select the ports you want to monitor.

Alternatively, click the appropriate radio button to select ports by type:

- All ports
- xE ports
- Fx ports
- **Step 2** Click the check box for each variable that you want to monitor.
- **Step 3** Enter the threshold value in the Value column.
- **Step 4** Enter the sampling period in seconds.

**Step 5** Select one of the following severity levels to assign to the alarm:

- Fatal
- Warning
- Critical
- Error
- Information
- Step 6 Click Create.
- **Step 7** Confirm the operation to define an alarm and a log event when the system prompts you to define a severity event.

If you do not confirm the operation, the system only defines a log event.

## **Enabling RMON Alarms for VSANs**

To manage RMON alarm service attributes for selected VSANs from the Device Manager, choose **Threshold Manager** from the Events menu and click the **Services** tab. Figure 8-5 shows the Threshold Manager dialog box with the Services tab selected.

Figure 8-5 Threshold Manager, Services Tab

switch2 · Ports Ser VSAN Id(s)	- Threshold Manager vices   Physical   v:				
Select	Variable		Value	Sample (sec)	Severity
	NameServer Rejects	>=	1	10	WARNING
	RSCN Rejects	>=	1	10	WARNING
	FSPF Errors	>=	1	10	WARNING
	DM Fabric Builds	>=	1	10	WARNING
	DM Fabric Reconfigures	>=	1	10	WARNING
	DM Free FcIds	>=	1	10	WARNING
			Crea	ite More	Close

To enable an RMON alarm for one or more VSANs, follow these steps:

- **Step 1** Enter one or more VSANs to monitor in the VSAN Id(s) field.
- **Step 2** Click the check box for each variable that you want to monitor.
- **Step 3** Enter the threshold value in the Value column.
- **Step 4** Enter the sampling period in seconds.
- **Step 5** Select a severity level to assign to the alarm:
- Step 6 Click Create.
- **Step 7** Confirm the operation to define an alarm and a log event when the system prompts you to define a severity event.

If you do not confirm the operation, the system only defines a log event.

# **Enabling RMON Alarms for Physical Components**

To configure RMON alarm physical attributes from the Device Manager, choose **Threshold Manager** from the Events menu and click the **Physical** tab. Figure 8-6 shows the Create RMON Alarms dialog box with the Physical tab selected.

Figure 8-6 Threshold Manager, Physical Tab

switch2 - Threshold Manager							
Ports	Services	Phy	sical				
Select	Variable		Value	Sample (sec)	Severity		
	CPU	>=	90	10	WARNING		
	Memory	>=	90	10	WARNING		
Create							

To configure an RMON alarm for a physical component, follow these steps:

- **Step 1** Click the check box for each variable that you want to monitor.
- **Step 2** Enter the threshold value in the Value column.
- **Step 3** Enter the sampling period in seconds.
- **Step 4** Select one of the following severity levels to assign to the alarm:
  - Fatal
  - Warning
  - Critical
  - Error
  - Information

Step 5 Click Create.

**Step 6** Confirm the operation to define an alarm and a log event when the system prompts you to define a severity event.

If you do not confirm the operation, the system only defines a log event.

# **Managing RMON Alarms and Events**

This section describes changing the default controls for RMON alarms, viewing the alarm events that have been defined, defining custom event severity levels, and viewing the event log. It includes the following topics:

- Configuring RMON Controls, page 8-11
- Managing RMON Alarms, page 8-11

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- Managing RMON Event Severity Levels, page 8-15
- Viewing the RMON Log, page 8-16

# **Configuring RMON Controls**

To change the default controls for RMON alarms, choose **Threshold Manager** from the Device Manager menu. You see the Threshold Manager window shown earlier in Figure 8-4.

Click More on the Threshold Manager window. You see the dialog box shown in Figure 8-7.

Figure 8-7 RMON Thresholds Controls Dialog Box

switch2 - RMON Thresholds	×
Controls Alarms Events Log	
AlarmEnable MaxAlarms: 100 065535	
Apply Refresh Help Close	

Table 8-9 describes the configurable attributes for RMON controls.

 Table 8-9
 RMON Alarms > Controls - Configurable Attributes

Configurable Attribute	Description
AlarmEnable	Enables or disables the RMON alarm feature on this device.
MaxAlarms	Specifies the maximum number of entries allowed in the alarmTable.

# **Managing RMON Alarms**

To view the alarms that have already been enabled, choose **Threshold Manager** from the Events menu and click the **More** button on the Threshold Manager dialog box. Then click the **Alarms** tab. You see the dialog box shown in Figure 8-8.

	Figure 8-8	RMON	Thresholds-	–Alarms 🛾	Tab
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switch	12 - RMON	Thresholds									×
Controls	Alarms	Events Log									
- r\$ 🔒	3										
	-					Risin	g	Fallin	g (		
Index	Interval	Variable	SampleType	Value	StartupAlarm	Threshold	Event	Threshold	Event	Owner	
1	10	ifInErrors.2/1	deltaValue	0	risingAlarm	1	4	0	0		1×1
2	10	ifInErrors.2/2	deltaValue	0	risingAlarm	1	4	0	0		
3	10	ifInErrors.2/3	deltaValue	0	risingAlarm	1	4	0	0		1
4	10	ifInErrors.2/4	deltaValue	0	risingAlarm	1	4	0	0		1
5	10	ifInErrors.2/5	deltaValue	0	risingAlarm	1	4	0	0		
6	10	ifInErrors.2/6	deltaValue	0	risingAlarm	1	4	0	0		
7	10	ifInErrors.2/7	deltaValue	0	risingAlarm	1	4	0	0		
8	10	ifInErrors.2/8	deltaValue	0	risingAlarm	1	4	0	0		1
9	10	ifInErrors.2/9	deltaValue	0	risingAlarm	1	4	0	0		1
20	10	fcIfInvalidTxWords	deltaValue	0	risingAlarm	1	4	0	0		1
21	10	fcIfInvalidTxWords	deltaValue	0	risingAlarm	1	4	0	0		1
22	10	fcIfInvalidTxWords	deltaValue	0	risingAlarm	1	4	0	0		1
23	10	fcIfInvalidT×Words	deltaValue	0	risingAlarm	1	4	0	0		1
24	10	fcIfInvalidTxWords	deltaValue	0	risingAlarm	1	4	0	0		1
25	10	fcIfInvalidTxWords	deltaValue	0	risingAlarm	1	4	0	0		1
26	10	fcIfInvalidT×Words	deltaValue	0	risingAlarm	1	4	0	0		-
					Insert	Delete	Re	efresh	Help	Close	
8 row(s)											

To create a customized threshold entry, click the **Create** button. You see the dialog box shown in Figure 8-9.

Figure 8-9 Create RMON Thresholds Alarms

<b>switch2</b> - Create	RMON Thresholds Alarms
Index:	1 165535
Interval:	10 13600 secs
Variable:	
SampleType:	C absoluteValue 📀 deltaValue
StartupAlarm:	🖸 risingAlarm 🔿 fallingAlarm 🔿 risingOrFallingAlarm
RisingThreshold:	
RisingEventIndex:	065535 (0=no event)
FallingThreshold:	
FallingEventIndex:	065535 (0=no event)
Owner:	kcohler-w2k
	Apply OK Close

The dialog boxes show the display-only information described in Table 8-10.

Display-Only Attribute	Description
Switch	Displays the switch ID. This attribute is only displayed from the Fabric Manager.
Falling—Threshold	Displays a threshold for the sampled statistic. When the sampled value falls equal to or below this threshold, an event is generated.
Falling—Event	Displays the ID of the event that is generated when the sampled value falls equal to or below this threshold.

### Table 8-10 Events > RMON Alarms – Display-Only Attributes

 Table 8-11 describes the configurable attributes for RMON alarm thresholds.

Configurable Attribute	Description
Index	Specifies the ID of the RMON alarm. Valid values are 1 to 65535. By default, the index values from 1 through 5 are assigned to predefined event severity levels, as follows:
	• 1—Fatal
	• 2—Critical
	• 3—Error
	• 4—Warning
	• 5—Information
Interval	Specifies the time interval, in seconds, over which the data is sampled and compared with the rising and falling thresholds. Valid values are 1 to 3600 seconds.
Variable	Specifies the variable to be sampled.
SampleType	Specifies the method of sampling the selected variable and calculating the value to be compared against the thresholds. Valid values are:
	• absoluteValue—The value of the selected variable is compared directly with the thresholds at the end of the sampling interval.
	• deltaValue— The value of the selected variable at the last sample is subtracted from the current value, and the difference is compared with the thresholds

Table 8-11 Events > RMON Alarms – Configurable Attributes

Configurable Attribute	Description
StartupAlarm	Specifies the alarm that is sent when a threshold is exceeded. Valid values are:
	• risingAlarm—A single rising alarm is generated.
	• fallingAlarm—A single falling alarm is generated.
	• risingOrFallingAlarm—Either a rising or a falling alarm is generated.
RisingTheshold	Specifies the threshold for the sampled statistic.
	When the current sampled value is greater than or equal to this threshold, and the value at the last sampling interval was less than this threshold, a single event is generated.
	A single event is also generated if the first sample is greater than or equal to this threshold and the StartupAlarm is either a risingAlarm or a risingOrFallingAlarm.
	After a rising event is generated, another rising event is not generated until the sampled value falls below this threshold and reaches the FallingThreshold.
RisingEventIndex	Specifies the ID of the event that is generated when a rising threshold is crossed. Valid values are 0 to 65535, where 0 indicates that no event is to be generated.
Owner	Specifies the person who configured the RMON alarm thresholds.

### Table 8-11 Events > RMON Alarms—Configurable Attributes (continued)

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# **Managing RMON Event Severity Levels**

To define customized RMON event severity levels, select **Threshold Manager** from the Events menu and click **More** on the Threshold Manager dialog box. Then click the **Events** tab on the RMON Thresholds dialog box. You see the dialog box shown in Figure 8-10.

Figure 8-10 RMON Thresholds Events Tab

switch	switch2 - RMON Thresholds				
Controls	Alarms Event	s Log			
🕏 🔒	<b>i</b>				
Index	Description	Туре	Community	LastTimeSent	Owner
1	FATAL	logandtrap	public	n/a	
2	CRITICAL	logandtrap	public	n/a	
3	ERROR	logandtrap	public	n/a	
4	WARNING	logandtrap	public	n/a	
5	INFORMATION	logandtrap	public	n/a	
5 row(s)	Create	Delete	Refresh	Help	Close

To create a new threshold entry, click the Create button. You see the dialog box shown in Figure 8-11.

#### Figure 8-11 Create RMON Thresholds Events

<b>switch2</b> - (	Freate RMON Thresholds Events	×
Index:	6 165535	
Description:		
Type:	C none C log C snmptrap ⊙ logandtrap	
Community:	public	
Owner:		
	Apply OK Close	

Table 8-12 describes the attributes for RMON event thresholds.

Table 8-12 RMON Alarms > Events – Configurable Attributes

Configurable Attribute	Description
Index	Specifies the event severity level identifier. By default, the index values from 1 through 5 are assigned to predefined event severity levels, as follows:
	• 1—Fatal
	• 2—Critical
	• 3—Error
	• 4—Warning
	• 5—Information
Description	Provides a description of this event severity level.

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Configurable Attribute	Description	
Туре	Specifies the type of response to the event. Valid values are:	
	• none—No event is generated.	
	• log—An entry is made in the log table for each event.	
	<ul> <li>snmptrap—An SNMP trap is sent to one or more management stations.</li> </ul>	
	• logandtrap—An entry is made in the log table and an SNMP trap is sent for each event.	
Community	Specifies the SNMP community to authenticate the SNMP trap.	
Owner	Specifies the person who configured the RMON alarm thresholds.	

#### Table 8-12 RMON Alarms > Events – Configurable Attributes (continued)

# **Viewing the RMON Log**

To view the RMON log from the Device Manager, select **Threshold Manager** from the Events menu and click **More** on the Threshold Manager dialog box. Then click the **Log** tab on the RMON Thresholds dialog box. You see the dialog box shown in Figure 8-12.

Figure 8-12 Events > RMON Alarms > Logs Dialog Box, Fabric Manager



The RMON Log dialog box shows the display-only information described in Table 8-13.

 Table 8-13
 RMON Log – Display-Only Attributes

Display-Only Attribute	Description
Switch	Displays the switch ID. This attribute is only displayed from the Fabric Manager.
EventId, Id	Displays the event ID.
Time	Displays the time this log entry was created.
Description	Describes the event that triggered this log entry.

# **Configuring the Call Home Feature**

This section describes how to configure the Call Home feature, which automatically sends e-mail notifications in response to configurable events. This section includes the following topics:

- Overview of Features, page 8-17
- Configuration Overview, page 8-17
- Configuring Call Home Attributes, page 8-18
- Configuring Call Home Destination Attributes, page 8-19
- Configuring Call Home E-Mail Addresses, page 8-21
- Configuring Call Home Alerts, page 8-21
- Configuring Call Home Profiles, page 8-22

# **Overview of Features**

You can use Call Home for direct paging of a network support engineer, E-mail notification to a Network Operations Center, and utilization of Cisco AutoNotify services for direct case generation with the Technical Assistance Center. Call Home provides the following features:

- Fixed set of predefined alerts and trigger events on the switch.
- Automatic execution and attachment of relevant command output.
- Multiple message format options:
  - Short Text Suitable for pagers or printed reports.
  - Plain Text Full formatted message information suitable for human reading.
  - XML Matching readable format using Extensible Markup Language (XML) and Document Type Definitions (DTDs) named Messaging Markup Language (MML). The MML DTD is published on the Cisco Connection Online (CCO) website at http://www.cisco.com/. The XML format enables communication with the Cisco Systems TAC group.
- Multiple concurrent message destinations. Up to 50 e-mail destination addresses are allowed for each format type.
- Message categories include system, environment, switching module hardware, services module hardware, supervisor module, hardware, inventory, and test.

## **Configuration Overview**

When configuring Call Home, keep the following points in mind:

- You must configure at least one E-mail server and at least one destination profile. The destination profile(s) used depends on whether the notification is sent to a pager, email, or automated service such as Cisco AutoNotify.
- You must configure the contact name (SNMP server contact), phone, and street address information before enabling Call Home.
- The Cisco MDS 9000 switch must have IP connectivity to an E-mail server.
- To use Cisco AutoNotify you must obtain an active service contract for the device.

To configure Call Home, use the different tabs on the Call Home dialog box, as summarized below:

Step 1	Assign contact information and enable the Call Home feature using the General tab (see the "Configuring Call Home Attributes" section on page 8-18). The Call Home feature is not enabled by default, and you must enter an e-mail address that identifies the source of Call Home notifications.
Step 2	Configure the destination e-mail addresses for Call Home notifications using the Destinations tab (see the "Configuring Call Home Destination Attributes" section on page 8-19). You can identify one more more e-mail addresses that will receive Call Home notifications.
Step 3	Identify your SMTP server using the E-mail Setup tab (see the "Configuring Call Home E-Mail Addresses" section on page 8-21). You need to identify a message server to which your switch has access. This message server will forward the Call Home notifications to the destinations.
Step 4	Test Call Home by sending a test message using the Alerts tab (see the "Configuring Call Home Alerts" section on page 8-21). You should test the Call Home feature to make sure it works.

# **Configuring Call Home Attributes**

To assign contact information and enable the Call Home feature from the Fabric Manager, choose **Events** > **Call Home > General** on the menu tree. To assign contact information and enable the Call Home feature from the Device Manager, choose **Call Home** from the Events menu and click the **General** tab.

Figure 8-13 shows the dialog box with the General tab selected from the Device Manager. This view displays Call Home attributes for a single switch. The dialog box from the Fabric Manager displays Call Home information for multiple switches.

<b>switch2</b> - Call Home	e			×	
General Destinations	Email Setup	lerts Profiles			
- Contact (Require	d)				
Contact:					
PhoneNumber:					
EmailAddress:					
StreetAddress:					
-Ids					
CustomerId:					
ContractId:					
SiteId:					
	C emergency	C alert	C critical		
DeviceServicePriority:	C error	C warning	C notice		
	🔿 info	💿 debug			
	Enable				
	Apply	Refresh	Help	Close	35086

Figure 8-13 Events > Call Home Dialog Box, Device Manager

Both dialog boxes provide the display-only information described in Table 8-14.

Table 8-14 describes the attributes for the Call Home feature.

## Send documentation comments to

Configurable Attribute	Description	
Switch	Displays the switch ID. This is a display-only attribute in Fabric Manager only.	
Contact	Specifies the identity of the person to be notified.	
PhoneNumber	Specifies the phone number of the person to be notified when an alert occurs.	
EmailAddress	Specifies the e-mail address of the person to be notified when an alert occurs.	
StreetAddress	Specifies the street address of the person to be notified when an alert occurs.	
CustomerId	Specifies the customer ID of the person to be notified when an alert occurs.	
ContractId	Specifies the contract between the customer and the support partner.	
SiteId	Specifies the site ID of the device on which an alert has occurred.	
DeviceServicePriority	Specifies the service priority for the device. Valid values are:	
	• Emergency	
	• Alert	
	• Critical	
	• Error	
	• Warning	
	Notification	
	• Information	
	• Debug	
Enable	Enables Call Home alerts.	

#### Table 8-14 Events > Call Home—Configurable Attributes

# **Configuring Call Home Destination Attributes**

To configure the destination e-mail addresses for Call Home notifications, choose **Events > Call Home > Destinations** on the menu tree. To configure the destination e-mail addresses from the Device Manager, choose **Call Home** from the Events menu and click the **Destination** tab.

The dialog box from the Fabric Manager displays Call Home information for multiple switches. Figure 8-14 shows the dialog box with the Destinations tab selected from the Device Manager. This view displays Call Home attributes for a single switch.

Figure 8-14 Events > Call Home > Destination Dialog Box, Device Manager

📕 172.22.94.250 - Call Home 🛛 🗶		
General Destinations Email Set	up Alerts Profiles	
🗳 🖥 🗳		
ProfileName, Id	EmailAddress	
xml, 1	admin@mycompany.com	
full_txt, 2	admin@yourcompany.com	
Create Delete	Refresh Help Close	

Table 8-15 describes the Destinations attributes for the Call Home feature.

Table 8-15 Events > Call Home > Destination – Configurable Attributes

Configurable Attribute	Description
ProfileName, Id	Displays the profile name and ID assigned to the destination.
EmailAddress	Displays the e-mail address of the destination.

To create a new Call Home destination, follow these steps:

**Step 1** Click **Create** on the Device Manager dialog box, or click the **Create Row** button on the Fabric Manager toolbar.

From the Device Manager, you see the dialog box shown in Figure 8-15.

#### Figure 8-15 Create Call Home Destination



From the Fabric Manager, you can select one or more switches to which the configuration applies.

**Step 2** Select the profile name from the pull-down list.

**Step 3** Enter a number identifier for the destination.

- **Step 4** Enter the e-mail address for the destination.
- Step 5 Click Create.

# **Configuring Call Home E-Mail Addresses**

To identify your SMTP server from the Fabric Manager, choose **Events** > **Call Home** > **Email Setup** on the menu tree. To identify your SMTP server from the Device Manager, choose **Call Home** from the Events menu and click the **Email Setup** tab.

The dialog box from the Fabric Manager displays Call Home information for multiple switches. Figure 8-16 shows the dialog box with the EmailAddresses tab selected from the Device Manager. This view displays Call Home attributes for a single switch.

Figure 8-16 Events > Call Home > Email Setup Dialog Box, Device Manager

Į	switch2 - Call Home	×
	General Destinations Email Setup Alerts Profiles	
	From:	
	ReplyTo:	
	- SMTP Server	
	Address: 11.12.14.15	
	Port: 25 165535 (25)	
	Apply Refresh Help Close	

Table 8-16 describes the configurable e-mail setup attributes for the Call Home feature.

85090

 Table 8-16
 Events > Call Home > Destination - Configurable Attributes

Configurable Attribute	Description
From	Specifies the e-mail address to be used in the From field when sending the e-mail message using SMTP.
ReplyTo	Specifies the e-mail address to be used in the To field when sending the e-mail message using SMTP.
SMTP Server: Address	Specifies the address of the SMTP server.
SMTP Server: Port	Specifies the port of the SMTP server.

## **Configuring Call Home Alerts**

To test Call Homefrom the Fabric Manager, choose **Events** > **Call Home** > **Alerts** on the menu tree. To test Call Home from the Device Manager, choose **Call Home** from the Events menu and click the **Alerts** tab.

The dialog box from the Fabric Manager displays Call Home information for multiple switches. Figure 8-17 shows the dialog box with the Alerts tab selected from the Device Manager. This view displays Call Home attributes for a single switch.

Send	documentati	ion comments	to
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Figure 8-17 Events > Call Home > Alerts Dialog Box, Device Manager

switch2 - Call Home	×
General Destinations Email Setup Alerts Profiles	
Test	
Action: C test C test&inventory	
Status: unknown	
FailureCause:	
LastTimeSent: n/a	
NumberSent: 0	
Apply Refresh Help Close	

Both dialog boxes show the display-only information described in Table 8-17.

Table 8-17 Events > Call Home > Alerts – Display-Only Attributes

Display-Only Attribute	Description
Switch	Displays the switch ID. This attribute is only displayed from the Fabric Manager.
Status	Displays the status of the alert.
LastTimeSent	Displays the date and time the last alert was sent.
Number Sent	Displays the number of alerts sent.

Table 8-18 describes the configurable alert attributes for the Call Home feature.

Table 8-18 Events > Call Home > Alerts – Configurable Attributes

Configurable Attribute	Description
Test	Specifies the type of test:
	• test
	• test&inventory

# **Configuring Call Home Profiles**

To configure Call Home attributes from the Fabric Manager, choose **Events > Call Home > Profiles** on the menu tree. To configure Call Home attributes from the Device Manager, choose **Call Home** from the Events menu and click the **Profiles** tab.

The dialog box from the Fabric Manager displays Call Home information for multiple switches. Figure 8-18 shows the dialog box with the Alerts tab selected from the Device Manager. This view displays Call Home attributes for a single switch.

### Send documentation comments to

Figure 8-18 Events > Call Home > Profiles Dialog Box, Device Manager

<b>switch2 - Call Home</b>		×
General   Destinations   Email Setup   🕞 🗳 为 🔒 🍣	<u>A</u> lerts <u>P</u> rofiles	
Profile	MsgFormat	MaxMsgSize
xml	xml	250000
full_t×t	fullText	250000
short_txt	shortText	4000
Apply I 3 row(s)	Refresh Hel	p Close

Both dialog boxes show the display-only information described in Table 8-19.

Table 8-19 Call Home > Profiles – Display-Only Attributes

Display-Only Attribute	Description		
Switch	Displays the switch ID. This attribute is only displayed from the Fabric Manager.		
Profile	Displays the profile of the Call Home message to be sent when an alert occurs. Valid values are:		
	• xml		
	• full_txt		
	• short_txt		
MsgFormat	Displays the format of the Call Home message to be sent when an alert occurs. Valid values are:		
	• mml		
	• fullText		
	• shortText		

Table 8-20 describes the configurable profile attributes for the Call Home feature.

Table 8-20	Call Home >	Profiles-	-Configurable	Attributes
	••••••		•••·····	

Configurable Attribute	Description
MaxMsgSize	Specifies the maximum size of the Call Home
	message.

# **Configuring the Syslog**

This section describes how to configure the syslog and includes the following topics:

- Configuring Syslog Attributes, page 8-24
- Configuring Syslog Servers, page 8-25
- Configuring Syslog Priorities, page 8-27

## **Configuring Syslog Attributes**

To configure syslog attributes from the Fabric Manager, choose **Events** > **Syslog** > **General** on the menu tree. To configure syslog attributes from the Device Manager, choose **Syslog** from the Events menu and click the **General** tab.

The dialog box from the Fabric Manager displays syslog information for multiple switches. Figure 8-19 shows the Syslog dialog box with the General tab selected from the Device Manager. This view displays syslog information for a single switch.

switch2 - Syslog					×
General Servers Pri	orities				
	🔽 ConsoleEnat	ble			
	C emergency	C alert	C critical	C error	
ConsoleMsgSeverity:	C warning	notice	🔿 info	C debug	
	TerminalEna	ble			
	C emergency	C alert	C critical	C error	
TerminalMsgSeverity:	C warning	C notice	🔿 info	⊙ debug	
	☑ LinecardEna	ble			
	C emergency	C alert	C critical	C error	
LinecardMsgSeverity:	C warning	C notice	🔿 info	🖲 debug	
LogFileName:	/var/log/messa	ges			-
	C emergency	C alert	C critical	C error	
LogHiemsgSeverity:	C warning	C notice	🔿 info	⊙ debug	
		Apply	Refresh	Help	Close

Figure 8-19 Events > Syslog > General Dialog Box, Device Manager

The Fabric View dialog box shows the display-only information described in Table 8-21.

Table 8-21 Events > Syslog > General – Display-Only Attributes

Display-Only Attribute	Description
Switch	Displays the switch ID. This attribute is only displayed from the Fabric Manager.

Table 8-22 describes the configurable general attributes for the syslog.

## Send documentation comments to

Configurable Attribute	Description
ConsoleEnable	Enables syslog messages at the console.
ConsoleMsgSeverity	Specifies the minimum severity of the messages sent to the console. Valid values are:
	• Emergency
	• Alert
	• Critical
	• Error
	• Warning
	Notification
	• Information
	• Debug
LogFileName	Specifies the name of the log file to which syslog messages are sent.
LogFileMsgSeverity	Specifies the minimum severity of the messages sent to the log file. Valid values are:
	• Emergency
	• Alert
	• Critical
	• Error
	• Warning
	Notification
	Information
	• Debug

#### Table 8-22 Events > Syslog > General – Configurable Attributes

# **Configuring Syslog Servers**

To configure syslog attributes from the Fabric Manager, choose **Events** > **Syslog** > **Servers** on the menu tree. To configure syslog servers from the Device Manager, choose **Syslog** from the Events menu and click the **Servers** tab.

The dialog box from the Fabric Manager displays syslog information for multiple switches. Figure 8-20 shows the Syslog dialog box with the Servers tab selected from the Device Manager. This view displays syslog information for a single switch.

Figure 8-20 Events > Syslog > Servers Dialog Box, Device Manager

C	172.22.94.250 -	Syslog			×
General Servers Priorities					
	🕏 🛸 🍃 🔒	3			
	Index	Address MsgSeverity			rity
	1	myserver.mycompany.com		debug	
6	Create	Delete Apply	Refresh	Help	Close

Both dialog boxes show the display-only information described in Table 8-23.

Table 8-23 Events > Syslog > Servers – Display-Only Attributes

Display-Only Attribute	Description
Switch	Displays the switch ID. This attribute is only displayed from the Fabric Manager.

Table 8-24 describes the configurable server attributes for the syslog.

Configurable Attribute	Description	
Index	Specifies the server ID.	
IpAddress	Specifies the IP address of the server.	
MsgSeverity	Specifies the minimum severity of the messages sent to the server. Valid values are:	
	• Emergency	
	• Alert	
	• Critical	
	• Error	
	• Warning	
	Notification	
	Information	
	• Debug	

Table 8-24 Events > Syslog > Servers—Configurable Attributes

To add a syslog server, click Create. You see the dialog box shown in Figure 8-21.

## Send documentation comments to

Figure 8-21 Create Syslog Servers

<b>switch2</b> - Cr	eate Syslog 9	5ervers		×
Index:	1 13			
Address:				
	C emergency	C alert	🔿 critical	
MsgSeverity:	C error	C warning	O notice	
	🔿 info	💿 debug		
		1	_	
	_	Apply Of	Close	85094

Complete the fields on this dialog box and click **OK**.

# **Configuring Syslog Priorities**

To configure syslog priorities from the Device Manager, choose **Syslog** from the Events menu and click the **Priorities** tab. To configure syslog attributes from the Fabric Manager, choose **Events** > **Syslog** > **Priorities** on the menu tree.

Figure 8-22 shows the Syslog dialog box with the Servers tab selected from the Device Manager. This view displays syslog information for a single switch. The dialog box from the Fabric Manager displays syslog information for multiple switches.

General Servers Prior	ities	
\$ 😫 🔇 🗳		
Facility	Severity	Т
ernel	info	-
ser	error	
nail	error	
aemon	debug	
uth	emergency	
seSyslog	error	
or	error	
ews	error	
ucp	error	
ron	error	
uthPriv	error	
tp	error	
ocal0	error	
ocal1	error	
ocal2	error	
ocal3	error	
ocal4	error	
ical5	error	
ical6	error	
ical7	error	
sanMgr	critical	
spf	critical	
omainMgr	critical	
necardMgr	notice	
oneServer	critical	
irtualIfMgr	critical	
ConfMgr	critical	
e	94.1	

Figure 8-22 Events > Syslog > Priorities Dialog Box, Device Manager

Both dialog boxes show the display-only information described in Table 8-25.

Table 8-25 Events > Syslog > Priorities – Display-Only Attributes

Display-Only Attribute	Description
Switch	Displays the switch ID. This attribute is only displayed from the Fabric Manager.
Facility	Displays the system log message facility.

Table 8-26 describes the configurable priorities for the syslog.

Configurable Attribute	Description
Severity	Specifies the minimum severity of the messages sent to the syslog. Valid values are:
	• Emergency
	• Alert
	Critical
	• Error
	Warning
	Notification
	Information
	• Debug

### Table 8-26 Events > Syslog > Priorities – Configurable Attributes