CHAPTER 4

# Configuring Call Home

Call Home provides e-mail-based notification of critical system events. A versatile range of message formats are available for optimal compatibility with pager services, standard e-mail, or XML-based automated parsing applications. Common uses of this feature may include direct paging of a network support engineer, e-mail notification to a Network Operations Center, and utilization of Cisco Smart Call Home services for direct case generation with the Technical Assistance Center.

**Note** Cisco Autonotify is upgraded to a new capability called Smart Call Home. Smart Call Home has significant functionality improvement over Autonotify and is available across the Cisco product range. For detailed information on Smart Call Home, see the Smart Call Home page at this location: http://www.cisco.com/go/smartcall/

The Call Home feature provides message throttling capabilities. Periodic inventory messages, port syslog messages, and RMON alert messages are added to the list of deliverable Call Home messages. If required you can also use the Cisco Fabric Services application to distribute the Call Home configuration to all other switches in the fabric.

This chapter includes the following sections:

# About Call Home

The Call Home service provides e-mail-based notification of critical system events. A versatile range of message formats are available for optimal compatibility with pager services, standard e-mail, or XML-based automated parsing applications.

Common features may include the following:

- Paging the network support engineer
- E-mailing the Network Operations Center
- Raising a direct case with the Technical Assistance Center

The Call Home functionality is available directly through the Cisco MDS 9000 Family switches and the Cisco Nexus 5000 Series switches. It provides multiple Call Home messages, each with separate potential destinations. You can define your own destination profiles in addition to predefined profiles; you can configure up to 50 e-mail addresses for each destination profile. Flexible message delivery and format options make it easy to integrate specific support requirements.

The Call Home feature offers the following advantages:

- Fixed set of predefined alerts for trigger events on the switch.
- Automatic execution and attachment of relevant command output.

# Call Home Features

The Call Home functionality is available directly through the Cisco MDS 9000 Family switches and the Cisco Nexus 5000 Series switches. It provides multiple Call Home profiles (also referred to as *Call Home destination profiles*), each with separate potential destinations. You can define your own destination profiles in addition to predefined profiles.

The Call Home function can even leverage support from Cisco Systems or another support partner. Flexible message delivery and format options make it easy to integrate specific support requirements.

The Call Home feature offers the following advantages:

- 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.com website at http://www.cisco.com/. The XML format enables communication with the Cisco Systems Technical Assistance Center.
- Multiple concurrent message destinations. You can configure up to 50 e-mail destination addresses for each destination profile.
- Multiple message categories including system, environment, switching module hardware, supervisor module, hardware, inventory, syslog, RMON, and test.

# About Smart Call Home

Smart Call Home is a component of Cisco SMARTnet Service that offers proactive diagnostics, real-time alerts, and personalized web-based reports on select Cisco devices.

Smart Call Home provides fast resolution of system problems by analyzing Call Home messages sent from your devices and providing a direct notification path to Cisco customer support.

Smart Call Home offers the following features:

- Continuous device health monitoring and real-time diagnostics alerts.
- Analysis of Call Home messages from your device and where appropriate, automatic service request generation, routed to the appropriate TAC team, including detailed diagnostic information to speed problem resolution.
- Secure message transport through a downloadable Transport Gateway (TG) aggregation point. You can use a TG aggregation point in cases requiring support for multiple devices or in cases where security requirements mandate that your devices not be connected directly to the Internet.
- Web-based access to Call Home messages and recommendations, inventory and configuration information for all Call Home devices. Provides access to associated Field Notices, Security Advisories and End-of-Life Information.

Table 4-1 lists the benefits of Smart Call Home.

*Table 4-1 Benefits of Smart Call Home Compared to Autonotify*

| Feature | Smart Call Home | Autonotify |
|---|---|---|
| Low touch registration | The registration process is considerably streamlined. Customers no longer need to know their device serial number or contract information. They can register devices without manual intervention from Cisco by sending a message from those devices. The procedures are outlined at www.cisco.com/go/smartcall | Requires the customer to request Cisco to add each specific serial number to the database. |
| Recommendations | Smart Call Home provides recommendations for known issues including those for which SRs are raised and for which SRs are not appropriate but for which customers might want to still take action on. | Autonotify raises SRs for a set of failure scenarios but no recommendations are provided for these. |
| Device report | Device report includes full inventory and configuration details. Once available, the information in these reports will be mapped to field notices, PSIRTs, EoX notices, configuration best practices and bugs. | No. |
| History report | The history report is available to look up any message and its contents, including **show** commands, message processing, analysis results, recommendations and service request numbers for all messages sent over the past three months. | A basic version is available that does not include contents of message. |

*Table 4-1 Benefits of Smart Call Home Compared to Autonotify (continued)*

| Feature | Smart Call Home | Autonotify |
|---|---|---|
| Network summary report | A report that provides a summary of the make-up of devices and modules in the customer network (for those devices registered with Smart Call home) | No. |
| Cisco device support | Device Support will be extended across the Cisco product range. See the supported products table at www.cisco.com/go/smartcall | Deprecated in favor of Smart Call Home in October 2008. |

# Obtaining Smart Call Home

If you have a service contract directly with Cisco Systems, you can receive automatic case generation from the Technical Assistance Center by registering with the Smart Call Home service.

You need the following items to register:

- The SMARTnet contract number for your switch.
- Your e-mail address
- Your Cisco.com ID

For detailed information on Smart Call Home, including quick start configuration and registration steps, see the Smart Call Home page at this location:

http://www.cisco.com/go/smartcall/

# Configuring Call Home

How you configure the Call Home process depends on how you intend to use the feature. Some points to consider include:

- An e-mail server and at least one destination profile (predefined or user-defined) must be configured. The destination profile(s) used depends on whether the receiving entity is a pager, e-mail, or automated service such as Cisco Smart Call Home.
- Switches can forward events (SNMP traps/informs) up to 10 destinations.
- The contact name (SNMP server contact), phone, and street address information must be configured before Call Home is enabled. This configuration is required to determine the origin of messages received.
- The Cisco MDS 9000 switch and the Cisco Nexus 5000 Series switch must have IP connectivity to an e-mail server.
- If Cisco Smart Call Home is used, an active service contract must cover the device being configured.

To configure Call Home, follow these steps:

**Step 1** Assign contact information.

**Step 2** Configure destination profiles.

**Step 3** Associate one or more alert groups to each profile as required by your network. Customize the alert groups, if desired.

**Step 4** Configure e-mail options.

**Step 5** Enable or disable Call Home.

**Step 6** Test Call Home messages.

# Configuring Contact Information

Each switch must include e-mail, phone, and street address information. You can optionally include the contact ID, customer ID, site ID, and switch priority information.

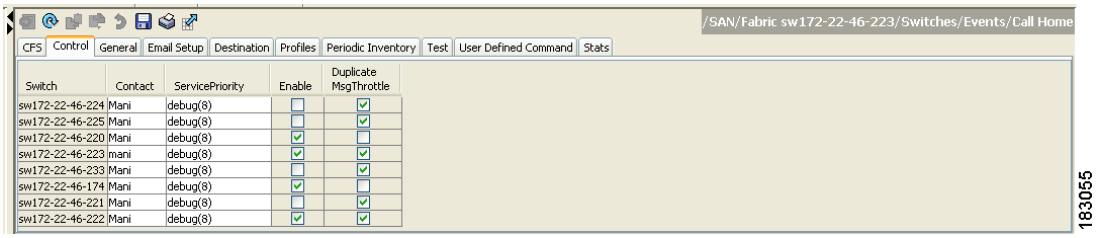
**Note** Switch priority is configured by a user for each switch in the fabric. This priority is used by the operations personnel or TAC support personnel to decide which Call Home message they should respond to first. You can prioritize Call Home alerts of the same severity from each switch.

To assign the contact information using Fabric Manager, follow these steps:

**Step 1** In the Fabric Manager Physical Attributes pane, expand **Switches,** expand **Events,** and select **Call Home**.

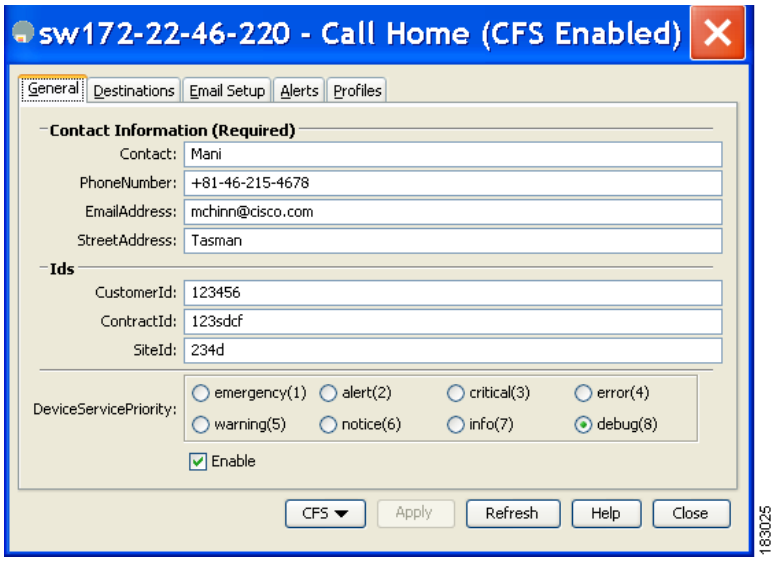
You see the Call Home tabs in the Information pane (see Figure 4-1).

***Figure 4-1 Call Home in Fabric Manager***




**Step 2** In Device Manager, click **Admin > Events > Call Home** (see Figure 4-2).

*Figure 4-2 Call Home in Device Manager*



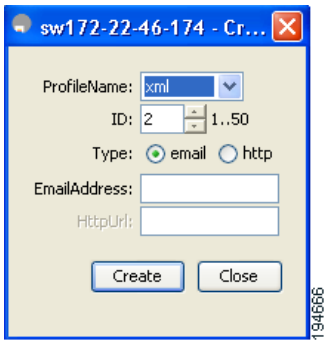

**Step 3** Click the **General** tab, then assign contact information and enable the Call Home feature. Call Home is not enabled by default. You must enter an e-mail address that identifies the source of Call Home notifications.

**Step 4** Click the **Destination(s)** tab to configure the destination e-mail addresses for Call Home notifications. You can identify one or more e-mail addresses that will receive Call Home notifications.

**Note** Switches can forward events (SNMP traps/informs) up to 10 destinations.

**a.** Click the **Create** tab to create a new destination. You will see the create destination window (see Figure 4-3).

*Figure 4-3 Create Destination Window*




**b.** Enter the profile name, ID and type of destination. You can select **email** or **http** in the **Type** field.

If you select email, you can enter the e-mail address in the **EmailAddress** field. The HttpUrl field is disabled.

If you select http, you can enter the HTTP URL in the **HttpUrl** field. The EmailAddress field is disabled.

**c.** Click **Create** to complete the destination profile creation.

**Step 5** Click the **e-mail Setup** tab to identify the SMTP server. Identify a message server to which your switch has access. This message server will forward the Call Home notifications to the destinations.

**Step 6** In Fabric Manager, click the **Apply Changes** icon. In Device Manager, click **Apply**.

# Destination Profiles

A destination profile contains the required delivery information for an alert notification. Destination profiles are typically configured by the network administrator. At least one destination profile is required. You can configure multiple destination profiles of one or more types. You can use one of the predefined destination profiles or define a desired profile. If you define a new profile, you must assign a profile name.

Using alert groups you can select the set of Call Home alerts to be received by a destination profile (predefined or user defined). Alert groups are predefined subsets of Call Home alerts supported in all switches in the Cisco MDS 9000 Family and the Cisco Nexus 5000 Series. Different types of Call Home alerts are grouped into different alert groups depending on their type. You can associate one or more alert groups to each profile as required by your network.

**Note** If you use the Cisco Smart Call Home service, the XML destination profile is required (see http://www.cisco.com/en/US/partner/products/hw/ps4159/ps4358/products_configuration_example09186a0080108e72.shtml).

You can configure the following attributes for a destination profile:

- Profile name—A string that uniquely identifies each user-defined destination profile and is limited to 32 alphanumeric characters. The format options for a user-defined destination profile are full-txt, short-txt, or XML (default).
- Destination address—The actual address, pertinent to the transport mechanism, to which the alert should be sent.
- Message formatting—The message format used for sending the alert (full text, short text, or XML).

# Configuring Destination Profiles

To configure predefined destination profile messaging options using Fabric Manager, follow these steps:

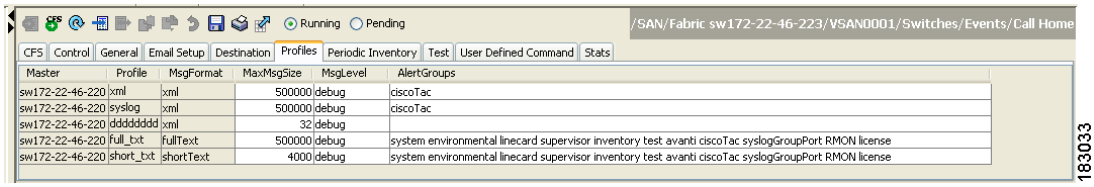
**Step 1** Expand **Switches**, expand **Events**, and select **Call Home** in the Physical Attributes pane.

**Note** The **Destination** tab is disabled, until you click the **Profiles** tab. The profiles have to be loaded for the destination tab to be populated.

**Step 2** Click the **Profiles** tab in the Information pane.

You see the Call Home profiles for multiple switches (see Figure 4-4).

*Figure 4-4 Call Home Profiles for Multiple Switches*




**Step 3** Set the profile name, message format, message size, and severity level.

**Step 4** Click in the Alert Groups column and select or remove an alert group.

**Step 5** Click the **Apply Changes** icon to create this profile on the selected switches.

To configure a new destination-profile (and related parameters) using Fabric Manager, follow these steps:

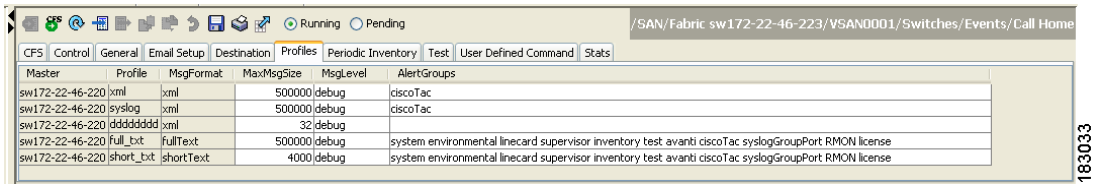
**Step 1** Expand **Switches**, expand **Events**, and select **Call Home** in the Physical Attributes pane.

**Note** The **Destination** tab is disabled, until you click the **Profiles** tab. The profiles have to be loaded for the destination tab to be populated.

**Step 2** Click the **Profiles** tab in the Information pane.

You see Call Home profiles for multiple switches.

*Figure 4-5 Call Home Profiles for Multiple Switches*




**Step 3** Click the **Create Row** icon to add a new profile.

**Step 4** Set the profile name, message format, size, and severity level.

**Step 5** Click an alert group and select each group that you want sent in this profile.

**Step 6** Click a transport method. You can select **email**, **http** or **emailandhttp**.

**Step 7** Click **Create** to create this profile on the selected switches.

# Call Home Alert Groups

An alert group is a predefined subset of Call Home alerts supported in all switches in the Cisco MDS 9000 Family and Cisco Nexus 5000 Series. Alert groups allow you to select the set of Call Home alerts to be received by a destination profile (predefined or user-defined). A Call Home alert is sent to e-mail destinations in a destination profile only if that Call Home alert belongs to one of the alert groups associated with that destination profile.

Using the predefined Call Home alert groups you can generate notification messages when certain events occur on the switch. You can customize predefined alert groups to execute additional **show** commands when specific events occur and to notify you of output other than from the predefined **show** commands.

Different types of Call Home alerts are grouped into different alert groups depending on their type. You can associate one or more alert groups to each profile as required by your network.

The alert group feature allows you to select the set of Call Home alerts to be received by a destination profile (either predefined or user-defined). You can associate multiple alert groups with a destination profile.

**Note** A Call Home alert is sent to e-mail destinations in a destination profile only if that Call Home alert belongs to one of the alert groups associated with that destination profile.

## Associating an Alert Group

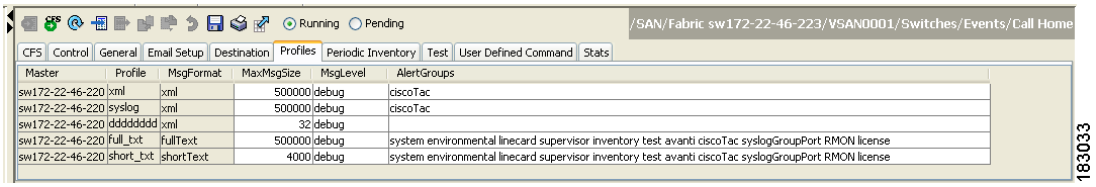
To associate an alert group with a destination profile using Fabric Manager, follow these steps:

**Step 1** Expand **Switches**, expand **Events**, and select **Call Home** in the Physical Attributes pane.

**Step 2** Click the **Profiles** tab in the Information pane.

You see the Call Home profiles for multiple switches (see Figure 4-6).

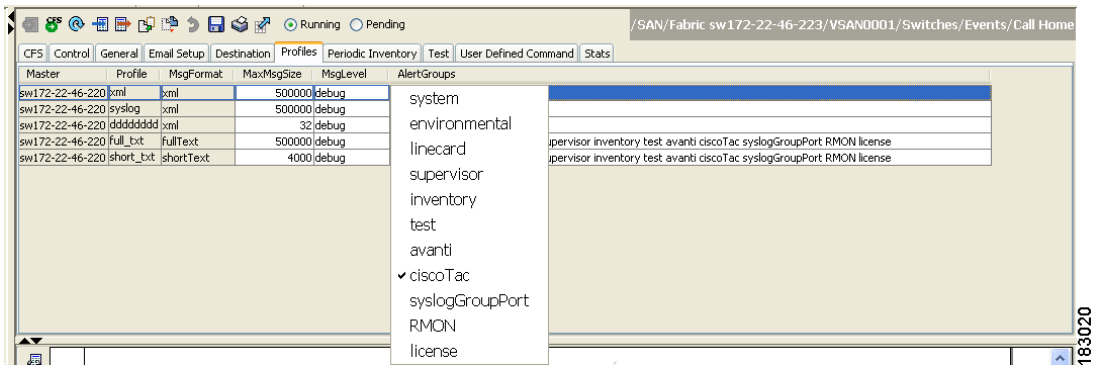
***Figure 4-6 Call Home Profiles for Multiple Switches***




**Step 3** Click the **Alert Groups** column in the row for the profile you want to associate.

You see the alert groups drop-down menu (see Figure 4-7).

*Figure 4-7 Alert Groups Drop-down Menu*




**Step 4** Click an alert group to select it for association.

**Step 5** You see a check next to that alert group. To deselect it and remove the check, click it again.

**Step 6** Click the **Apply Changes** icon.

# Customized Alert Group Messages

An alert group is a predefined subset of Call Home alerts supported in all switches in the Cisco MDS 9000 Family and Cisco Nexus 5000 Series switches. Alert groups allow you to select the set of Call Home alerts to be received by a destination profile (predefined or user-defined). The predefined Call Home alert groups generate notification messages when certain events occur on the switch. You can customize predefined alert groups to execute additional show commands when specific events occur. The output from these additional **show** commands is included in the notification message along with the output of the predefined **show** commands.

**Note** You can assign a maximum of five user-defined **show** commands to an alert group. Only **show** commands can be assigned to an alert group.

**Note** Customized **show** commands are only supported for full text and XML alert groups. Short text alert groups (short-txt-destination) do not support customized **show** commands because they only allow 128 bytes of text.

To assign **show** commands to be executed when an alert is sent, you must associate the commands with the alert group. When an alert is sent, Call Home associates the alert group with an alert type and attaches the output of the **show** commands to the alert message.

**Note** Make sure the destination profiles for a non-Cisco-TAC alert group, with a predefined **show** command, and the Cisco-TAC alert group are not the same.

## Customizing Alert Group Messages

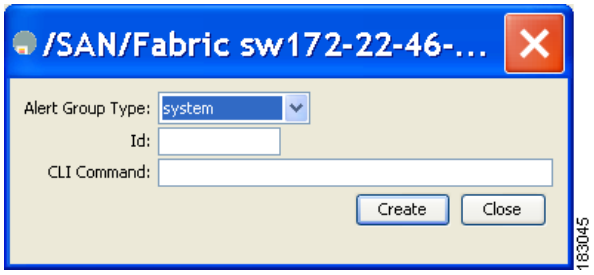
To customize Call Home alert group messages using Fabric Manager, follow these steps:

**Step 1** Expand **Switches**, expand **Events**, and select **Call Home** in the Physical Attributes pane.

**Step 2** Click the **User Defined Command** tab in the Information pane.

You see the User Defined Command information (see Figure 4-8).

*Figure 4-8 User Defined Command Dialog Box*




**Step 3** Click the **Create Row** icon.

**Step 4** Check the check boxes in front of the switches from which you want to receive alerts.

**Step 5** Select the alert grouptype from the Alert Group Type drop-down list.

**Step 6** Select the ID (1-5) of the CLI command. The ID is used to keep track of the messages.

**Step 7** Enter the CLI **show** command in the CLI Command field.

**Step 8** Click **Create**.

**Step 9** Repeat Steps 3 through 7 for each command you want to associate with the profile.

**Step 10** Click **Close** to close the dialog box.

# Call Home Message Level Feature

The Call Home message level feature allows you to filter messages based on their level of urgency. Each destination profile (predefined and user-defined) is associated with a Call Home message level threshold. Any message with a value lower than the urgency threshold is not sent. The urgency level ranges from 0 (lowest level of urgency) to 9 (highest level of urgency), and the default is 0 (all messages are sent).

**Note** Call Home severity levels are not the same as system message logging severity levels.

## Setting the Call Home Message Levels

To set the message level for each destination profile for Call Home using Fabric Manager, follow these steps:

**Step 1** In Fabric Manager, expand the **Switches** folder in the Physical Attributes pane, expand **Events** and then select **Call Home**.

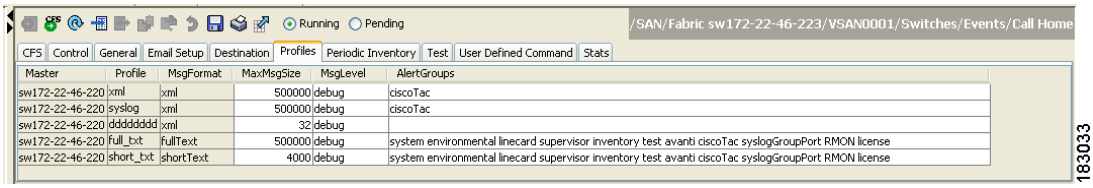
You see the Call Home information in the Information pane.

In Device Manager, choose **Admin > Events > Call Home**.

**Step 2** Click the **Profiles** tab in the Information Pane.

You see the Call Home profiles (see Figure 4-9).

***Figure 4-9 Call Home Profiles***




**Step 3** Set a message level for each switch using the drop-down menu in the MsgLevel column.

**Step 4** Click the **Apply Changes** icon to save your changes.

# Syslog-Based Alerts

You can configure the switch to send certain syslog messages as Call Home messages. The messages are sent based on the mapping between the destination profile and the alert group mapping, and on the severity level of the generated syslog message.

To receive a syslog-based Call Home alert, you must associate a destination profile with the syslog alert groups (currently there is only one syslog alert group—syslog-group-port) and configure the appropriate message level.

The syslog-group-port alert group selects syslog messages for the port facility. The Call Home application maps the syslog severity level to the corresponding Call Home severity level (see the "Call Home Message Levels" section on page 4-33). For example, if you select level 5 for the Call Home message level, syslog messages at levels 0, 1, and 2 are included in the Call Home log.

Whenever a syslog message is generated, the Call Home application sends a Call Home message depending on the mapping between the destination profile and the alert group mapping and based on the severity level of the generated syslog message. To receive a syslog-based Call Home alert, you must associate a destination profile with the syslog alert groups (currently there is only one syslog alert group—syslog-group-port) and configure the appropriate message level (see the "Call Home Message Level Feature" section on page 4-12).

**Note** Call Home does not change the syslog message level in the message text. The syslog message texts in the Call Home log appear as they are described in the *Cisco MDS 9000 Family System Messages Reference*.

# Configuring the Syslog-Based Alerts

To configure the syslog-group-port alert group using Fabric Manager, follow these steps:

**Step 1** Select a switch in the Fabric pane.

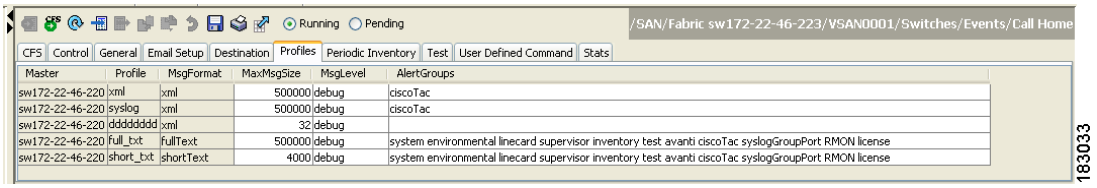
**Step 2** Expand **Switches**, expand **Events**, and select **Call Home** in the Physical Attributes pane.

You see the Call Home information in the Information pane.

**Step 3** Click the **Profiles** tab.

You see the Call Home profiles (see Figure 4-10).

***Figure 4-10 Call Home Profiles***




**Step 4** Click the **Create Row** icon.

You see the Create Call Home Profile dialog box.

**Step 5** Select the switches for which you want to send alerts.

**Step 6** Enter the name of the profile in the Name field.

**Step 7** Choose the message format, message size, and message severity level.

**Step 8** Check the **syslogGroupPort** check box in the AlertGroups section.

**Step 9** Click **Create** to create the profile for the syslog-based alerts.

**Step 10** Close the dialog box.

# RMON-Based Alerts

You can configure the switch to send Call Home notifications corresponding to RMON alert triggers. All RMON-based Call Home messages have their message level set to NOTIFY (2). The RMON alert group is defined for all RMON-based Call Home alerts. To receive an RMON-based Call Home alert, you must associate a destination profile with the RMON alert group.

# Configuring RMON Alerts

To configure RMON alert groups using Fabric Manager, follow these steps:

**Step 1** Select a switch in the Fabric pane.

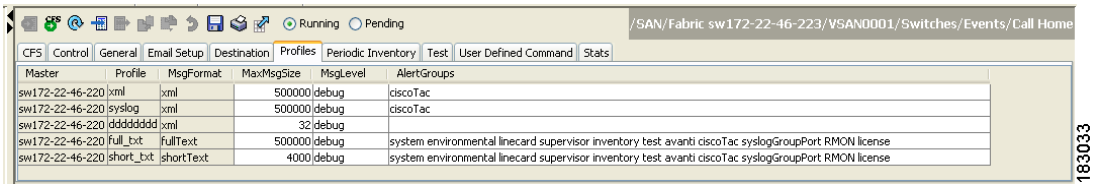
**Step 2** Expand **Switches**, expand **Events**, and select **Call Home** in the Physical Attributes pane.

You see the Call Home information in the Information pane.

**Step 3** Click the **Profiles** tab.

You see the Call Home profiles (see Figure 4-11).

***Figure 4-11 Call Home Profiles***




**Step 4** Select the **Create Row** icon.

You see the Create Call Home Profile dialog box.

**Step 5** Select switches to send alerts.

**Step 6** Enter the name of the profile.

**Step 7** Select the message format, message size, and message severity level.

**Step 8** Check the **RMON** check box in the AlertGroups section.

**Step 9** Click **Create** to create the profile for the RMON-based alerts.

**Step 10** Close the dialog box.

# Configuring E-Mail Options

You can configure the from, reply-to, and return-receipt e-mail addresses. While most e-mail address configurations are optional, you must configure the SMTP server address for the Call Home functionality to work.

## Configuring General E-Mail Options Using HTTPS Support

The HTTPS support for Call Home provides a transport method called HTTP. HTTPS support is used for a secure communication, and HTTP is used for nonsecure communication. You can configure an HTTP URL for the Call Home destination profile as a destination. The URL link can be from a secure server or nonsecure server. For a destination profile configured with the HTTP URL, the Call Home message is posted to the HTTP URL link.

**Note** The Call Home HTTP configuration can be distributed over CFS on the switches running NX-OS Release 4.2(1) and later. The Call Home HTTP configuration cannot be distributed to switches that support the nondistributable HTTP configuration. Switches running lower versions than NX-OS Release 4.2(1) and later will ignore the HTTP configuration.

For multiple SMTP server capability, use the following command:

# Periodic Inventory Notification

You can configure the switch to periodically send a message with an inventory of all software services currently enabled and running on the switch along with hardware inventory information. The inventory is modified each time the switch is restarted nondisruptively.

When you enable this feature without configuring an interval value, the Call Home message is sent every 7 days. This value ranges from 1 to 30 days. By default, this feature is disabled in all switches in the Cisco MDS 9000 Family and Cisco Nexus 5000 Series switches.

**Note** There is no MIB available for Timeofday. You can not change the time of day of the Periodic Inventory using the Device Manager and Fabric Manager. You can use the CLI to change the time of day of the Periodic Inventory (see the *Cisco MDS 9000 Family NX-OS Configuration Guide)*.

## Enabling Periodic Inventory Notifications

To enable periodic inventory notification in a Cisco MDS 9000 Family switch and Cisco Nexus 5000 Series switches using Fabric Manager, follow these steps:

**Step 1** Select a switch in the Fabric pane.

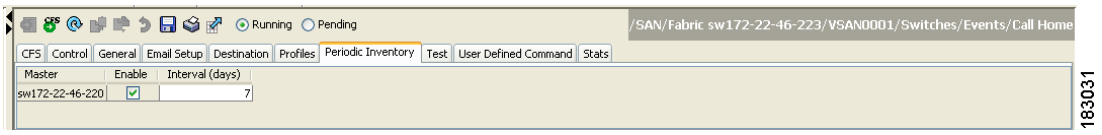
**Step 2** Expand **Switches**, expand **Events**, and select **Call Home** in the Physical Attributes pane.

You see the Call Home information in the Information pane.

**Step 3** Click the **Periodic Inventory** tab.

You see the Call Home periodic inventory information (see Figure 4-12).

***Figure 4-12 Call Home Periodic Inventory Tab***




**Step 4** Select a switch in the Information pane.

**Step 5** Check the **Enable** check box.

**Step 6** Enter the number of days for which you want the inventory checked.

**Step 7** Click the **Apply Changes** icon.

# Duplicate Message Throttle

You can configure a throttling mechanism to limit the number of Call Home messages received for the same event. If the same message is sent multiple times from the switch within a short period of time, you may be swamped with a large number of duplicate messages.

By default, this feature is enabled in all switches in the Cisco MDS 9000 Family and the Cisco Nexus 5000 Series switches. When enabled, if the number of messages sent exceeds the maximum limit of 30 messages within the 2-hour time frame, then additional messages for that alert type are discarded within that time frame. You cannot modify the time frame or the message counter limit.

If 2 hours have elapsed since the first such message was sent and a new message has to be sent, then the new message is sent and the time frame is reset to the time when the new message was sent and the count is reset to 1.

## Enabling Message Throttling

To enable message throttling in a Cisco MDS 9000 Family switch and Cisco Nexus 5000 Series switches using Fabric Manager, follow these steps:

**Step 1** Select a switch in the Fabric pane.

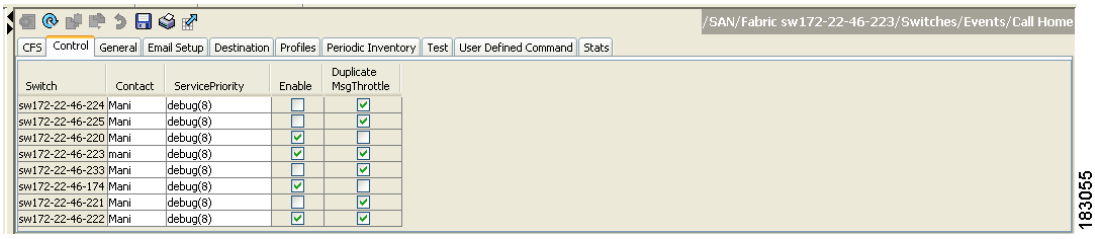
**Step 2** Expand **Switches**, expand **Events**, and select **Call Home** in the Physical Attributes pane.

You see the Call Home information in the Information pane.

**Step 3** Click the **Control** tab.

You see the information (see Figure 4-13).

***Figure 4-13 Call Home Control Tab***




**Step 4** Select a switch in the Information pane.

**Step 5** Check the **Duplicate Message Throttle** check box.

**Step 6** Click the **Apply Changes** icon.

# Enabling Call Home Function

Once you have configured the contact information, you must enable the Call Home function.

To enable the Call Home function using Fabric Manager, follow these steps:

**Step 1** Select a switch in the Fabric pane.

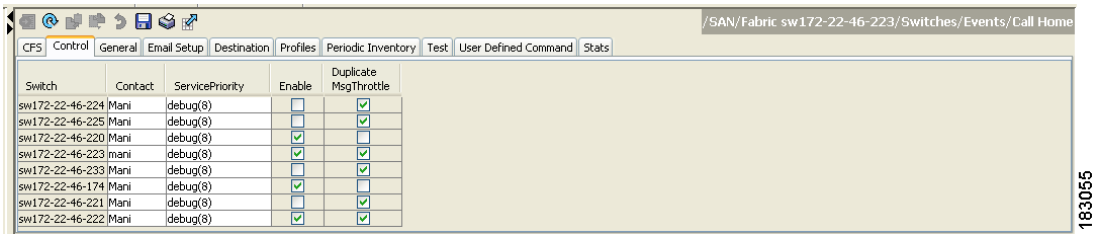
**Step 2** Expand **Switches**, expand **Events**, and select **Call Home** in the Physical Attributes pane.

You see the Call Home information in the Information pane.

**Step 3** Click the **Control** tab.

You see the information (see Figure 4-14).

***Figure 4-14 Call Home Control Tab***




**Step 4** Select a switch in the information pane.

**Step 5** Check the **Duplicate Message Throttle** check box.

**Step 6** Click the **Apply Changes** icon.

# Call Home Configuration Distribution

You can enable fabric distribution for all Cisco MDS and NX-OS 5000 switches in the fabric. When you perform Call Home configurations, and distribution is enabled, that configuration is distributed to all the switches in the fabric. However, the switch priority and the Syscontact names are not distributed.

You automatically acquire a fabric-wide lock when you enter the first configuration command operation after you enable distribution in a switch. The Call Home application uses the effective and pending database model to store or commit the configuration changes. When you commit the configuration changes, the effective database is overwritten by the configuration changes in the pending database and all the switches in the fabric receive the same configuration. After making the configuration changes, you can choose to discard the changes by aborting the changes instead of committing them. In either case, the lock is released. See Chapter 2, "Using the CFS Infrastructure" for more information on the CFS application.

**Note** The switch priority and the Syscontact name are not distributed.

## Enabling Call Home Fabric Distribution

To enable Call Home fabric distribution using Fabric Manager, follow these steps:

**Step 1** Select a switch in the Fabric pane.

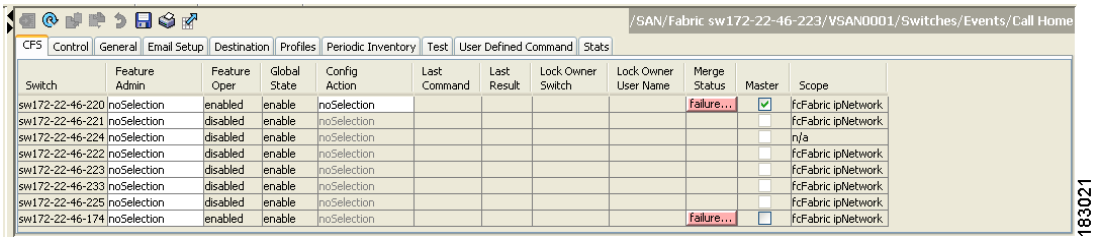
**Step 2** Expand **Switches**, expand **Events**, and select **Call Home** in the Physical Attributes pane.

You see the Call Home information in the Information pane.

**Step 3** Click the **CFS** tab.

You see the CFS information for Call Home (see Figure 4-15).

***Figure 4-15 Call Home CFS Tab***




**Step 4** Select a switch in the Information pane.

**Step 5** Select **Enable** from the drop-down list in the Admin column in the row for that switch.

**Step 6** Click the **Apply Changes** icon to commit the changes.

# Fabric Lock Override

If you have performed a Call Home task and have forgotten to release the lock by either committing or discarding the changes, an administrator can release the lock from any switch in the fabric. If the administrator performs this task, your changes to the pending database are discarded and the fabric lock is released.

**Tip** The changes are only available in the volatile directory and are subject to being discarded if the switch is restarted.

# Database Merge Guidelines

See the "CFS Merge Support" section on page 2-10 for detailed concepts.

When merging two Call Home databases, follow these guidelines:

- Be aware that the merged database contains the following information:
  - A superset of all the destination profiles from the dominant and subordinate switches that take part in the merge protocol.
  - The e-mail addresses and alert groups for the destination profiles.
  - Other configuration information (for example, message throttling, periodic inventory) from the switch that existed in the dominant switch before the merge.
- Verify that two destination profiles do not have the same name (even if they have different configuration information) on the subordinate and dominant switches. If they do contain the same name, the merge operation will fail. You must then modify or delete the conflicting destination profile on the required switch.

# Call Home Communications Test

You can test Call Home communications by sending a test message to the configured destination(s) or sending a test inventory message to the configured destination(s).

## Testing Call Home

To test the Call Home function and simulate a message generation using Fabric Manager, follow these steps:

**Step 1** Select a switch in the Fabric pane.

**Step 2** Expand **Switches**, expand **Events**, and select **Call Home** in the Physical Attributes pane.

You see the Call Home information in the Information pane.

**Step 3** Click the **Test** tab.

You see the configured tests for the switch and the status of the last testing.

**Step 4** Select a switch in the Information pane.

**Step 5** Select **test or testWithInventory** from the TestAction drop-down list in the row for that switch.

**Step 6** Click the **Apply Changes** icon to run the test.

Table 4-2 includes all the traps for EMC Call Home.

*Table 4-2 EMC Call Home Traps*

| SNMP Trap | Send EMC Call Home When |
|---|---|
| connUnitStatusChange | operStatus == failed(5) |
| cefcModuleStatusChange | operStatus != {ok(2), boot(5), selfTest(6), poweredUp(16), syncInProgress(21)} |
| cefcPowerStatusChange | operStatus = {offDenied(4), offEnvPower(5),offEnvTemp(6),offEnvFan(7),failed(8)} |
| cefcFRURemoved | all |
| cefcFanTrayStatusChange | all |
| cieDelayedLinkUpDown | operStatusReason != {linkFailure, adminDown, portGracefulShutdown} |
| cefcFRUInserted | all |
| entSensorThresholdNotification | value >= threshold |

# Clearing Call Home Name Server Database

When the Call Home name server database is full, a new entry cannot be added. The device is not allowed to come online.

To clear the name server database, increase the database size or perform a cleanup by removing unused devices. A total of 20,000 name server entries are supported.

# Configuring EMC E-mail Home Delayed Traps

Fabric Manager can be configured to generate EMC E-mail Home XML e-mail messages. In SAN-OS Release 3.x or earlier, Fabric Manager listens to interface traps and generates EMC E-mail Home e-mail messages. Link traps are generated when an interface goes to down from up or vice versa. For example, if there is a scheduled server reboot, the link goes down and Fabric Manager generates an e-mail notification.

Cisco NX-OS Release 4.1(3) provides the ability to generate a delayed trap so that the number of generated e-mail messages is reduced. This method filters server reboots and avoids generating unnecessary EMC E-mail Home e-mail messages. In NX-OS Release 4.1(3), users have the ability to select the current existing feature or this new delayed trap feature.

## Configuring Delayed Traps

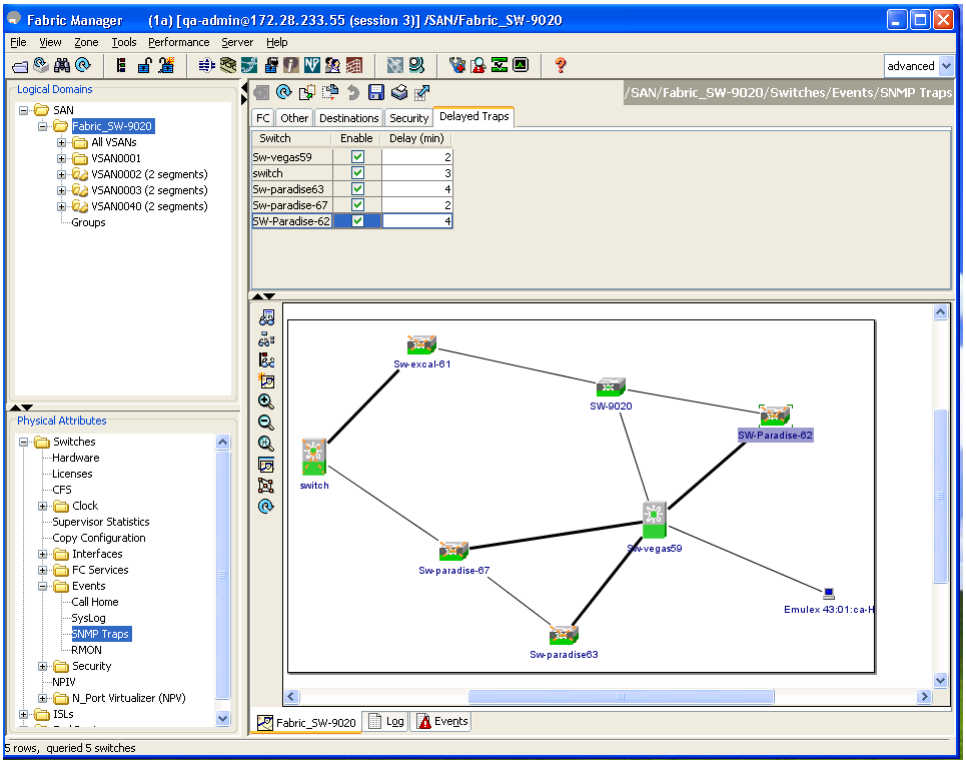
The server.callhome.delayedtrap.enable property is added to section 9 Call Home in the server.properties configuration file. The property file can enable the Fabric Manager server to use delayed traps instead of regular linkDown traps for EMC E-mail Home messages. To enable this feature, you need to turn on delayed traps at switch level, and then set the server.callhome.delayedtrap.enable property in the server.properties configuration file to true. By default, the server.callhome.delayedtrap.enable option is disabled and regular linkDown traps are used.

To enable delayed traps on switches running NX-OS Release 4.1(3) and later using Fabric Manager, follow these steps:

**Step 1** In the **Physical Attributes,** expand **Switches > Events**, and select **SNMP Traps**.

In the table above the map layout in Fabric Manager, click the **Delayed Traps** tab.

*Figure 4-16 Delayed Trap Dialog Box*




**Step 2** Check the **Enable** check box for the switches on which you want to enable delayed traps.

**Step 3** Enter the **timer** value in the Delay column.

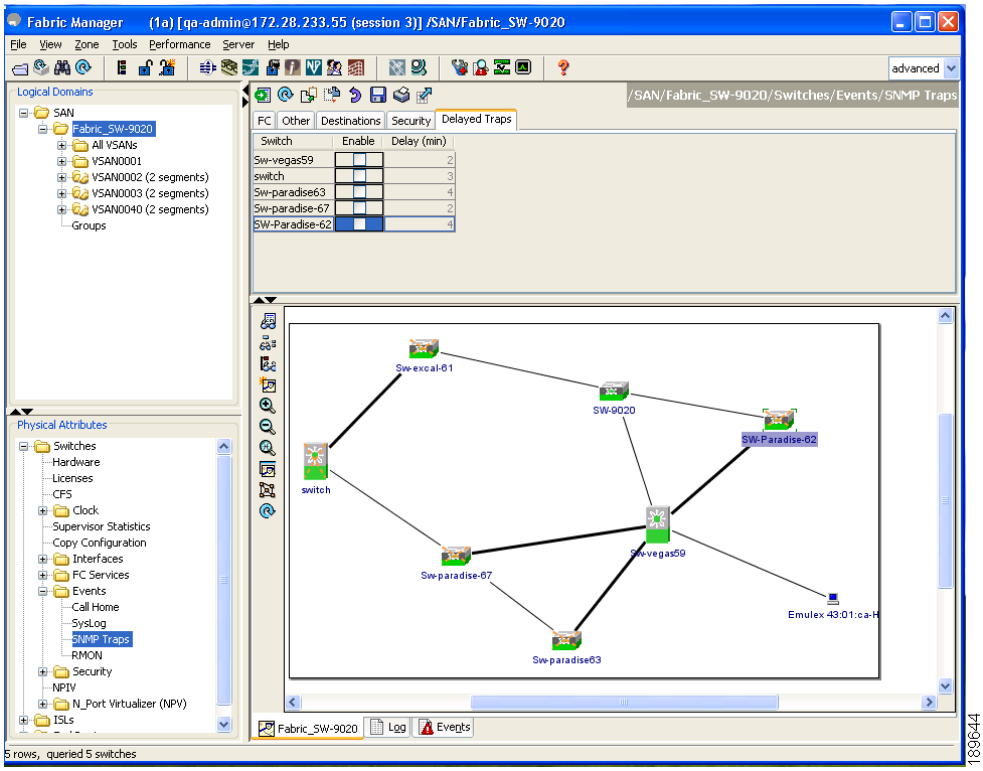
**Step 4** Click **Apply** to save your changes.

**Note** If no value is entered, the default value of 4 minutes is used.

To disable delayed traps, follow these steps:

**Step 1** Uncheck the **Enable** check box.

*Figure 4-17 Delayed Trap Dialog Box*




**Step 2** Click **Apply**.

# Enabling Delayed Traps Using Cisco Device Manager

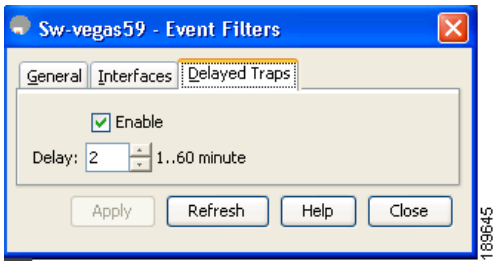
To enable the delayed trap feature using Device Manager, follow these steps:

**Step 1** In Device Manager, choose **Admin > Events > Filters > Delayed Traps**.

You can see the Events Filters information in the Information pane.

**Step 2** Click the **Delayed Traps** tab.

*Figure 4-18 Delayed Traps Dialog Box*

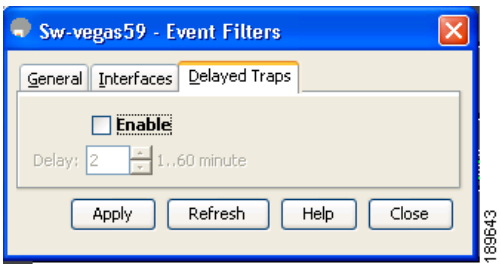



**Step 3** Check the **Enable** check box to enable delayed traps.

Delay interval will only be available when the feature is enabled.

**Step 4** To disable Delayed Traps, uncheck the **Enable** check box and click **Apply**.

*Figure 4-19 Disable Traps Dialog Box*



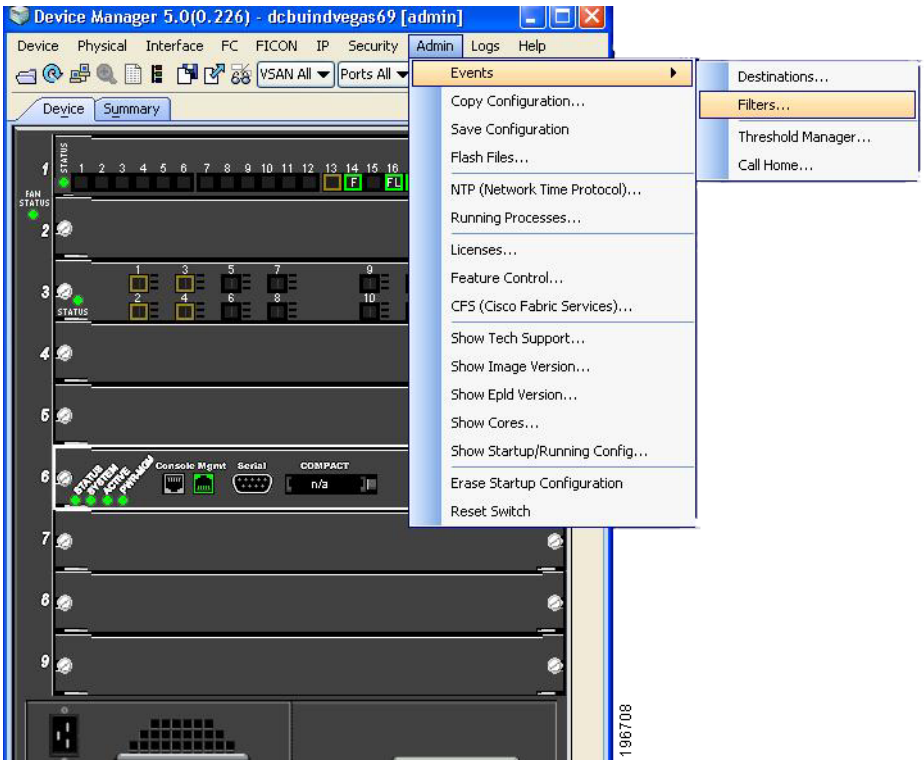

# Notification in Event Filter Using Cisco Device Manager

To see the descriptive notification using Device Manager, follow these steps:

**Step 1** In Device Manager, choose **Admin > Events > Filters.**

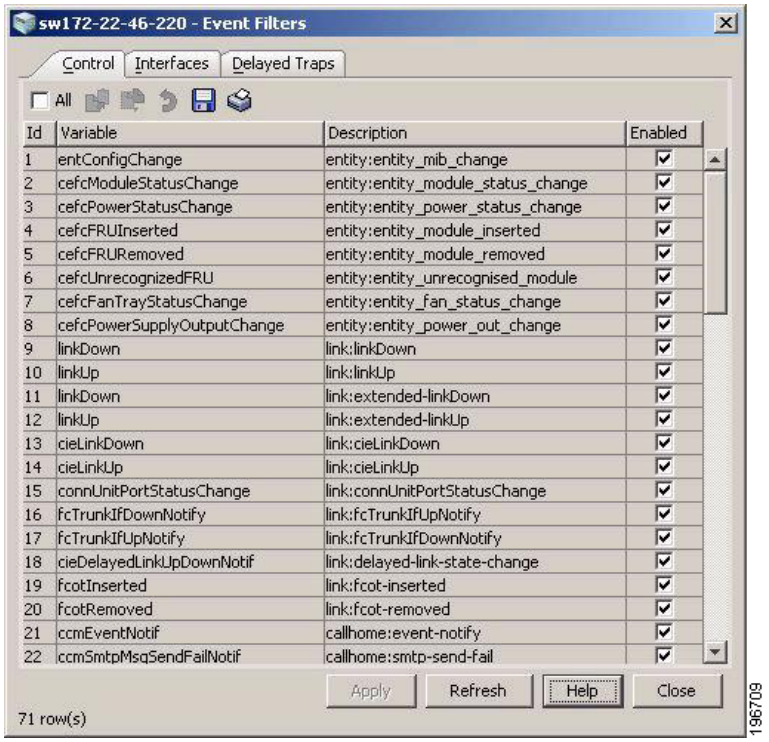
You can see the Event Filters information in the Information pane (see Figure 4-20).

*Figure 4-20 Event Filters*




The Event Filters screen displays the descriptive information about the notification (see Figure 4-21).

*Figure 4-21 Event Filters Description Dialog Box*




# Sample Syslog Alert Notification in Full-txt Format

```
source:MDS9000
Switch Priority:7
Device Id:DS-C9506@C@FG@07120011
Customer Id:basu
Contract Id:123
Site Id:San Jose
Server Id:DS-C9506@C@FG@07120011
Time of Event:2004-10-08T11:10:44
Message Name:SYSLOG_ALERT
Message Type:Syslog
Severity Level:2
System Name:10.76.100.177
Contact Name:Basavaraj B
Contact e-mail:admin@yourcompany.com
Contact Phone:+91-80-310-1718
Street Address:#71 , Miller's Road
Event Description:2004 Oct  8 11:10:44 10.76.100.177 %PORT-5-IF_TRUNK_UP: %$VSAN 1%$
Interface fc2/5, vsan 1 is up

syslog_facility:PORT
start chassis information:
Affected Chassis:DS-C9506
Affected Chassis Serial Number:FG@07120011
Affected Chassis Hardware Version:0.104
Affected Chassis Software Version:3.1(1)
Affected Chassis Part No:73-8607-01
end chassis information:
```

# Sample Syslog Alert Notification in XML Format

```
<?xml version="1.0" encoding="UTF-8" ?>
<soap-env:Envelope xmlns:soap-env="http://www.w3.org/2003/05/soap-envelope">
<soap-env:Header>
<aml-session:Session xmlns:aml-session="http://www.cisco.com/2004/01/aml-session"
soap-env:mustUnderstand="true"
soap-env:role="http://www.w3.org/2003/05/soap-envelope/role/next">
<aml-session:To>http://tools.cisco.com/neddce/services/DDCEService</aml-session:To>
<aml-session:Path>
<aml-session:Via>http://www.cisco.com/appliance/uri</aml-session:Via>
</aml-session:Path>
<aml-session:From>http://www.cisco.com/appliance/uri</aml-session:From>
<aml-session:MessageId>1004:FOX090306QT:3E55A81A</aml-session:MessageId>
</aml-session:Session>
</soap-env:Header>
<soap-env:Body>
<aml-block:Block xmlns:aml-block="http://www.cisco.com/2004/01/aml-block">
<aml-block:Header>
<aml-block:Type>http://www.cisco.com/2005/05/callhome/syslog</aml-block:Type>
<aml-block:CreationDate>2003-02-21 04:16:18 GMT+00:00</aml-block:CreationDate>
<aml-block:Builder>
<aml-block:Name>MDS</aml-block:Name>
<aml-block:Version>4.1</aml-block:Version>
</aml-block:Builder>
<aml-block:BlockGroup>
<aml-block:GroupId>1005:FOX090306QT:3E55A81A</aml-block:GroupId>
<aml-block:Number>0</aml-block:Number>
<aml-block:IsLast>true</aml-block:IsLast>
<aml-block:IsPrimary>true</aml-block:IsPrimary>
<aml-block:WaitForPrimary>false</aml-block:WaitForPrimary>
</aml-block:BlockGroup>
<aml-block:Severity>6</aml-block:Severity>
</aml-block:Header>
<aml-block:Content>
<ch:CallHome xmlns:ch="http://www.cisco.com/2005/05/callhome" version="1.0">
<ch:EventTime>2003-02-21 04:16:18 GMT+00:00</ch:EventTime>
<ch:MessageDescription>LICENSE_VIOLATION 2003 Feb 21 04:16:18 switch %$
%DAEMON-3-SYSTEM_MSG: &lt;&lt;%LICMGR-3-LOG_LICAPP_NO_LIC&gt;&gt; License file is missing
for feature SAN_EXTN_OVER_IP</ch:MessageDescription>
<ch:Event>
<ch:Type>syslog</ch:Type>
<ch:SubType>LICENSE_VIOLATION</ch:SubType>
<ch:Brand>Cisco</ch:Brand>
<ch:Series>MDS9000</ch:Series>
</ch:Event>
<ch:CustomerData>
<ch:UserData>
<ch:e-mail>esajjana@cisco.com</ch:e-mail>
</ch:UserData>
<ch:ContractData>
<ch:CustomerId>eeranna</ch:CustomerId>
<ch:SiteId>Bangalore</ch:SiteId>
<ch:ContractId>123</ch:ContractId>
<ch:DeviceId>DS-C9216I-K9@C@FOX090306QT</ch:DeviceId>
</ch:ContractData>
<ch:SystemInfo>
<ch:Name>switch</ch:Name>
<ch:Contact>Eeranna</ch:Contact>
<ch:Contacte-mail>esajjana@cisco.com</ch:Contacte-mail>
<ch:ContactPhoneNumber>+91-80-310-1718</ch:ContactPhoneNumber>
<ch:StreetAddress>#71, Miller&apos;s Road</ch:StreetAddress> </ch:SystemInfo>
</ch:CustomerData> <ch:Device> <rme:Chassis xmlns:rme="http://www.cisco.com/rme/4.0">
```

```
<rme:Model>DS-C9216I-K9</rme:Model>
<rme:HardwareVersion>1.0</rme:HardwareVersion>
<rme:SerialNumber>FOX090306QT</rme:SerialNumber>
</rme:Chassis>
</ch:Device>
</ch:CallHome>
</aml-block:Content>
<aml-block:Attachments>
<aml-block:Attachment type="inline">
<aml-block:Name>show logging logfile | tail -n 200</aml-block:Name> <aml-block:Data
encoding="plain">
<![CDATA[syslog_show:: command: 1055 param_count: 0
2003 Feb 21 04:11:48  %KERN-2-SYSTEM_MSG: Starting kernel... - kernel
2003 Feb 21 04:11:48  %KERN-3-SYSTEM_MSG: CMOS: Module initialized - kernel
2003 Feb 21 04:11:48  %KERN-2-SYSTEM_MSG: CARD TYPE: KING BB Index = 2344 - kernel
2003 Feb 21 04:12:04  %MODULE-5-ACTIVE_SUP_OK: Supervisor 1 is active (serial:
JAB100700MC)
2003 Feb 21 04:12:04  %PLATFORM-5-MOD_STATUS: Module 1 current-status is
MOD_STATUS_ONLINE/OK
2003 Feb 21 04:12:06  %IMAGE_DNLD-SLOT1-5-ADDON_IMG_DNLD_COMPLETE:  Addon module image
download process completed. Addon Image download completed, installing image please wait..
2003 Feb 21 04:12:07  %IMAGE_DNLD-SLOT1-5-ADDON_IMG_DNLD_SUCCESSFUL:  Addon module image
download and install process successful. Addon image installed.
2003 Feb 21 04:12:08  %KERN-3-SYSTEM_MSG: klm_af_xipc: Unknown parameter `start&apos; -
kernel
2003 Feb 21 04:12:08  %KERN-3-SYSTEM_MSG: klm_ips_portcfg: Unknown parameter `start&apos;
- kernel
2003 Feb 21 04:12:08  %KERN-3-SYSTEM_MSG: klm_flamingo: Unknown parameter `start&apos; -
kernel
2003 Feb 21 04:12:10  %PORT-5-IF_UP: Interface mgmt0 is up
2003 Feb 21 04:12:21 switch %LICMGR-3-LOG_LIC_FILE_MISSING: License file(s) missing for
feature ENTERPRISE_PKG.
2003 Feb 21 04:12:21 switch %LICMGR-3-LOG_LIC_FILE_MISSING: License file(s) missing for
feature SAN_EXTN_OVER_IP.
2003 Feb 21 04:12:21 switch %LICMGR-3-LOG_LIC_FILE_MISSING: License file(s) missing for
feature ENTERPRISE_PKG.
2003 Feb 21 04:12:21 switch %LICMGR-3-LOG_LIC_FILE_MISSING: License file(s) missing for
feature SAN_EXTN_OVER_IP.
2003 Feb 21 04:12:23 switch %PLATFORM-5-MOD_STATUS: Module 1 current-status is
MOD_STATUS_ONLINE/OK
2003 Feb 21 04:12:23 switch %MODULE-5-MOD_OK: Module 1 is online (serial: JAB100700MC)
2003 Feb 21 04:12:25 switch %PORT-5-IF_DOWN_ADMIN_DOWN: %$VSAN 1%$ Interface fc1/1 is down
(Administratively down)
2003 Feb 21 04:12:25 switch %PORT-5-IF_DOWN_ADMIN_DOWN: %$VSAN 1%$ Interface fc1/2 is down
(Administratively down)
2003 Feb 21 04:12:25 switch %PORT-5-IF_DOWN_ADMIN_DOWN: %$VSAN 1%$ Interface fc1/3 is down
(Administratively down)
2003 Feb 21 04:12:25 switch %PORT-5-IF_DOWN_ADMIN_DOWN: %$VSAN 1%$ Interface fc1/4 is down
(Administratively down)
2003 Feb 21 04:12:26 switch %PLATFORM-5-PS_STATUS: PowerSupply 1 current-status is PS_FAIL
2003 Feb 21 04:12:26 switch %PLATFORM-2-PS_FAIL: Power supply 1 failed or shut down
(Serial number QCS1007109F)
2003 Feb 21 04:12:26 switch %PLATFORM-5-PS_FOUND: Power supply 2 found (Serial number
QCS1007109R)
2003 Feb 21 04:12:26 switch %PLATFORM-2-PS_OK: Power supply 2 ok (Serial number
QCS1007109R)
2003 Feb 21 04:12:26 switch %PLATFORM-5-PS_STATUS: PowerSupply 2 current-status is PS_OK
2003 Feb 21 04:12:26 switch %PLATFORM-2-PS_FANOK: Fan in Power supply 2 ok
2003 Feb 21 04:12:26 switch %PLATFORM-5-FAN_DETECT: Fan module 1 (Serial number
NWG0901031X) ChassisFan1 detected
2003 Feb 21 04:12:26 switch %PLATFORM-2-FAN_OK: Fan module ok
2003 Feb 21 04:12:26 switch %PLATFORM-2-CHASSIS_CLKMODOK: Chassis clock module A ok
2003 Feb 21 04:12:26 switch %PLATFORM-2-CHASSIS_CLKSRC: Current chassis clock source is
clock-A
```

```
2003 Feb 21 04:12:26 switch %PORT-5-IF_DOWN_ADMIN_DOWN: %$VSAN 1%$ Interface fc1/5 is down
(Administratively down)
2003 Feb 21 04:12:26 switch %PORT-5-IF_DOWN_ADMIN_DOWN: %$VSAN 1%$ Interface fc1/6 is down
(Administratively down)
2003 Feb 21 04:12:26 switch %PORT-5-IF_DOWN_ADMIN_DOWN: %$VSAN 1%$ Interface fc1/7 is down
(Administratively down)
2003 Feb 21 04:12:26 switch %PORT-5-IF_DOWN_ADMIN_DOWN: %$VSAN 1%$ Interface fc1/8 is down
(Administratively down)
2003 Feb 21 04:12:26 switch %PORT-5-IF_DOWN_ADMIN_DOWN: %$VSAN 1%$ Interface fc1/9 is down
(Administratively down)
2003 Feb 21 04:12:26 switch %PORT-5-IF_DOWN_ADMIN_DOWN: %$VSAN 1%$ Interface fc1/10 is
down (Administratively down)
2003 Feb 21 04:12:27 switch %PORT-5-IF_DOWN_ADMIN_DOWN: %$VSAN 1%$ Interface fc1/11 is
down (Administratively down)
2003 Feb 21 04:12:27 switch %PORT-5-IF_DOWN_ADMIN_DOWN: %$VSAN 1%$ Interface fc1/12 is
down (Administratively down)
2003 Feb 21 04:12:27 switch %PORT-5-IF_DOWN_ADMIN_DOWN: %$VSAN 1%$ Interface fc1/13 is
down (Administratively down)
2003 Feb 21 04:12:27 switch %PORT-5-IF_DOWN_ADMIN_DOWN: %$VSAN 1%$ Interface fc1/14 is
down (Administratively down)
2003 Feb 21 04:12:30 switch %PLATFORM-2-MOD_DETECT: Module 2 detected (Serial number
JAB0923016X) Module-Type IP Storage Services Module Model DS-X9304-SMIP
2003 Feb 21 04:12:30 switch %MODULE-2-MOD_UNKNOWN: Module type [25] in slot 2 is not
supported
2003 Feb 21 04:12:45 switch %VSHD-5-VSHD_SYSLOG_CONFIG_I: Configured from vty by root on
console0
2003 Feb 21 04:14:06 switch %VSHD-5-VSHD_SYSLOG_CONFIG_I: Configured from vty by admin on
console0
2003 Feb 21 04:15:12 switch %VSHD-5-VSHD_SYSLOG_CONFIG_I: Configured from vty by admin on
console0
2003 Feb 21 04:15:52 switch %SYSMGR-3-BASIC_TRACE: core_copy: PID 1643 with message Core
not generated by system for licmgr(0). WCOREDUMP(9) returned zero .
2003 Feb 21 04:15:52 switch %SYSMGR-2-SERVICE_CRASHED: Service \"licmgr\" (PID 2272)
hasn&amp;apos;t caught signal 9 (no core).
2003 Feb 21 04:16:18 switch %LICMGR-3-LOG_LIC_FILE_MISSING: License file(s) missing for
feature ENTERPRISE_PKG.
2003 Feb 21 04:16:18 switch %LICMGR-3-LOG_LIC_FILE_MISSING: License file(s) missing for
feature SAN_EXTN_OVER_IP.
2003 Feb 21 04:16:18 switch %LICMGR-3-LOG_LIC_FILE_MISSING: License file(s) missing for
feature ENTERPRISE_PKG.
2003 Feb 21 04:16:18 switch %LICMGR-3-LOG_LIC_FILE_MISSING: License file(s) missing for
feature SAN_EXTN_OVER_IP.
2003 Feb 21 04:16:18 switch %CALLHOME-2-EVENT: LICENSE_VIOLATION
2003 Feb 21 04:16:18 switch %CALLHOME-2-EVENT: LICENSE_VIOLATION
2003 Feb 21 04:16:18 switch %CALLHOME-2-EVENT: LICENSE_VIOLATION
2003 Feb 21 04:16:18 switch %CALLHOME-2-EVENT: LICENSE_VIOLATION ]]> </aml-block:Data>
</aml-block:Attachment> <aml-block:Attachment type="inline"> <aml-block:Name>show license
usage</aml-block:Name> <aml-block:Data encoding="plain">
<![CDATA[Feature                      Ins  Lic   Status Expiry Date Comments
                                 Count
--------------------------------------------------------------------------------
DMM_184_PKG                   No    0   Unused             Grace expired
FM_SERVER_PKG                 No    -   Unused             Grace expired
MAINFRAME_PKG                 No    -   Unused             Grace expired
ENTERPRISE_PKG                Yes   -   Unused never       license missing
DMM_FOR_SSM_PKG               No    0   Unused             Grace expired
SAN_EXTN_OVER_IP              Yes   8   Unused never       8 license(s) missing
PORT_ACTIVATION_PKG           No    0   Unused             -
SME_FOR_IPS_184_PKG           No    0   Unused             Grace expired
STORAGE_SERVICES_184          No    0   Unused             Grace expired
SAN_EXTN_OVER_IP_18_4         No    0   Unused             Grace expired
SAN_EXTN_OVER_IP_IPS2         No    0   Unused             Grace expired
SAN_EXTN_OVER_IP_IPS4         No    0   Unused             Grace expired
STORAGE_SERVICES_SSN16        No    0   Unused             Grace expired
```

```
10G_PORT_ACTIVATION_PKG        No     0   Unused             -
STORAGE_SERVICES_ENABLER_PKG   No     0   Unused             Grace expired
--------------------------------------------------------------------------------
**** WARNING: License file(s) missing. **** ]]> </aml-block:Data> </aml-block:Attachment>
</aml-block:Attachments> </aml-block:Block> </soap-env:Body> </soap-env:Envelope>
```

# Sample RMON Notification in XML Format

```
<?xml version="1.0" encoding="UTF-8" ?>
<soap-env:Envelope xmlns:soap-env="http://www.w3.org/2003/05/soap-envelope">
<soap-env:Header>
<aml-session:Session xmlns:aml-session="http://www.cisco.com/2004/01/aml-session"
soap-env:mustUnderstand="true"
soap-env:role="http://www.w3.org/2003/05/soap-envelope/role/next">
<aml-session:To>http://tools.cisco.com/neddce/services/DDCEService</aml-session:To>
<aml-session:Path>
<aml-session:Via>http://www.cisco.com/appliance/uri</aml-session:Via>
</aml-session:Path>
<aml-session:From>http://www.cisco.com/appliance/uri</aml-session:From>
<aml-session:MessageId>1086:FHH0927006V:48BA26BD</aml-session:MessageId>
</aml-session:Session>
</soap-env:Header>
<soap-env:Body>
<aml-block:Block xmlns:aml-block="http://www.cisco.com/2004/01/aml-block">
<aml-block:Header>
<aml-block:Type>http://www.cisco.com/2005/05/callhome/diagnostic</aml-block:Type>
<aml-block:CreationDate>2008-08-31 05:06:05 GMT+00:00</aml-block:CreationDate>
<aml-block:Builder>
<aml-block:Name>MDS</aml-block:Name>
<aml-block:Version>4.1</aml-block:Version>
</aml-block:Builder>
<aml-block:BlockGroup>
<aml-block:GroupId>1087:FHH0927006V:48BA26BD</aml-block:GroupId>
<aml-block:Number>0</aml-block:Number>
<aml-block:IsLast>true</aml-block:IsLast>
<aml-block:IsPrimary>true</aml-block:IsPrimary>
<aml-block:WaitForPrimary>false</aml-block:WaitForPrimary>
</aml-block:BlockGroup>
<aml-block:Severity>2</aml-block:Severity>
</aml-block:Header>
<aml-block:Content>
<ch:CallHome xmlns:ch="http://www.cisco.com/2005/05/callhome" version="1.0">
<ch:EventTime>2008-08-31 05:06:05 GMT+00:00</ch:EventTime>
<ch:MessageDescription>RMON_ALERT WARNING(4) Falling:iso.3.6.1.4.1.9.9.305.1.1.1.0=1 &lt;=
89:1, 4</ch:MessageDescription>
<ch:Event>
<ch:Type>diagnostic</ch:Type>
<ch:SubType>GOLD-major</ch:SubType>
<ch:Brand>Cisco</ch:Brand>
<ch:Series>MDS9000</ch:Series>
</ch:Event>
<ch:CustomerData>
<ch:UserData>
<ch:e-mail>mchinn@cisco.com</ch:e-mail>
</ch:UserData>
<ch:ContractData>
<ch:CustomerId>12ss</ch:CustomerId>
<ch:SiteId>2233</ch:SiteId>
<ch:ContractId>rrr55</ch:ContractId>
<ch:DeviceId>DS-C9513@C@FHH0927006V</ch:DeviceId>
</ch:ContractData>
```

```
<ch:SystemInfo>
<ch:Name>sw172-22-46-174</ch:Name>
<ch:Contact>Mani</ch:Contact>
<ch:Contacte-mail>mchinn@cisco.com</ch:Contacte-mail>
<ch:ContactPhoneNumber>+1-800-304-1234</ch:ContactPhoneNumber>
<ch:StreetAddress>1234 wwee</ch:StreetAddress>
</ch:SystemInfo>
</ch:CustomerData>
<ch:Device>
<rme:Chassis xmlns:rme="http://www.cisco.com/rme/4.0">
<rme:Model>DS-C9513</rme:Model>
<rme:HardwareVersion>0.205</rme:HardwareVersion>
<rme:SerialNumber>FHH0927006V</rme:SerialNumber>
</rme:Chassis>
</ch:Device>
</ch:CallHome>
</aml-block:Content>
</aml-block:Block>
</soap-env:Body>
</soap-env:Envelope>
```

# Event Triggers

This section discusses Call Home trigger events. Trigger events are divided into categories, with each category assigned CLI commands to execute when the event occurs. The command output is included in the transmitted message.

Table 4-3 lists the trigger events.

*Table 4-3 Event Triggers*

| Event | Alert Group | Event Name | Description | Call Home Message Level |
|---|---|---|---|---|
| Call Home | System and CISCO_TAC | SW_CRASH | A software process has crashed with a stateless restart, indicating an interruption of a service. | 5 |
| | System and CISCO_TAC | SW_SYSTEM_INCONSISTENT | Inconsistency detected in software or file system. | 5 |
| | Environmental and CISCO_TAC | TEMPERATURE_ALARM | Thermal sensor indicates temperature reached operating threshold. | 6 |
| | | POWER_SUPPLY_FAILURE | Power supply failed. | 6 |
| | | FAN_FAILURE | Cooling fan has failed. | 5 |
| | Line Card Hardware and CISCO_TAC | LINECARD_FAILURE | Line card hardware operation failed. | 7 |
| | | POWER_UP_DIAGNOSTICS_FAILURE | Line card hardware failed power-up diagnostics. | 7 |
| | Line Card Hardware and CISCO_TAC | PORT_FAILURE | Hardware failure of interface port(s). | 6 |
| | Line Card Hardware, Supervisor Hardware, and CISCO_TAC | BOOTFLASH_FAILURE | Failure of boot compact flash card. | 6 |
| | Supervisor Hardware and CISCO_TAC | NVRAM_FAILURE | Hardware failure of NVRAM on supervisor hardware. | 6 |
| | Supervisor Hardware and CISCO_TAC | FREEDISK_FAILURE | Free disk space is below a threshold on supervisor hardware. | 6 |
| | Supervisor Hardware and CISCO_TAC | SUP_FAILURE | Supervisor hardware operation failed. | 7 |
| | | POWER_UP_DIAGNOSTICS_FAILURE | Supervisor hardware failed power-up diagnostics. | 7 |
| | Supervisor Hardware and CISCO_TAC | INBAND_FAILURE | Failure of in-band communications path. | 7 |
| | Supervisor Hardware and CISCO_TAC | EOBC_FAILURE | Ethernet out-of-band channel communications failure. | 6 |

*Table 4-3 Event Triggers (continued)*

| Event | Alert Group | Event Name | Description | Call Home Message Level |
|---|---|---|---|---|
| Call Home | Supervisor Hardware and CISCO_TAC | MGMT_PORT_FAILURE | Hardware failure of management Ethernet port. | 5 |
| | License | LICENSE_VIOLATION | Feature in use is not licensed, and are turned off after grace period expiration. | 6 |
| Inventory | Inventory and CISCO_TAC | COLD_BOOT | Switch is powered up and reset to a cold boot sequence. | 2 |
| | | HARDWARE_INSERTION | New piece of hardware inserted into the chassis. | 2 |
| | | HARDWARE_REMOVAL | Hardware removed from the chassis. | 2 |
| Test | Test and CISCO_TAC | TEST | User generated test. | 2 |
| Port syslog | Syslog-group-port | SYSLOG_ALERT | Syslog messages corresponding to the port facility. | 2 |
| RMON | RMON | RMON_ALERT | RMON alert trigger messages. | 2 |

Table 4-4 lists event categories and command outputs.

*Table 4-4 Event Categories and Executed Commands*

| Event Category | Description | Executed Commands |
|---|---|---|
| **System**<br>show module<br>show version<br>show tech-support platform<br>show tech-support sysmgr<br>show hardware<br>show sprom all | Events generated by failure of a software system that is critical to unit operation. | **show tech-support**<br>**show system redundancy status** |
| **Environmental**<br>show module<br>show version<br>show environment<br>show logging logfile \| tail -n 200 | Events related to power, fan, and environment sensing elements such as temperature alarms. | **show module**<br>**show environment** |

*Table 4-4 Event Categories and Executed Commands (continued)*

| Event Category | Description | Executed Commands |
|---|---|---|
| **Line Card Hardware**<br>show module<br>show version<br>show tech-support platform<br>show tech-support sysmgr<br>show hardware<br>show sprom all | Events related to standard or intelligent line card hardware. | **show tech-support** |
| **Supervisor Hardware**<br>show module<br>show version<br>show tech-support platform<br>show tech-support sysmgr<br>show hardware<br>show sprom all | Events related to supervisor modules. | **show tech-support** |
| **Inventory**<br>show module<br>show version<br>show hardware<br>show inventory<br>show system uptime<br>show sprom all<br>show license usage | Inventory status is provided whenever a unit is cold booted, or when FRUs are inserted or removed. This is considered a noncritical event, and the information is used for status and entitlement. | **show version** |
| **Test**<br>show module<br>show version | User generated test message. | **show version** |

# Call Home Message Levels

Call Home messages (sent for syslog alert groups) have the syslog severity level mapped to the Call Home message level (see the "Syslog-Based Alerts" section on page 4-13).

This section discusses the severity levels for a Call Home message when using one or more switches in the Cisco MDS 9000 Family and the Cisco Nexus 5000 Series switches. Call Home message levels are preassigned per event type.

Severity levels range from 0 to 9, with 9 having the highest urgency. Each syslog level has keywords and a corresponding syslog level as listed in Table 4-5.

**Note** Call Home does not change the syslog message level in the message text. The syslog message texts in the Call Home log appear as they are described in the *Cisco MDS 9000 Family System Messages Reference*.

**Note** Call Home severity levels are not the same as system message logging severity levels (see the *Cisco MDS 9000 Family System Messages Reference*).

*Table 4-5 Severity and Syslog Level Mapping*

| Call Home Level | Keyword Used | Syslog Level | Description |
|---|---|---|---|
| Catastrophic (9) | **Catastrophic** | N/A | Network wide catastrophic failure. |
| Disaster (8) | **Disaster** | N/A | Significant network impact. |
| Fatal (7) | **Fatal** | Emergency (0) | System is unusable. |
| Critical (6) | **Critical** | Alert (1) | Critical conditions, immediate attention needed. |
| Major (5) | **Major** | Critical (2) | Major conditions. |
| Minor (4) | **Minor** | Error (3) | Minor conditions. |
| Warning (3) | **Warning** | Warning (4) | Warning conditions. |
| Notify (2) | **Notification** | Notice (5) | Basic notification and informational messages. Possibly independently insignificant. |
| Normal (1) | **Normal** | Information (6) | Normal event signifying return to normal state. |
| Debug (0) | **Debugging** | Debug (7) | Debugging messages. |

# Message Contents

The following contact information can be configured on the switch:

- Name of the contact person
- Phone number of the contact person
- E-mail address of the contact person
- Mailing address to which replacement parts must be shipped, if required
- Site ID of the network where the site is deployed
- Contract ID to identify the service contract of the customer with the service provider

Table 4-6 describes the short text formatting option for all message types.

*Table 4-6 Short Text Messages*

| Data Item | Description |
|---|---|
| Device identification | Configured device name |
| Date/time stamp | Time stamp of the triggering event |
| Error isolation message | Plain English description of triggering event |
| Alarm urgency level | Error level such as that applied to system message |

Table 4-7, Table 4-8, and Table 4-9 display the information contained in plain text and XML messages.

*Table 4-7 Reactive Event Message Format*

| Data Item (Plain text and XML) | Description (Plain text and XML) | XML Tag (XML only) |
|---|---|---|
| Time stamp | Date and time stamp of event in ISO time notation: *YYYY-MM-DDTHH:MM:SS*.<br>**Note** The time zone or daylight savings time (DST) offset from UTC has already been added or subtracted. T is the hardcoded limiter for the time. | /mml/header/time - ch:EventTime |
| Message name | Name of message. Specific event names are listed in the "Event Triggers" section on page 4-31. | /mml/header/name |
| Message type | Specifically "Call Home." | /mml/header/type - ch:Type |
| Message group | Specifically "reactive." | /mml/header/group |
| Severity level | Severity level of message (see Table 4-5). | /mml/header/level - aml-block:Severity |
| Source ID | Product type for routing. | /mml/header/source - ch:Series |
| Device ID | Unique device identifier (UDI) for end device generating message. This field should empty if the message is non-specific to a fabric switch. Format is *type@Sid@serial*, where:<br>• *type* is the product model number from backplane SEEPROM.<br>• @ is a separator character.<br>• *Sid* is "C," identifying the serial ID as a chassis serial number.<br>• *serial* is the number identified by the Sid field.<br>Example: DS-C9509@C@12345678 | /mml/ header/deviceId |
| Customer ID | Optional user-configurable field used for contract info or other ID by any support service. | /mml/header/customerID - ch:CustomerId |
| Contract ID | Optional user-configurable field used for contract info or other ID by any support service. | /mml/header/contractId - ch:ContractId> |
| Site ID | Optional user-configurable field used for Cisco-supplied site ID or other data meaningful to alternate support service. | /mml/header/siterId - ch:SiteId |

*Table 4-7 Reactive Event Message Format (continued)*

| Data Item (Plain text and XML) | Description (Plain text and XML) | XML Tag (XML only) |
|---|---|---|
| Server ID | If the message is generated from the fabric switch, it is the unique device identifier (UDI) of the switch.<br>Format is *type*@*Sid*@*serial*, where:<br>• *type* is the product model number from backplane SEEPROM.<br>• @ is a separator character.<br>• *Sid* is "C" identifying the serial ID as a chassis serial number.<br>• *serial* is the number identified by the Sid field.<br>Example: DS-C9509@C@12345678 | /mml/header/serverId - -blank- |
| Message description | Short text describing the error. | /mml/body/msgDesc - ch:MessageDescription |
| Device name | Node that experienced the event. This is the host name of the device. | /mml/body/sysName - ch:SystemInfo/Name |
| Contact name | Name of person to contact for issues associated with the node experiencing the event. | /mml/body/sysContact - ch:SystemInfo/Contact |
| Contact e-mail | E-mail address of person identified as contact for this unit. | /mml/body/sysContacte-mail - ch:SystemInfo/Contacte-mail |
| Contact phone number | Phone number of the person identified as the contact for this unit. | /mml/body/sysContactPhone Number - ch:SystemInfo/ContactPhone Number |
| Street address | Optional field containing street address for RMA part shipments associated with this unit. | /mml/body/sysStreetAddress - ch:SystemInfo/StreetAddress |
| Model name | Model name of the switch. This is the specific model as part of a product family name. | /mml/body/chassis/name - rme:Chassis/Model |
| Serial number | Chassis serial number of the unit. | /mml/body/chassis/serialNo - rme:Chassis/SerialNumber |
| Chassis part number | Top assembly number of the chassis. | /mml/body/fru/partNo - rme:chassis/Card/PartNumber |
| Chassis hardware version | Hardware version of chassis. | /mml/body/chassis/hwVersion - rme:Chassis/HardwareVersion |
| Supervisor module software version | Top level software version. | /mml/body/fru/swVersion - rme:chassis/Card/SoftwareIde ntity |
| Affected FRU name | Name of the affected FRU generating the event message. | /mml/body/fru/name - rme:chassis/Card/Model |
| Affected FRU serial number | Serial number of affected FRU. | /mml/body/fru/serialNo - rme:chassis/Card/SerialNumb er |
| Affected FRU part number | Part number of affected FRU. | /mml/body/fru/partNo - rme:chassis/Card/PartNumber |

*Table 4-7 Reactive Event Message Format (continued)*

| Data Item (Plain text and XML) | Description (Plain text and XML) | XML Tag (XML only) |
|---|---|---|
| FRU slot | Slot number of FRU generating the event message. | /mml/body/fru/slot - rme:chassis/Card/LocationWithinContainer |
| FRU hardware version | Hardware version of affected FRU. | /mml/body/fru/hwVersion - rme:chassis/Card/SoftwareIdentity |
| FRU software version | Software version(s) running on affected FRU. | /mml/body/fru/swVersion - rme:chassis/Card/SoftwareIdentity |
| Command output name | The exact name of the issued command. | /mml/attachments/attachment/name - aml-block:Attachment/Name |
| Attachment type | Specifically command output. | /mml/attachments/attachment/type - aml-block:Attachment type |
| MIME type | Normally text or plain or encoding type. | /mml/attachments/attachment/mime - aml-block:Attachment/Data encoding |
| Command output text | Output of command automatically executed (see Table 4-4). | /mml/attachments/attachment/atdata - aml-block:Attachment/Data |

*Table 4-8 Inventory Event Message Format*

| Data Item (Plain text and XML) | Description (Plain text and XML) | XML Tag (XML only) |
|---|---|---|
| Time stamp | Date and time stamp of event in ISO time notation: *YYYY-MM-DD*T*HH:MM:SS*.<br>**Note** The time zone or daylight savings time (DST) offset from UTC has already been added or subtracted. T is the hardcoded limiter for the time. | /mml/header/time - ch:EventTime |
| Message name | Name of message. Specifically “Inventory Update” Specific event names are listed in the “Event Triggers” section on page 4-31. | /mml/header/name |
| Message type | Specifically “Inventory Update.” | /mml/header/type - ch-inv:Type |
| Message group | Specifically “proactive.” | /mml/header/group |
| Severity level | Severity level of inventory event is level 2 (see Table 4-5). | /mml/header/level - aml-block:Severity |
| Source ID | Product type for routing at Cisco. Specifically “MDS 9000.” | /mml/header/source - ch-inv:Series |

*Table 4-8 Inventory Event Message Format (continued)*

| Data Item (Plain text and XML) | Description (Plain text and XML) | XML Tag (XML only) |
|---|---|---|
| Device ID | Unique Device Identifier (UDI) for end device generating message. This field should empty if the message is non-specific to a fabric switch. Format is *type*@*Sid*@*serial*, where:<br>• *type* is the product model number from backplane SEEPROM.<br>• @ is a separator character.<br>• *Sid* is "C" identifying the serial ID as a chassis serial number.<br>• *serial* is the number identified by the Sid field.<br>Example: DS-C9509@C@12345678 | /mml/ header /deviceId |
| Customer ID | Optional user-configurable field used for contact info or other ID by any support service. | /mml/header/customerID - ch-inv:CustomerId |
| Contract ID | Optional user-configurable field used for contact info or other ID by any support service. | /mml/header/contractId - ch-inv:ContractId> |
| Site ID | Optional user-configurable field, can be used for Cisco-supplied site ID or other data meaningful to alternate support service. | /mml/header/siterId - ch-inv:SiteId |
| Server ID | If the message is generated from the fabric switch, it is the Unique device identifier (UDI) of the switch.<br>Format is *type*@*Sid*@*serial*, where:<br>• *type* is the product model number from backplane SEEPROM.<br>• @ is a separator character.<br>• *Sid* is "C" identifying the serial ID as a chassis serial number.<br>• *serial* is the number identified by the Sid field.<br>Example: DS-C9509@C@12345678 | /mml/header/serverId - -blank- |
| Message description | Short text describing the error. | /mml/body/msgDesc - ch-inv:MessageDescription |
| Device name | Node that experienced the event. | /mml/body/sysName - ch-inv:SystemInfo/Name |
| Contact name | Name of person to contact for issues associated with the node experiencing the event. | /mml/body/sysContact - ch-inv:SystemInfo/Contact |
| Contact e-mail | E-mail address of person identified as contact for this unit. | /mml/body/sysContacte-mail - ch-inv:SystemInfo/Contacte-mail |
| Contact phone number | Phone number of the person identified as the contact for this unit. | /mml/body/sysContactPhone Number - ch-inv:SystemInfo/ContactPh oneNumber |
| Street address | Optional field containing street address for RMA part shipments associated with this unit. | /mml/body/sysStreetAddress - ch-inv:SystemInfo/StreetAddr ess |

*Table 4-8 Inventory Event Message Format (continued)*

| Data Item (Plain text and XML) | Description (Plain text and XML) | XML Tag (XML only) |
|---|---|---|
| Model name | Model name of the unit. This is the specific model as part of a product family name. | /mml/body/chassis/name - rme:Chassis/Model |
| Serial number | Chassis serial number of the unit. | /mml/body/chassis/serialNo - rme:Chassis/SerialNumber |
| Chassis part number | Top assembly number of the chassis. | /mml/body/fru/partNo - rme:chassis/Card/PartNumber |
| Chassis hardware version | Hardware version of chassis. | /mml/body/fru/hwVersion - rme:chassis/Card/SoftwareIdentity |
| Supervisor module software version | Top level software version. | /mml/body/fru/swVersion - rme:chassis/Card/SoftwareIdentity |
| FRU name | Name of the affected FRU generating the event message. | /mml/body/fru/name - rme:chassis/Card/Model |
| FRU s/n | Serial number of FRU. | /mml/body/fru/serialNo - rme:chassis/Card/SerialNumber |
| FRU part number | Part number of FRU. | /mml/body/fru/partNo - rme:chassis/Card/PartNumber |
| FRU slot | Slot number of FRU. | /mml/body/fru/slot - rme:chassis/Card/LocationWithinContainer |
| FRU hardware version | Hardware version of FRU. | /mml/body/fru/hwVersion - rme:chassis/Card/SoftwareIdentity |
| FRU software version | Software version(s) running on FRU. | /mml/body/fru/swVersion - rme:chassis/Card/SoftwareIdentity |
| Command output name | The exact name of the issued command. | /mml/attachments/attachment/name - aml-block:Attachment/Name |
| Attachment type | Specifically command output. | /mml/attachments/attachment/type - aml-block:Attachment type |
| MIME type | Normally text or plain or encoding type. | /mml/attachments/attachment/mime - aml-block:Attachment/Data encoding |
| Command output text | Output of command automatically executed after event categories (see "Event Triggers" section on page 4-31). | /mml/attachments/attachment/atdata - aml-block:Attachment/Data |

*Table 4-9 User-Generated Test Message Format*

| Data Item (Plain text and XML) | Description (Plain text and XML) | XML Tag (XML only) |
|---|---|---|
| Time stamp | Date and time stamp of event in ISO time notation: *YYYY-MM-DDTHH:MM:SS*.<br>**Note** The time zone or daylight savings time (DST) offset from UTC has already been added or subtracted. T is the hardcoded limiter for the time. | /mml/header/time - ch:EventTime |
| Message name | Name of message. Specifically test message for test type message. Specific event names listed in the "Event Triggers" section on page 4-31). | /mml/header/name |
| Message type | Specifically "Test Call Home." | /mml/header/type - ch:Type |
| Message group | This field should be ignored by the receiving Call Home processing application, but may be populated with either "proactive" or "reactive." | /mml/header/group |
| Severity level | Severity level of message, test Call Home message (see Table 4-5). | /mml/header/level - aml-block:Severity |
| Source ID | Product type for routing. | /mml/header/source - ch:Series |
| Device ID | Unique device identifier (UDI) for end device generating message. This field should empty if the message is nonspecific to a fabric switch. Format is *type@Sid@serial*, where:<br>• *type* is the product model number from backplane SEEPROM.<br>• @ is a separator character.<br>• *Sid* is "C" identifying the serial ID as a chassis serial number.<br>• *serial* is the number identified by the Sid field.<br>Example: DS-C9509@C@12345678 | /mml/ header /deviceId |
| Customer ID | Optional user-configurable field used for contract info or other ID by any support service. | /mml/header/customerID - ch:CustomerId |
| Contract ID | Optional user-configurable field used for contract info or other ID by any support service. | /mml/header/contractId - ch:ContractId |
| Site ID | Optional user-configurable field used for Cisco-supplied site ID or other data meaningful to alternate support service. | /mml/header/siterId - ch:SiteId |
| Server ID | If the message is generated from the fabric switch, it is the Unique device identifier (UDI) of the switch.<br>Format is *type@Sid@serial*, where:<br>• *type* is the product model number from backplane SEEPROM.<br>• @ is a separator character.<br>• *Sid* is "C" identifying the serial ID as a chassis serial number.<br>• *serial* is the number identified by the Sid field.<br>Example: "DS-C9509@C@12345678 | /mml/header/serverId - -blank- |
| Message description | Short text describing the error. | /mml/body/msgDesc - ch:MessageDescription |

*Table 4-9 User-Generated Test Message Format (continued)*

| Data Item (Plain text and XML) | Description (Plain text and XML) | XML Tag (XML only) |
|---|---|---|
| Device name | Switch that experienced the event. | /mml/body/sysName - ch:SystemInfo/Name |
| Contact name | Name of person to contact for issues associated with the node experiencing the event. | /mml/body/sysContact - ch:SystemInfo/Contact |
| Contact e-mail | E-mail address of person identified as contact for this unit. | /mml/body/sysContacte-mail - ch:SystemInfo/Contacte-mail |
| Contact phone number | Phone number of the person identified as the contact for this unit. | /mml/body/sysContactPhoneNumber - ch:SystemInfo/ContactPhoneNumber |
| Street address | Optional field containing street address for RMA part shipments associated with this unit. | /mml/body/sysStreetAddress - ch:SystemInfo/StreetAddress |
| Model name | Model name of the switch. This is the specific model as part of a product family name. | /mml/body/chassis/name - rme:Chassis/Model |
| Serial number | Chassis serial number of the unit. | /mml/body/chassis/serialNo - rme:Chassis/SerialNumber |
| Chassis part number | Top assembly number of the chassis. For example, 800-xxx-xxxx. | /mml/body/fru/partNo - rme:chassis/Card/PartNumber |
| Command output text | Output of command automatically executed after event categories listed in Table 4-4. | /mml/attachments/attachment/atdata - aml-block:Attachment/Data |
| MIME type | Normally text or plain or encoding type. | /mml/attachments/attachment/mime - aml-block:Attachment/Data encoding |
| Attachment type | Specifically command output. | /mml/attachments/attachment/type - aml-block:Attachment type |
| Command output name | The exact name of the issued command. | /mml/attachments/attachment/name - aml-block:Attachment/Name |

# Default Settings

Table 4-10 lists the default Call Home settings.

*Table 4-10 Default Call Home Default Settings*

| Parameters | Default |
|---|---|
| Destination message size for a message sent in full text format. | 500,000 |
| Destination message size for a message sent in XML format. | 500,000 |
| Destination message size for a message sent in short text format. | 4000 |
| DNS or IP address of the SMTP server to reach the server if no port is specified. | 25 |
| Alert group association with profile. | All |
| Format type. | XML |
| Call Home message level. | 0 (zero) |