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 and its features, see the Smart Call Home page at this location:

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

Login with your SMARTnet contract number for your switch to access the Smart Call Home page at this location:

https://tools.cisco.com/sch

Note The customer-id, the contract-id, and the site-id are optional. If you have registered the MDS device with Smart Call Home, you can only login to the Smart Call Home page and make the contact change under the Registration Management. If you have not registered the MDS device, the contact information will be used for the Service Request.

If the reply-to e-mail address (optional) is not configured, the contact e-mail and the phone number in the MDS Call Home configuration will be used for registration and TAC contact. You should have a valid CCO ID for Smart Call Home web login. The reply-to email address that is configured will be used for sending the registration notification. If the reply-to e-mail address is blank, the e-mail contact address will be used.

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 Family 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 contract ID, customer ID, site ID, and switch priority information.

Note Switch priority is specific to each switch in the fabric. This priority is used by the operatFions 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, follow these steps:

	Command	Purpose
Step 1	`switch# config t`	Enters configuration mode.
Step 2	`switch(config)# snmp-server contact personname@companyname.com`	Configures the SNMP contact name.
Step 3	`switch(config)# callhome` `switch(config-callhome)#`	Enters the Call Home configuration submode.
Step 4	`switch(config-callhome)# e-mail-contact username@company.com`	Assigns the customer's e-mail address. Up to 128 alphanumeric characters are accepted in e-mail address format. **Note** You can use any valid e-mail address. You cannot use spaces.
Step 5	`switch(config-callhome)# phone-contact +1-800-123-4567`	Assigns the customer's phone number. Up to 20 alphanumeric characters are accepted in international format. **Note** You cannot use spaces. Be sure to use the + prefix before the number.
Step 6	`switch(config-callhome)# streetaddress 1234 Picaboo Street, Any city, Any state, 12345`	Assigns the customer's street address where the equipment is located. Up to 256 alphanumeric characters are accepted in free format.

	Command	Purpose
Step 7	`switch(config-callhome)# switch-priority 0`	Assigns the switch priority, with 0 being the highest priority and 7 the lowest. **Tip** Use this field to create a hierarchical management structure.
Step 8	`switch(config-callhome)# customer-id Customer1234`	Optional. Identifies the customer ID. Up to 256 alphanumeric characters are accepted in free format.
Step 9	`switch(config-callhome)# site-id Site1ManhattanNY`	Optional. Identifies the customer site ID. Up to 256 alphanumeric characters are accepted in free format.
Step 10	`switch(config-callhome)# contract-id Company1234`	Assigns the customer ID for the switch. Up to 64 alphanumeric characters are accepted in free format.

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, follow these steps:

	Command	Purpose
Step 1	`switch# config t`	Enters configuration mode.
Step 2	`switch(config)# callhome` `switch(config-callhome)#`	Enters the Call Home configuration submode.
Step 3	`switch(config-callhome)# destination-profile full-txt-destination e-mail-addr person@place.com`	Configures an e-mail address for the predefined full-txt-destination profile. The e-mail addresses in this destination profile receives messages in full-txt format. The full-text format provides the complete, detailed explanation of the failure. **Tip** Use a standard e-mail address that does not have any text size restrictions.
	`switch(config-callhome)# destination-profile full-txt-destination message-size 1000000`	Configures a maximum destination message size for the predefined full-txt-destination profile. The valid range is 0 to 1,000,000 bytes and the default is 500,000. A value of 0 implies that a message of any size can be sent.
Step 4	`switch(config-callhome)# destination-profile short-txt-destination e-mail-addr person@place.com`	Configures an e-mail address for the predefined short-txt-destination profile. The e-mail addresses in this destination profile receive messages in short-txt format. This format provides the basic explanation of the failure in the Call Home message. **Tip** Use a pager-related e-mail address for this option.
	`switch(config-callhome)# destination-profile short-txt-destination message-size 100000`	Configures maximum destination message size for the predefined short-txt-destination profile. The valid range is 0 to 1,000,000 bytes and the default is 4000. A value of 0 implies that a message of any size can be sent.
Step 5	`switch(config-callhome)# destination-profile XML-destination e-mail-addr findout@.cisco.com`	Configures an e-mail address for the predefined XML-destination profile. The e-mail addresses in this destination-profile receives messages in XML format. This format provides information that is compatible with Cisco Systems TAC support. **Tip** Do not add a pager-related e-mail address to this destination profile because of the large message size.
	`switch(config-callhome)# destination-profile XML-destination message-size 100000`	Configures maximum destination message size for the predefined destination profile XML-destination. The valid range is 0 to 1,000,000 bytes and the default is 500,000. A value of 0 implies that a message of any size can be sent.

Note Steps 3, 4, and 5 in this procedure can be skipped or configured in any order.

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

	Command	Purpose
Step 1	`switch# config t`	Enters configuration mode.
Step 2	`switch(config)# callhome` `switch(config-callhome)#`	Enters the Call Home configuration submode.
Step 3	`switch(config-callhome)# destination-profile test`	Configures a new destination profile called test.
Step 4	`switch(config-callhome)# destination-profile test e-mail-addr person@place.com`	Configures the e-mail address for the user-defined destination profile (test) sent in default XML format.
Step 5	`switch(config-callhome)# destination-profile test message-size 1000000`	Configures a maximum message size for the destination e-mail addresses in the user-defined destination profile (test) sent in default XML format. The valid range is 0 to 1,000,000 bytes and the default is 500,000. A value of 0 implies that a message of any size can be sent.
Step 6	`switch(config-callhome)# destination-profile test format full-txt`	Configures message-format for the user-defined destination profile (test) to be full text format.
	`switch(config-callhome)# destination-profile test format short-txt`	Configures message-format for the user-defined destination profile (test) to be short text format.

Note Steps 4, 5, and 6 in this procedure can be skipped or configured in any order.

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, follow these steps:

	Command	Purpose
Step 1	`switch# config t`	Enters configuration mode.
Step 2	`switch(config)# callhome` `switch(config-callhome)#`	Enters Call Home configuration submode.
Step 3	`switch(config-callhome)# destination-profile test1 alert-group test`	Optional. Configures user-defined destination profile (test1) to receive all user-generated Call Home test notifications.
	`switch(config-callhome)# destination-profile short-txt-destination alert-group test`	Optional. Configures predefined short-text destination profile to receive all user-generated Call Home test notifications.
Step 4	`switch(config-callhome)# destination-profile test1 alert-group all`	Optional. Configures user-defined destination profile (test1) to receive Call Home notifications for all events
	`switch(config-callhome)# destination-profile short-txt-destination alert-group all`	Optional. Configures predefined short-text destination message profile to receive Call Home notifications for all (default) events
Step 5	`switch(config-callhome)# destination-profile test1 alert-group Cisco-TAC`	Optional. Configures user-defined destination message profile (test1) to receive Call Home notifications for events that are meant only for Cisco TAC or the Auto-notify service.
	`switch(config-callhome)# destination-profile xml-destination alert-group Cisco-TAC`	Optional. Configures predefined XML destination message profile to receive Call Home notifications for events that are meant only for Cisco TAC or the auto-notify service.
Step 6	`switch(config-callhome)# destination-profile test1 alert-group environmental`	Optional. Configures user-defined destination message profile (test1) to receive Call Home notifications for power, fan, and temperature-related events.
	`switch(config-callhome)# destination-profile short-txt-destination alert-group environmental`	Optional. Configures predefined short-text destination message profile to receive Call Home notifications for power, fan, and temperature-related events.
Step 7	`switch(config-callhome)# destination-profile test1 alert-group inventory`	Optional. Configures user-defined destination message profile (test1) to receive Call Home notifications for inventory status events.
	`switch(config-callhome)# destination-profile short-txt-destination alert-group inventory`	Optional. Configures predefined short-text destination message profile to receive Call Home notifications for inventory status events.
Step 8	`switch(config-callhome)# destination-profile test1 alert-group linecard-hardware`	Optional. Configures user-defined destination message profile (test1) to receive Call Home notifications for module-related events.
	`switch(config-callhome)# destination-profile short-txt-destination alert-group linecard-hardware`	Optional. Configures predefined short-text destination message profile to receive Call Home notifications for module-related events.

	Command	Purpose
Step 9	`switch(config-callhome)# destination-profile test1 alert-group supervisor-hardware`	Optional. Configures user-defined destination message profile (test1) to receive Call Home notifications for supervisor-related events.
	`switch(config-callhome)# destination-profile short-txt-destination alert-group supervisor-hardware`	Optional. Configures predefined short-text destination message profile to receive Call Home notifications for supervisor-related events.
Step 10	`switch(config-callhome)# destination-profile test1 alert-group system`	Optional. Configures user-defined destination message profile (test1) to receive Call Home notifications for software-related events.
	`switch(config-callhome)# destination-profile short-txt-destination alert-group system`	Optional. Configures predefined short-text destination message profile to receive Call Home notifications for software-related events.

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. 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, follow these steps:

	Command	Purpose
Step 1	`switch# config t`	Enters configuration mode.
Step 2	`switch(config)# callhome` `switch(config-callhome)#`	Enters Call Home configuration submode.
Step 3	`switch(config-callhome)# alert-group license user-def-cmd show license usage`	Configures a user-defined **show** command for an alert group license. **Note** Only valid **show** commands are accepted.
	`switch(config-callhome)# no alert-group license user-def-cmd show license usage`	Removes the user-defined **show** command from the alert group.

Verifying Alert Group Customization

To verify the alert group customization, use the **show callhome user-def-cmds** command.

```
switch# show callhome user-def-cmds
User configured commands for alert groups :
alert-group test user-def-cmd "show version
```

Configuring Event Notification Trap

To configure a Call Home event notification trap (except Call Home periodic messages), follow these steps:

	Command	Purpose
Step 1	`switch# config t`	Enters configuration mode.
Step 2	`switch(config)# callhome` `switch(config-callhome)#`	Enters Call Home configuration submode.
Step 3	`switch(config-callhome)# snmp-server enable traps callhome event-notify`	Enables the SNMP notification trap for Call Home.

Verifying Event Notification Trap

To verify the SNMP event notification trap, use the **show snmp trap | inc callhome** command.

```
switch# show snmp trap | inc callhome
callhome : event-notify Yes

callhome : smtp-send-fail No
```

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, follow these steps:

	Command	Purpose
Step 1	`switch# config t`	Enters configuration mode.
Step 2	`switch(config)# callhome` `switch(config-callhome)#`	Enters Call Home configuration submode.
Step 3	`switch(config-callhome)# destination-profile test message-level 5`	Optional. Configures the message level urgency as 5 and above for the user-defined profile (test1).
	`switch(config-callhome)# no destination-profile oldtest message-level 7`	Removes a previously configured urgency level and reverts it to the default of 0 (all messages are sent).

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 4-36). 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 4-14).

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, follow these steps:

	Command	Purpose
Step 1	`switch# config t`	Enters configuration mode.
Step 2	`switch(config)# callhome` `switch(config-callhome)#`	Enters Call Home configuration submode.
Step 3	`switch(config-callhome)# destination-profile short-txt-destination alert-group syslog-group-port`	Configures the predefined destination profile (short-txt-destination) to receive Call Home Notifications corresponding to syslog messages for the port facility.
Step 4	`switch(config-callhome)# destination-profile short-txt-destination message-level 5`	Optional. Configures the predefined destination-profile (short-txt-destination) to send a Call Home message for syslog messages whose severity levels map to Call Home severity level of 5 or greater. The default is message level 0 (all syslog messages).

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, follow these steps:

	Command	Purpose
Step 1	`switch# config t`	Enters configuration mode.
Step 2	`switch(config)# callhome` `switch(config-callhome)#`	Enters Call Home configuration submode.
Step 3	`switch(config-callhome)# destination-profile xml-destination alert-group rmon`	Optional. Configures a destination message profile (rmon_group) to send Call Home notifications for configured RMON messages.

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

To configure general e-mail options, follow these steps:

	Command	Purpose
Step 1	`switch# config t`	Enters configuration mode.
Step 2	`switch(config)# callhome` `switch(config-callhome)#`	Enters Call Home configuration submode.
Step 3	`switch(config-callhome)# transport e-mail from user@company1.com`	Optional. Configures the from e-mail address.
Step 4	`switch(config-callhome)# transport e-mail reply-to person@place.com`	Optional. Configures the reply-to e-mail address to which all responses should be sent.

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.

Configuring HTTPS Support

Any predefined or user-defined destination profiles can be configured with the HTTPS URL address.

To configure the HTTPS URL address for any destination profile, follow these steps:

	Command	Purpose
Step 1	`switch# config t`	Enters configuration mode.
Step 2	`switch(config)# callhome` `switch(config-callhome)#`	Enters Call Home configuration submode.
Step 3	`switch(config-callhome)# destination-profile full-txt-destination http https://httpssever.com/Service`	Optional. Configures the predefined full-txt-destination profile with a HTTPS URL address. The Call Home message in full-txt format is uploaded at the configured HTTPS URL address.

	Command	Purpose
Step 4	`switch(config-callhome)# destination-profile CiscoTAC-1 http https://httpssever.com/Service`	Optional. Configures the predefined CiscoTAC-1 profile with a HTTPS URL address. The Call Home messge in XML format is uploaded at the configured HTTPS URL address.
Step 5	`switch(config-callhome)# destination-profile test1 http https://httpssever.com/Service`	Optional. Configures the user-defined destination profile with a HTTPS URL address. The Call Home messge in the configured format is uploaded at the configured HTTPS URL address.

Any predefined or user-defined destination profiles can be configured to enable or disable a particular transport method. The transport methods are HTTP and e-mail.

To enable or disable transport method for a destination profile, follow these steps:

	Command	Purpose
Step 1	`switch# config t`	Enters configuration mode.
Step 2	`switch(config)# callhome` `switch(config-callhome)#`	Enters Call Home configuration submode.
Step 3	`switch(config-callhome)# destination-profile CiscoTAC-1 transport-method http`	Optional. Enables predefined destination profile CiscoTAC-1 for http transport-method. **Note** For user-defined destination profiles, e-mail is the default. You can enable either or both transport mechanisms. If you disable both methods, e-mail will be enabled.
Step 4	`switch(config-callhome)# no destination-profile CiscoTAC-1 transport-method email`	Optional. Disables predefined destination profile CiscoTAC-1 for e-mail transport-method.
Step 5	`switch(config-callhome)# destination-profile full-txt transport-method http`	Optional. Enables predefined full-txt-destination profile for HTTP transport method.

Configuring SMTP Server and Ports

To configure the SMTP server and port, follow these steps:

	Command	Purpose
Step 1	`switch# config t`	Enters configuration mode.
Step 2	`switch(config)# callhome` `switch(config-callhome)#`	Enters Call Home configuration submode.
Step 3	`switch(config-callhome)# transport email smtp-server 192.168.1.1`	Configures the DNS, IPv4 address, or IPv6 address of the SMTP server to reach the server. The port usage defaults to 25 if no port is specified. **Note** The port number is optional and, if required, may be changed depending on the server location.
	`switch(config-callhome)# transport email smtp-server 192.168.1.1 port 30`	

Multiple SMTP Server Support

Cisco MDS NX-OS and Cisco NX-OS 5000 Series switches support multiple SMTP servers for Call Home. Each SMTP server has a priority configured between 1 and 100, with 1 being the highest priority and 100 being the lowest. If the priority is not specified, a default value of 50 is used.

You can configure up to five SMTP servers for Call Home. The servers are contacted based on their priority. The highest priority server is contacted first. If the message fails to be sent, the next server in the list is contacted until the limit is exhausted. If two servers have equal priority, the one that was configured earlier is contacted.

If a high-priority SMTP server fails, the other servers will be contacted. A time delay may occur while sending a message. The delay is minimal if the attempt to send the message through the first SMTP server is successful. The delay may increase depending on the number of unsuccessful attempts with different SMTP servers.

Note The new configuration process is not related to the old configuration. However, if the SMTP servers are configured using both the old and new schemes, the older configuration is of the highest priority.

Multiple SMTP servers can be configured on any MDS 9000 Family switch, Cisco Nexus 5000 Series switches, and Cisco Nexus 7000 Series switches running Release 5.0(1a) or later.

The new configuration will only be distributed to switches that have multiple SMTP servers. The older switches in the fabric will ignore the new configuration received over CFS.

In a mixed fabric that has CFS enabled, the switches running NX-OS Release 5.0 can configure new functionalities and distribute the new configuration to other switches with Release 5.0 in the fabric over CFS. However, if an existing switch running NX-OS Release 4.x upgrades to Release 5.0, the new configurations will not be distributed to that switch as a CFS merge is not triggered on an upgrade. There are two options to upgrade:

- Apply new configuration only when all the switches in the fabric support them. (Recommanded option).
- Do an empty commit from an existing NX-OS Release 5.0 switch which has the new configuration.

To distribute the SMTP server configuration to devices running software releases prior to NX-OS Release 5.0 and earlier, use the following command:

```
switch(config-callhome)# transport email smtp-server
```

For multiple SMTP server capability, use the following command:

```
switch(config-callhome)# [no] transport email mail-server {ipv4 | IPV6 | hostname} [port
port number] [priority priority number]
```

Example 4-1 shows how to configure multiple SMTP servers for Call Home messages:

```
switch# config t
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# callhome
switch(config-callhome)# transport email mail-server 192.0.2.10 priority 4
switch(config-callhome)# transport email mail-server 172.21.34.193
switch(config-callhome)# transport email smtp-server 10.1.1.174
switch(config-callhome)# transport email mail-server 64.72.101.213 priority 60
switch(config-callhome)# transport email from person@company.com
switch(config-callhome)# transport email reply-to person@company.com
```

Based on the configuration above, the SMTP servers would be contacted in this order:

10.1.1.174 (priority 0)

192.0.2.10 (priority 4)

172.21.34.193 (priority 50 - default)

64.72.101.213 (priority 60)

The **transport email mail-server** command is distributed only to devices running NX-OS Release 5.0(1a) or later. The **transport email smtp-server** command is distributed only to devices running earlier software releases.

Verifying Callhome Transport

The **show callhome transport** displays all of the transport-related configurations for Call Home.

```
switch# show callhome transport
from email addr:switch-mds@cisco.com
reply to email addr:someone@cisco.com

smtp server:72.163.129.201
smtp server port:1
smtp server priority:0

smtp server:10.64.74.94
smtp server port:25
smtp server priority:4

smtp server:192.168.1.10
smtp server port:25
smtp server priority:50

smtp server:mail-server-1.cisco.com
smtp server port:25
smtp server priority:100
switch#
```

The following example shows how to configure SMTP server port:

```
switch# callhome
switch(config-callhome)# transport email mail-server 192.168.10.23 port 4
switch# config t
```

The following example shows how to configure SMTP server priority:

```
switch(config-callhome)# transport email mail-server 192.168.10.23 priority 60
switch# config t
```

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 switches and Cisco Nexus 5000 Series switches.

Enabling Periodic Inventory Notifications

To enable periodic inventory notification in a Cisco MDS 9000 Family switch or a Cisco Nexus 5000 Series switch, follow these steps:

	Command	Purpose
Step 1	`switch# config t`	Enters configuration mode.
Step 2	`switch(config)# callhome` `switch(config-callhome)#`	Enters the Call Home configuration submode.
Step 3	`switch(config-callhome)# periodic-inventory notification`	Enables the periodic inventory notification feature. By default, the Call Home message is sent every 7 days.
	`switch(config-callhome)# no periodic-inventory notification`	Disables the periodic inventory notification feature (default).
Step 4	`switch(config-callhome)# periodic-inventory notification interval 15`	Configures the periodic inventory notification message to be sent every 15 days. This value ranges from 1 to 30 days.
	`switch(config-callhome)# no periodic-inventory notification interval 15`	Defaults to using the factory default of sending a Call Home message every 7 days.

Enabling Periodic Inventory Notification Time of Day

To enable periodic inventory notification time of day in a Cisco MDS 9000 Family switch and Cisco Nexus 5000 Series switch, follow these steps:

	Command	Purpose
Step 1	`switch# config t`	Enters configuration mode.
Step 2	`switch(config)# callhome` `switch(config-callhome)#`	Enters the Call Home configuration submode.
Step 3	`switch(config-callhome)# periodic-inventory notification [interval` *days* `|` `timeofday` *time*`]`	Enables the periodic inventory notification messages dispatch. Specifies the timeofday for periodic inventory in HH:MM format. By default, the Call Home message is sent every 7 days.
	`switch(config-callhome)# no periodic-inventory notification`	Disables the periodic inventory notification feature (default).

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 switches 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 or a Cisco Nexus 5000 Series switch, follow these steps:

	Command	Purpose
Step 1	`switch# config t`	Enters configuration mode.
Step 2	`switch(config)# callhome` `switch(config-callhome)#`	Enters the Call Home configuration submode.
Step 3	`switch(config-callhome)# no duplicate-message throttle`	Disables the duplicate message throttling feature.
	`switch(config-callhome)# duplicate-message throttle`	Enables the duplicate message throttling feature (default).

Enabling Call Home Function

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

To enable the Call Home function, follow these steps:

	Command	Purpose
Step 1	`switch# config t`	Enters configuration mode.
Step 2	`switch(config)# callhome` `switch(config-callhome)#`	Enters Call Home configuration submode.

Step 3	`switch(config-callhome)# enable`
	`callhome enabled successfully`
	`switch(config-callhome)#`
		Enables the Call Home function.

	`switch(config-callhome)# disable` `switch(config-callhome)#`	Disables the Call Home function. When you disable the Call Home function, all input events are ignored. **Note** Even if Call Home is disabled, basic information for each Call Home event is sent.

Call Home Configuration Distribution

You can enable fabric distribution for all Cisco MDS 9000 Family switch and Cisco Nexus NX-OS 5000 Series 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, follow these steps:

	Command	Purpose
Step 1	`switch# config t`	Enters configuration mode.
Step 2	`switch(config)# callhome` `switch(config-callhome)#`	Enters Call Home configuration submode.
Step 3	`switch(config-callhome)# distribute`	Enables Call Home configuration distribution to all switches in the fabric. Acquires a fabric lock and stores all future configuration changes in the pending database.
	`switch(config-callhome)# no distribute`	Disables (default) Call Home configuration distribution to all switches in the fabric.

To commit the Call Home configuration changes, follow these steps:

	Command	Purpose
Step 1	`switch# config t`	Enters configuration mode.
Step 2	`switch(config)# callhome` `switch(config-callhome)#`	Enters Call Home configuration submode.
Step 3	`switch(config-callhome)# commit`	Distributes the configuration changes to all switches in the fabric and releases the lock. Overwrites the effective database with the changes made to the pending database.

To discard the Call Home configuration changes, follow these steps:

	Command	Purpose
Step 1	`switch# config t`	Enters configuration mode.
Step 2	`switch(config)# callhome` `switch(config-callhome)#`	Enters Call Home configuration submode.
Step 3	`switch(config-callhome)# abort`	Discards the configuration changes in the pending database and releases the fabric lock.

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.

To use administrative privileges and release a locked Call Home session, use the **clear callhome session** command.

```
switch# clear callhome session
```

To use administrative privileges and release a locked Call Home session, use the **clear callhome session** command.

```
switch# clear callhome session
```

Database Merge Guidelines

See the "CFS Merge Support" section on page 2-9 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

Use the **test** command to simulate a message generation.

To test the Call Home function, follow these steps:

	Command	Purpose

Step 1	`switch# callhome test`
	`trying to send test callhome message`
	`successfully sent test callhome message`
		Sends a test message to the configured destination(s).

Step 2	`switch# callhome test inventory`
	`trying to send test callhome message`
	`successfully sent test callhome message`
		Sends a test inventory message to the configured destination(s).

Displaying Call Home Information

Use the **show callhome** command to display the configured Call Home information (see Examples 4-1 to 4-7).

Example 4-1 Displays Configured Call Home Information

```
switch# show callhome
callhome enabled
Callhome Information:
contact person name:who@where
contact person's e-mail:person@place.com
contact person's phone number:310-408-4000
street addr:1234 Picaboo Street, Any city, Any state, 12345
site id:Site1ManhattanNewYork
customer id:Customer1234
contract id:Cisco1234
switch priority:0
```

Example 4-2 Displays Information for All Destination Profiles (Predefined and User-Defined)

```
switch# show callhome destination-profile
XML destination profile information
maximum message size:500000
message format:XML
message-level:0
e-mail addresses configured:
alert groups configured:
cisco_tac

test destination profile information
maximum message size:100000
message format:full-txt
message-level:5
e-mail addresses configured:
admin@yourcompany.com

alert groups configured:
test

full-txt destination profile information
maximum message size:500000
message format:full-txt
message-level:0
e-mail addresses configured:

alert groups configured:
```

```
all

short-txt destination profile information
maximum message size:4000
message format:short-txt
message-level:0
e-mail addresses configured:

alert groups configured:
all
```

Example 4-3 Displays Information for a User-defined Destination Profile

```
switch# show callhome destination-profile test
test destination profile information
maximum message size:100000
message format:full-txt
message-level:5
e-mail addresses configured:
user@company.com
alert groups configured:
test
```

Example 4-4 Displays the Full-Text Profile

```
switch# show callhome destination-profile profile full-txt-destination
full-txt destination profile information
maximum message size:250000
e-mail addresses configured:
person2@company2.com
```

Example 4-5 Displays the Short-Text Profile

```
switch# show callhome destination-profile profile short-txt-destination
Short-txt destination profile information
maximum message size:4000
e-mail addresses configured:
person2@company2.com
```

Example 4-6 Displays the XML Destination Profile

```
switch# show callhome destination-profile profile XML-destination
XML destination profile information
maximum message size:250000
e-mail addresses configured:
findout@.cisco.com
```

Example 4-7 Displays E-Mail and SMTP Information

```
switch# show callhome transport-e-mail
from e-mail addr:user@company1.com
reply to e-mail addr:pointer@company.com
return receipt e-mail addr:user@company1.com
smtp server:server.company.com
smtp server port:25
```

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.

Verifying the Number of Name Server Database Entries

To verify the number of name server database entries, follow these steps:

	Command	Purpose
Step 1	`switch# show fcns internal info global`	Displays the number of device entries in the name server database.
Step 2	`switch# show fcns internal info`	Displays the number of devices in the name server database at the end of the output.

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

To enable the delayed trap feature, perform this task:

	Command	Purpose
Step 1	`switch# config t` `switch(config)#`	Enters configuration mode.
Step 2	`switch(config)# system delayed-traps enable mode` *FX*	Enables the system-delayed trap feature.
Step 3	`switch(config)# system delayed-traps timer` <1-60>	Configures the system-delayed trap timeout value. If no value is entered, a default value of 4 minutes is used. You can choose any value between 1 to 60 minutes.

To disable the delayed trap feature, perform this task:

	Command	Purpose
Step 1	`switch# config t` `switch(config)#`	Enters configuration mode.
Step 2	`switch(config)# no system delayed-traps enable mode FX`	Disables the system-delayed trap feature. This command is used only for the F/FL operationally UP ports. This feature does not apply to E/TE links. By default, this feature is disabled. You have to explicitly enable this feature. Enabling the feature will not affect the existing link-level traps.

Displaying Delayed Traps Information

Use the **show running-config | in delay** CLI command to display the system-delayed trap state as shown in Example 4-8 and Example 4-9. If no timer value is specified or if the timer value is set to 4 minutes, the following is displayed:

Example 4-8 Displays the Delayed Trap Information with No Timer Value (Set to the Default 4 Minutes)

```
switch# show running-config | in delay
system delayed-traps enable mode FX
switch#
```

If the timer value is set to any other value other than 4 minutes, the following is displayed:

Example 4-9 Displays the Delayed Trap Information with a Timer Value Other Than 4 Minutes

```
switch# show running-config | in delay
system delayed-traps enable mode FX
system delayed-traps timer 5
switch#
```

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&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 4-2 lists the trigger events.

Table 4-2 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 4-2 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 4-3 lists event categories and command outputs.

Table 4-3 Event Categories and Executed Commands

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

Table 4-3 Event Categories and Executed Commands (continued)

Event Category	Description	Executed Commands
Line Card Hardware show module show version show tech-support platform show tech-support sysmgr show hardware show sprom all	Events related to standard or intelligent line card hardware.	**show tech-support**
Supervisor Hardware show module show version show tech-support platform show tech-support sysmgr show hardware show sprom all	Events related to supervisor modules.	**show tech-support**
Inventory show module show version show hardware show inventory show system uptime show sprom all 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 show module 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 4-14).

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 4-4.

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 4-4 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 4-5 describes the short text formatting option for all message types.

Table 4-5 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 4-6, Table 4-7, and Table 4-8 display the information contained in plain text and XML messages.

Table 4-6 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-DD*T*HH:MM:SS*. **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 4-33.	/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 4-4).	/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: • *type* is the product model number from backplane SEEPROM. • @ is a separator character. • *Sid* is "C," identifying the serial ID as a chassis serial number. • *serial* is the number identified by the Sid field. 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 4-6 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. Format is *type*@*Sid*@*serial*, where: • *type* is the product model number from backplane SEEPROM. • @ is a separator character. • *Sid* is "C,," identifying the serial ID as a chassis serial number. • *serial* is the number identified by the Sid field. 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/SoftwareIdentity
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/SerialNumber
Affected FRU part number	Part number of affected FRU.	/mml/body/fru/partNo - rme:chassis/Card/PartNumber

Table 4-6 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 4-3).	/mml/attachments/attachment/atdata - aml-block:Attachment/Data

Table 4-7 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*. **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 4-33.	/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 4-4).	/mml/header/level - aml-block:Severity
Source ID	Product type for routing at Cisco. Specifically “MDS 9000.”	/mml/header/source - ch-inv:Series

Table 4-7 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: • *type* is the product model number from backplane SEEPROM. • @ is a separator character. • *Sid* is "C,," identifying the serial ID as a chassis serial number. • *serial* is the number identified by the Sid field. 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. Format is *type*@*Sid*@*serial*, where: • *type* is the product model number from backplane SEEPROM. • @ is a separator character. • *Sid* is "C,," identifying the serial ID as a chassis serial number. • *serial* is the number identified by the Sid field. 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 4-7 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 4-33).	/mml/attachments/attachment/atdata - aml-block:Attachment/Data

Table 4-8 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-DD*T*HH:MM:SS*. **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 4-33).	/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 4-4).	/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: • *type* is the product model number from backplane SEEPROM. • @ is a separator character. • *Sid* is "C" identifying the serial ID as a chassis serial number. • *serial* is the number identified by the Sid field. 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. Format is *type*@*Sid*@*serial*, where: • *type* is the product model number from backplane SEEPROM. • @ is a separator character. • *Sid* is "C" identifying the serial ID as a chassis serial number. • *serial* is the number identified by the Sid field. Example: "DS-C9509@C@12345678	/mml/header/serverId - -blank-
Message description	Short text describing the error.	/mml/body/msgDesc - ch:MessageDescription

Table 4-8 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 4-3.	/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 4-9 lists the default Call Home settings.

Table 4-9 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)