CHAPTER 54

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 AutoNotify services for direct case generation with the Technical Assistance Center.

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:

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Call Home Features

The Call Home functionality is available directly through the Cisco MDS 9000 Family. 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.

Cisco AutoNotify

For those who have service contracts directly with Cisco Systems, automatic case generation with the Technical Assistance Center is possible by registering with the AutoNotify service. AutoNotify provides fast time to resolution of system problems by providing a direct notification path to Cisco customer support.

The AutoNotify feature requires several Call Home parameters to be configured, including certain contact information, e-mail server, and an XML destination profile as specified in the Service Activation document found on the Cisco.com web site at:
http://www.cisco.com/univercd/cc/td/doc/product/voice/c_callmg/3_3/service/serv332/ccmsrvs/sssrvact.htm

To configure a Cisco MDS 9000 Family switch to use the AutoNotify service, an XML destination profile must be configured to send messages to Cisco. Specific setup, activation, and e-mail address information is found on the Cisco.com web site at:
http://www.cisco.com/en/US/partner/products/hw/ps4159/ps4358/products_configuration_example09186a0080108e72.shtml

To register, the following items are required:

- The SMARTnet contract number covering your Cisco MDS 9000 Family switch.
- Your name, company address, your e-mail address, and your Cisco.com ID.

- The exact product number of your Cisco MDS 9000 Family switch. For example, valid product numbers include DS-C6509 and DS-C9216-K9.
- The serial number of your Cisco MDS 9000 Family switch. This can be obtained by looking at the serial number label on the back of the switch (next to the power supply).

The ContractID, CustomerID, SiteID, and SwitchPriority parameters are not required by the AutoNotify feature. They are only intended to be used as additional information by Cisco customers and service partners.

Use the **show sprom backplane 1** command or the s**how license host-id** command to obtain the switch serial number.

Call Home Configuration Process

The actual configuration of Call Home 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 AutoNotify.
- 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 is required to determine the origin of messages received.
- The Cisco MDS 9000 switch must have IP connectivity to an e-mail server.
- If Cisco AutoNotify 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.

Contact Information

It is mandatory for each switch to include e-mail, phone, and street address information. It is optional to include the contract ID, customer ID, site ID, and switch priority information.

To assign the contact information, follow these steps:

	Command	Purpose
Step 1	`switch# config t`	Enters configuration mode.
Step 2	`switch# 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)# email-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.
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.

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

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.

Note If you use the Cisco AutoNotify 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).

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 email-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 email-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.

	Command	Purpose
Step 5	`switch(config-callhome)#` **`destination-profile XML-destination email-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 email-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.

Alert Groups

An alert group is a predefined subset of Call Home alerts supported in all switches in the Cisco MDS 9000 Family. 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.

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.

	Command	Purpose
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.
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

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 valid **show** commands when specific events occur. The output from these additional **show** commands is included in the notification message along with that 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.

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** The **show** command must be enclosed in double quotes. 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"
```

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 that 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.

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.

	Command	Purpose
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 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 54-23). 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 54-9).

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 Guide.*

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.

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.

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 email from user@company1.com`	Optional. Configures the from e-mail address.
Step 4	`switch(config-callhome)# transport email reply-to person@place.com`	Optional. Configures the reply-to e-mail address to which all responses should be sent.

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.

	Command	Purpose
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`	

Periodic Inventory Notification

You can configure the switch to periodically send a message with an inventory of all the 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.

By default, this feature is disabled in all switches in the Cisco MDS 9000 Family. 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.

To enable periodic inventory notification in a Cisco MDS 9000 Family 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.

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. When enabled, if the number of messages sent exceeds the maximum limit of 30 messages within the 2-hour time frame, then further 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.

To enable message throttling in a Cisco MDS 9000 Family 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).

Call Home Enable 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 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.

You automatically acquire a fabric-wide lock when you issue the first configuration command after you enabled 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 6, "Using the CFS Infrastructure," for more information on the CFS application.

Note The Switch priority and the Syscontact name are not distributed.

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
```

Database Merge Guidelines

See the "CFS Merge Support" section on page 6-8 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 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

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 54-1 to 54-7).

Example 54-1 Displays Configured Call Home Information

```
switch# show callhome
callhome enabled
Callhome Information:
contact person name:who@where
contact person's email: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 54-2 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
email addresses configured:
alert groups configured:
cisco_tac

test destination profile information
maximum message size:100000
message format:full-txt
message-level:5
email 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
email addresses configured:

alert groups configured:
all

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

alert groups configured:
all
```

Example 54-3 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
email addresses configured:
user@company.com

alert groups configured:
test
```

Example 54-4 Displays the Full-Text Profile

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

Example 54-5 Displays the Short-Text Profile

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

Example 54-6 Displays the XML Destination Profile

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

Example 54-7 Displays E-Mail and SMTP Information

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

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

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 Email: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

```
X-Mozilla-Status2: 02000000
Return-Path: <tester@cisco.com>
...

<?xml version="1.0" encoding="UTF-8" standalone="no" ?>
<!DOCTYPE mml SYSTEM "mml10.dtd">
<!--
Alert:SYSLOG_ALERT
-->
<mml>
<header>
<time>2004-09-30T06:12:36</time>
<name>SYSLOG_ALERT</name>
<type>Syslog</type>
<level>2</level>
<source>MDS9000</source>
<priority>7</priority>
<deviceId>DS-C9506@C@FOX0712S00H</deviceId>
<custId>911</custId>
<contractId>33445</contractId>
<siteId>91111</siteId>
<serverId>DS-C9506@C@FOX0712S00H</serverId>
</header>
<body>
<msgDesc>2004 Sep 30 06:12:36 switch186 %PORT-5-IF_UP: %$VSAN 2000%$ Interface fc1/10 is
up in mode FL
</msgDesc>
<sysName>switch186</sysName>
<sysContact>USA</sysContact>
<sysContactEmail>admin@yourcompany.com</sysContactEmail>
<sysContactPhoneNumber>+91-080-8888888</sysContactPhoneNumber>
<sysStreetAddress>91</sysStreetAddress>
<chassis>
<name>DS-C9506</name>
```

```
<serialNo>FOX0712S00H</serialNo>
<partNo>73-8697-01</partNo>
<hwVersion>0.104</hwVersion>
<swVersion>3.1(1)</swVersion>
</chassis>
<nvp>
<name>syslog_facility</name>
<value>PORT</value>
</nvp>
</body>
</mml>
```

Sample RMON Notification in XML Format

```
Return-Path: <tester@cisco.com>
...
<?xml version="1.0" encoding="UTF-8" standalone="no" ?>
<!DOCTYPE mml SYSTEM "mml10.dtd">
<!--
Alert:RMON_ALERT
-->
<mml>
<header>
<time>2004-10-12T04:59:13</time>
<name>RMON_ALERT</name>
<type>RMON</type>
<level>2</level>
<source>MDS9000</source>
<priority>3</priority>
<deviceId>DS-C9506@C@FOX0712S00H</deviceId>
<custId>0</custId>
<contractId>u</contractId>
<siteId>&amp;amp;</siteId>
<serverId>DS-C9506@C@FOX0712S00H</serverId>
</header>
<body>
<msgDesc>rlaxmina-w2k07</msgDesc>
<sysName>switch186</sysName>
<sysContact>USA</sysContact>
<sysContactEmail>admin@yourcompany.com</sysContactEmail>
<sysContactPhoneNumber>+91-080-000000</sysContactPhoneNumber>
<sysStreetAddress>91</sysStreetAddress>
<chassis>
<name>DS-C9506</name>
<serialNo>FOX0712S00H</serialNo>
<partNo>73-8697-01</partNo>
<hwVersion>0.104</hwVersion>
<swVersion>3.1(1)</swVersion>
</chassis>
<nvp>
<name>ThresholdType</name>
<value>RisingThreshold</value>
</nvp>
<nvp>
<name>ThresholdValue</name>
<value>0</value>
</nvp>
<nvp>
<name>AlarmValue</name>
<value>0</value>
</nvp>
```

```
</body>
</mml>
```

Default Settings

Table 54-1 lists the default Call Home settings.

Table 54-1 Default Call Home 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).

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 54-2 lists the trigger events.

Table 54-2 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
	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

Table 54-2 Event Triggers (continued)

Event	Alert Group	Event Name	Description	Call Home Message Level
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 54-3 lists event categories and command outputs.

Table 54-3 Event Categories and Executed Commands

Event Category	Description	Executed Commands
System	Events generated by failure of a software system that is critical to unit operation.	**show tech-support** **show system redundancy status**
Environmental	Events related to power, fan, and environment sensing elements such as temperature alarms.	**show module** **show environment**
Line Card Hardware	Events related to standard or intelligent line card hardware.	**show tech-support**
Supervisor Hardware	Events related to supervisor modules.	**show tech-support**
Inventory	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	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 54-10).

This section discusses the severity levels for a Call Home message when using one or more switches in the Cisco MDS 9000 Family. 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 54-4.

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 Guide.*

Note Call Home severity levels are not the same as system message logging severity levels (see Chapter 55, "Configuring System Message Logging" and the *Cisco MDS 9000 Family System Messages Guide*).

Table 54-4 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 54-5 describes the short text formatting option for all message types.

Table 54-5 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 54-6, Table 54-7, and Table 54-8 display the information contained in plain text and XML messages.

Table 54-6 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-DDTHH: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
Message name	Name of message. Specific event names are listed in the "Event Triggers" section on page 54-21.	/mml/header/name
Message type	Specifically "Call Home."	/mml/header/type
Message group	Specifically "reactive."	/mml/header/group
Severity level	Severity level of message (see Table 54-4).	/mml/header/level
Source ID	Product type for routing.	/mml/header/source
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: *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
Contract ID	Optional user-configurable field used for contract info or other ID by any support service.	/mml/ header /contractId
Site ID	Optional user-configurable field used for Cisco-supplied site ID or other data meaningful to alternate support service.	/mml/ header/siteId
Server ID	If the message is generated from the fabric switch, it is the unique device identifier (UDI) of the switch. Format: *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
Message description	Short text describing the error.	/mml/body/msgDesc
Device name	Node that experienced the event. This is the host name of the device.	/mml/body/sysName
Contact name	Name of person to contact for issues associated with the node experiencing the event.	/mml/body/sysContact
Contact e-mail	E-mail address of person identified as contact for this unit.	/mml/body/sysContactEmail

Table 54-6 Reactive Event Message Format (continued)

Data Item (Plain text and XML)	Description (Plain text and XML)	XML Tag (XML only)
Contact phone number	Phone number of the person identified as the contact for this unit.	/mml/body/sysContactPhone Number
Street address	Optional field containing street address for RMA part shipments associated with this unit.	/mml/body/sysStreetAddress
Model name	Model name of the switch. This is the specific model as part of a product family name.	/mml/body/chassis/name
Serial number	Chassis serial number of the unit.	/mml/body/chassis/serialNo
Chassis part number	Top assembly number of the chassis.	/mml/body/chassis/partNo
Chassis hardware version	Hardware version of chassis.	/mml/body/chassis/hwVersion
Supervisor module software version	Top level software version.	/mml/body/chassis/swVersion
Affected FRU name	Name of the affected FRU generating the event message.	/mml/body/fru/name
Affected FRU serial number	Serial number of affected FRU.	/mml/body/fru/serialNo
Affected FRU part number	Part number of affected FRU.	/mml/body/fru/partNo
FRU slot	Slot number of FRU generating the event message.	/mml/body/fru/slot
FRU hardware version	Hardware version of affected FRU.	/mml/body/fru/hwVersion
FRU software version	Software version(s) running on affected FRU.	/mml/body/fru/swVersion
Command output name	The exact name of the issued command.	/mml/attachments/attachment/ name
Attachment type	Specifically command output.	/mml/attachments/attachment/ type
MIME type	Normally text or plain or encoding type.	/mml/attachments/attachment/ mime
Command output text	Output of command automatically executed (see Table 54-3).	/mml/attachments/attachment/ atdata

Table 54-7 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-DDTHH: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
Message name	Name of message. Specifically "Inventory Update" Specific event names are listed in the "Event Triggers" section on page 54-21.	/mml/header/name
Message type	Specifically "Inventory Update".	/mml/header/type
Message group	Specifically "proactive".	/mml/header/group
Severity level	Severity level of inventory event is level 2 (see Table 54-4).	/mml/header/level
Source ID	Product type for routing at Cisco. Specifically "MDS 9000"	/mml/header/source
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: *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
Contract ID	Optional user-configurable field used for contact info or other ID by any support service.	/mml/ header /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 /siteId
Server ID	If the message is generated from the fabric switch, it is the Unique device identifier (UDI) of the switch. Format: *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
Message description	Short text describing the error.	/mml/body/msgDesc
Device name	Node that experienced the event.	/mml/body/sysName
Contact name	Name of person to contact for issues associated with the node experiencing the event.	/mml/body/sysContact
Contact e-mail	E-mail address of person identified as contact for this unit.	/mml/body/sysContactEmail

Table 54-7 Inventory Event Message Format (continued)

Data Item (Plain text and XML)	Description (Plain text and XML)	XML Tag (XML only)
Contact phone number	Phone number of the person identified as the contact for this unit.	/mml/body/sysContactPhone Number
Street address	Optional field containing street address for RMA part shipments associated with this unit.	/mml/body/sysStreetAddress
Model name	Model name of the unit. This is the specific model as part of a product family name.	/mml/body/chassis/name
Serial number	Chassis serial number of the unit.	/mml/body/chassis/serialNo
Chassis part number	Top assembly number of the chassis.	/mml/body/chassis/partNo
Chassis hardware version	Hardware version of chassis.	/mml/body/chassis/hwVersion
Supervisor module software version	Top level software version.	/mml/body/chassis/swVersion
FRU name	Name of the affected FRU generating the event message.	/mml/body/fru/name
FRU s/n	Serial number of FRU.	/mml/body/fru/serialNo
FRU part number	Part number of FRU.	/mml/body/fru/partNo
FRU slot	Slot number of FRU.	/mml/body/fru/slot
FRU hardware version	Hardware version of FRU.	/mml/body/fru/hwVersion
FRU software version	Software version(s) running on FRU.	/mml/body/fru/swVersion
Command output name	The exact name of the issued command.	/mml/attachments/attachment /name
Attachment type	Specifically command output.	/mml/attachments/attachment /type
MIME type	Normally text or plain or encoding type.	/mml/attachments/attachment /mime
Command output text	Output of command automatically executed after event categories (see "Event Triggers" section on page 54-21).	/mml/attachments/attachment /atdata

Table 54-8 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-DDTHH: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
Message name	Name of message. Specifically test message for test type message. Specific event names listed in the "Event Triggers" section on page 54-21).	/mml/header/name
Message type	Specifically "Test Call Home".	/mml/header/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 54-4).	/mml/header/level
Source ID	Product type for routing.	/mml/header/source
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: *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
Contract ID	Optional user-configurable field used for contract info or other ID by any support service.	/mml/ header /contractId
Site ID	Optional user-configurable field used for Cisco-supplied site ID or other data meaningful to alternate support service.	/mml/ header /siteId
Server ID	If the message is generated from the fabric switch, it is the Unique device identifier (UDI) of the switch. Format: *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
Message description	Short text describing the error.	/mml/body/msgDesc
Device name	Switch that experienced the event.	/mml/body/sysName

Table 54-8 User-Generated Test Message Format (continued)

Data Item (Plain text and XML)	Description (Plain text and XML)	XML Tag (XML only)
Contact name	Name of person to contact for issues associated with the node experiencing the event.	/mml/body/sysContact
Contact Email	E-mail address of person identified as contact for this unit.	/mml/body/sysContactEmail
Contact phone number	Phone number of the person identified as the contact for this unit.	/mml/body/sysContactPhone Number
Street address	Optional field containing street address for RMA part shipments associated with this unit.	/mml/body/sysStreetAddress
Model name	Model name of the switch. This is the specific model as part of a product family name.	/mml/body/chassis/name
Serial number	Chassis serial number of the unit.	/mml/body/chassis/serialNo
Chassis part number	Top assembly number of the chassis. For example, 800-xxx-xxxx.	/mml/body/chassis/partNo
Command output text	Output of command automatically executed after event categories listed in Table 54-3.	/mml/attachments/attachment/atdata
MIME type	Normally text or plain or encoding type.	/mml/attachments/attachment/mime
Attachment type	Specifically command output.	/mml/attachments/attachment/type
Command output name	The exact name of the issued command.	/mml/attachments/attachment/name