

## Configuring Call Home

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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.

This chapter provides configuration and messaging details on the Call Home feature.

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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. Each profile may be predefined or user-defined.

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.
  - <http://www.cisco.com/>—The XML format enables communication with the Cisco Systems TAC group.
- Multiple concurrent message destinations. Up to 50 E-mail destination addresses are allowed for each format type.
- Message categories include system, environment, switching module hardware, supervisor module, hardware, inventory, and test.

## Call Home Configuration Process

The actual configuration of Call Home depends on how you intend to use the feature. Some points to consider include:

To configure Call Home, follow these steps:

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- Step 1** Configure the Call Home function (see the “[Call Home Configuration Overview](#)” section on [page 25-11](#)).
  - Step 2** Assign contact information (see the “[Assigning Contact Information](#)” section on [page 25-3](#)).
  - Step 3** Configure destination profiles (see the “[Configuring Destination Profiles](#)” section on [page 25-3](#)).
  - Step 4** Enable or disable Call Home (see the “[Enabling or Disabling Call Home](#)” section on [page 25-4](#)).
  - Step 5** Test Call Home messages.
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## Cisco AutoNotify

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

To register, the following items are required:

- The SMARTnet contract number covering your MDS 9000 family switch.
- Your name, company address, your email address, and your CCO ID.
- 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 exact product number of your Cisco MDS 9000 Family switch. For example, some valid product numbers include DS-C6509 and DS-C9216-K9

To configure a Cisco MDS 9000 Family switch to use AutoNotify service, an XML destination profile must be configured to send messages to Cisco. Specific setup, activation, and email address information is found on the Cisco.com web site at:

The AutoNotify feature requires several Call Home parameters to be configured, including certain contact information, email server, and an XML destination profile as specified in the Service Activation document. The **contract-id**, **customer-id**, **site-id**, and **switch-priority** parameters are not required by the AutoNotify feature. They are only intended to be used as additional information by Cisco customers and service partners.

## Assigning 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.

## Configuring 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.

If you use the Cisco AutoNotify service, the XML destination profile is required. (See the [“Configuring Destination Profiles”](#) section on page 25-3)

- 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 Alert Groups

The **alert-group** option allows you to select predefined types of Call Home alert notifications for destination profiles (predefined and user-defined). Destination profiles can be associated with multiple alert groups.

## Configuring Message Levels

The **message-level** option 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 will not be sent. The urgency level ranges from 0 (lowest level of urgency) to 9 (highest level of urgency), and the default is 0 (all messages will be sent).

## 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 ensure to configure the SMTP server address and port number for the Call Home functionality to work.

## Enabling or Disabling Call Home

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

## Default Settings

[Table 25-1](#) lists the default Call Home default settings.

**Table 25-1** *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.	4,000
DNS or IP address of the SMTP server to reach the server if no port is specified.	25

## Event Triggers

This section discusses Call Home trigger events. Trigger events are divided into categories, with each category assigned commands to execute when the event occurs. The command output is included in the transmitted message. [Table 25-2](#) lists the trigger events. lists event categories and command outputs.

Table 25-2 Event Triggers

Event	Alert Group	Event Name	Description	Severity 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
	Switching module and CISCO_TAC	LINECARD_FAILURE	Switching module operation failed.	7
		POWER_UP_DIAGNOSTICS_FAILURE	Switching module 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 module and CISCO_TAC	SUP_FAILURE	Supervisor module operation failed.	7
POWER_UP_DIAGNOSTICS_FAILURE		Supervisor module failed power up diagnostics.	7	

**Table 25-2** *Event Triggers (continued)*

Event	Alert Group	Event Name	Description	Severity Level
Call Home	Supervisor Hardware and CISCO_TAC	INBAND_FAILURE	Failure of inband 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 that is not licensed (Release 1.3.x), and will be 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

**Table 25-3** *Event Categories and Command Outputs*

Event Category	Description	Executed Commands
System	Events generated by failure of a software system that is critical to unit operation.	<b>show tech-support show system redundancy status</b>
Environmental	Events related to power, fan, and environment sensing elements such as temperature alarms.	<b>show module show environment</b>
Switching module hardware	Events related to standard or intelligent switching modules.	<b>show tech-support</b>
Supervisor hardware	Events related to supervisor modules.	<b>show tech-support</b>

**Table 25-3** *Event Categories and Command Outputs (continued)*

Event Category	Description	Executed Commands
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.	<b>show version</b>
Test	User generated test message.	<b>show version</b>

## Call Home Message Severity Levels

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

Call Home severity levels are not the same as system message logging severity levels. Severity levels range from 0 to 9, with 9 having the highest urgency. Each severity level has keywords as listed in [Table 25-4](#).

**Table 25-4** *Severity Levels*

Severity Level	Keyword	Description
9	Catastrophic	Network wide catastrophic failure.
8	Disaster	Significant network impact.
7	Fatal	System is unusable.
6	Critical	Critical conditions, immediate attention needed.
5	Major	Major conditions.
4	Minor	Minor conditions.
3	Warning	Warning conditions.
2	Notification	Basic notification and informational messages. Possibly independently insignificant.
1	Normal	Normal event signifying return to normal state.
0	Debugging	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 25-5 describes the short text formatting option for all message types.

**Table 25-5 Short Text Formatting Option**

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 syslog message

Table 25-6 displays the information contained in plain text and XML messages.

**Table 25-6 Plain Text and XML Messages**

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. <b>Note</b> 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.	/mml/header/name
Message type	Specifically “Call Home”.	/mml/header/type
Message group	Specifically “reactive”.	/mml/header/group
Severity level	Severity level of message.	/mml/header/level
Source ID	Product type for routing.	/mml/header/source



**Table 25-6 Plain Text and XML Messages (continued)**

Data Item (Plain text and XML)	Description (Plain text and XML)	XML Tag (XML only)
Device ID	<p>Unique device identifier (UDI) for end device generating message. This field should be empty if the message is non-specific to a fabric switch. Format: type@Sid@serial, where</p> <ul style="list-style-type: none"> <li>• Type is the product model number from backplane SEEPROM.</li> <li>• @ is a separator character.</li> <li>• Sid is @C@ identifying serial ID as a chassis serial number.</li> <li>• Serial number as identified by the Sid field.</li> </ul> <p>Example: 'DS-C9000@C@12345678'</p>	/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

Table 25-6 Plain Text and XML Messages (continued)

Data Item (Plain text and XML)	Description (Plain text and XML)	XML Tag (XML only)
Server ID	<p>If the message is generated from the fabric switch, it is the unique device identifier (UDI) of the switch.</p> <p>Format: type@Sid@serial, where</p> <ul style="list-style-type: none"> <li>Type is the product model number from backplane SEEPROM.</li> <li>@ is a separator character.</li> <li>Sid is @C@ identifying serial ID as a chassis serial number.</li> <li>Serial number as identified by the Sid field.</li> </ul> <p>Example: 'DS-C9000@C@12345678'</p>	/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
Contact phone number	Phone number of the person identified as the contact for this unit.	/mml/body/sysContactPhoneNu mber
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

Table 25-6 Plain Text and XML Messages (continued)

Data Item (Plain text and XML)	Description (Plain text and XML)	XML Tag (XML only)
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	Exact command that was run. For example, <b>show running-config</b> 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.	/mml/attachments/attachment/data

## Call Home Configuration Overview

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

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

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

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- Step 1** Assign contact information and enable the Call Home feature using the General tab (see the [“Configuring Call Home Attributes”](#) section on page 25-12). The Call Home feature is not enabled by default, and you must enter an e-mail address that identifies the source of Call Home notifications.
- Step 2** Configure the destination e-mail addresses for Call Home notifications using the Destinations tab (see the [“Configuring Call Home Destination Attributes”](#) section on page 25-12). You can identify one more e-mail addresses that will receive Call Home notifications.

- Step 3** Identify your SMTP server using the E-mail Setup tab (“[Configuring Call Home E-Mail Addresses](#)” section on page 25-12). You need to identify a message server to which your switch has access. This message server will forward the Call Home notifications to the destinations.
- Step 4** Test Call Home by sending a test message using the Alerts tab (see the “[Configuring Call Home Alerts](#)” section on page 25-13). You should test the Call Home feature to make sure it works.
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## Configuring Call Home Attributes

To assign contact information and enable the Call Home feature from the Fabric Manager, choose Events > Call Home on the menu tree and click the General tab. The Information pane from the Fabric Manager displays Call Home information for multiple switches.

To assign contact information and enable the Call Home feature from the Device Manager, choose Call Home from the Events menu and click the General tab. The Call Home Events dialog box with the General tab selected from the Device Manager displays Call Home attributes for a single switch.

## Configuring Call Home Destination Attributes

To configure the destination e-mail addresses for Call Home notifications from the Fabric Manager, choose Events > Call Home on the menu tree and click the Destination tab. The Information pane from the Fabric Manager displays Call Home information for multiple switches.

To configure the destination e-mail addresses from the Device Manager, choose Call Home from the Events menu and click the Destination tab. The dialog box from the Device Manager displays Call Home attributes for a single switch.

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

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- Step 1** Click **Create** in the Device Manager dialog box, or click **Create Row** on the Fabric Manager toolbar. You see the Device Manager Create Call Home Destination dialog box. From the Fabric Manager, you can choose one or more switches to which the configuration applies.
- Step 2** Choose the profile name from the pull-down list.
- Step 3** Enter a number identifier for the destination.
- Step 4** Enter the e-mail address for the destination.
- Step 5** Click **Create**.
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## Configuring Call Home E-Mail Addresses

To identify your SMTP server from the Fabric Manager, choose Events > Call Home on the menu tree and click the Email Setup tab. The Information pane from the Fabric Manager displays Call Home information for multiple switches.

To identify your SMTP server from the Device Manager, choose Call Home from the Events menu and click the Email Setup tab. The Call Home dialog box from the Device Manager displays Call Home attributes for a single switch.

Configure the e-mail setup attributes for the Call Home features.

## Configuring Call Home Alerts

To test Call Home from the Fabric Manager, choose Events > Call Home the menu tree and click the Alerts tab. The Information pane from the Fabric Manager displays Call Home information for multiple switches.

To test Call Home from the Device Manager, choose Call Home from the Events menu and click the Alerts tab. The dialog box with the Alerts tab selected from the Device Manager displays Call Home attributes for a single switch.

Configure the alert attributes for the Call Home feature.

## Configuring Call Home Profiles

To configure Call Home attributes from the Fabric Manager, choose Events > Call Home on the menu tree and click the Profiles tab. The Information pane from the Fabric Manager displays Call Home information for multiple switches.

To configure Call Home attributes from the Device Manager, choose Call Home from the Events menu and click the Profiles tab. The dialog box with the Alerts tab selected from the Device Manager displays Call Home attributes for a single switch.

Configure the profile attributes for the Call Home feature.

