Call Home

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Note

- For complete syntax and usage information for the commands used in this chapter, see these publications:

  http://www.cisco.com/en/US/products/ps11846/prod_command_reference_list.html
- Cisco IOS Release 15.1SY supports only Ethernet interfaces. Cisco IOS Release 15.1SY does not support any WAN features or commands.
- Cisco IOS Release 15.1SY supports these call home enhancements:
  - Call home single command configuration
  - Anonymous Reporting
  - Crash alert group
  - Data privacy
  - Diagnostic signatures
  - HTTP proxy server support
  - AAA authorization for call home message IOS commands
  - snapshot alert group
  - Syslog throttling
  - Call home message compression—To prevent truncation of large messages, compresses and applies base64 binary encoding to XML formatted CLI output larger than 10KB that is sent to the Smart Call Home server.
  - CA certificate auto update for HTTPS connection

Tip For additional information about Cisco Catalyst 6500 Series Switches (including configuration examples and troubleshooting information), see the documents listed on this page:

http://www.cisco.com/en/US/products/hw/switches/ps708/tsd_products_support_series_home.html

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Prerequisites for Call Home

- Obtain the following information for the Call Home contact that will be configured so that the receiver can determine the origin of messages received:
  - Customer contact email (required for full registration with Smart Call Home, optional if Call Home is enabled in anonymous mode)
  - Customer phone number (optional)
  - Customer street address (optional)
- If using email message delivery, identify the name or IPv4 or IPv6 address of a primary Simple Mail Transfer Protocol (SMTP) server and any backup servers.
- (Not required with Release 15.1SY and later releases) If using secure HTTP (HTTPS) message delivery, configure a trustpoint certificate authority (CA). This procedure is required if you are using the HTTPS server for Cisco Smart Call Home Service in the CiscoTAC-1 profile for Call Home.
- Verify IP connectivity from the router to the email server(s) or the destination HTTP server.
- If servers are specified by name, the switch must have IP connectivity to a domain name server.
- If using Cisco Smart Call Home, verify that an active service contract exists for the device being configured.

Tip From the Smart Call Home web application, you can download a basic configuration script to assist you in the configuration of the Call Home feature for use with Smart Call Home and the Cisco TAC. The script, provided on an as-is basis, can be downloaded from this URL: https://supportforums.cisco.com/community/netpro/solutions/smart_services/smartcallhome

Restrictions for Call Home

- For the Cisco TAC profile, You can configure Call Home to send email messages or to send HTTP messages, but not both.
- A Call Home alert is only sent to destination profiles that have subscribed to the alert group containing that Call Home alert. In addition, the alert group must be enabled.
- Enabling call home data privacy can affect CPU utilization when scrubbing a large amount of data.
- Call home data privacy scrubs **show** command output for configuration messages in the **show running-config all** and **show startup-config** data.
- In VSS mode, scrubbing the hostname from configuration messages can cause a smart call home processing failure on the Cisco TAC backend server.

- Call home diagnostic signatures—see this document:

  http://www.cisco.com/en/US/docs/ios-xml/ios/ha/configuration/15-mt/ha-15-mt-book.html

Information About Call Home

- Call Home Overview, page 24-3
- Anonymous Reporting, page 24-4
- Smart Call Home, page 24-4
- Alert Group Trigger Events and Commands, page 24-5
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- Sample Syslog Alert Notification in Long-Text Format, page 24-17
- Sample Syslog Alert Notification in XML Format, page 24-17

Call Home Overview

Call Home provides these notification options of critical system events:

- Email (for example, to a Network Operations Center) or web-based.
- XML delivery to a support website for automated parsing.
- Cisco Smart Call Home supports direct case generation with the Cisco Systems Technical Assistance Center (TAC).

The Call Home alert messages contain information on configuration, diagnostics, environmental conditions, inventory, syslog, snapshot, and crash events.

The Call Home feature can deliver alerts to multiple recipients, referred to as *Call Home destination profiles*, each with configurable message formats and content categories. A predefined destination profile (CiscoTAC-1) is provided, and you also can define your own destination profiles. The CiscoTAC-1 profile is used to send alerts to the backend server of the Smart Call Home service, which can be used to create service requests to the Cisco TAC (depending on the Smart Call Home service support in place for your device and the severity of the alert).

Flexible message delivery and format options make it easy to integrate specific support requirements. If multiple destination profiles are configured, the system tries to send call-home messages from every configured profile.

The Call Home feature provides these functions:

- Multiple message-format options:
  - Short Text—Suitable for pagers or printed reports.
  - Long Text—Full formatted message information suitable for human reading.
  - XML—Machine readable format using Extensible Markup Language (XML) and Adaptive Markup Language (AML) document type definitions (DTDs). The XML format enables communication with the Cisco Smart Call Home server.
- Multiple concurrent message destinations.
- Multiple message categories including configuration, crash, diagnostics, environmental conditions, inventory, snapshot, and syslog events.

- Filtering of messages by severity and pattern matching.
- Scheduling of periodic message sending.
- Continuous device health monitoring and real-time diagnostics alerts.
- Analysis of Call Home messages from your device and, where supported, Automatic Service Request generation, routed to the appropriate TAC team, including detailed diagnostic information to speed problem resolution.
- Secure message transport directly from your device or 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 may 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 that provides access to associated Field Notices, Security Advisories and End-of-Life Information.

Anonymous Reporting

Smart Call Home is a service capability included with many Cisco service contracts and is designed to assist customers resolve problems more quickly. In addition, the information gained from crash messages helps Cisco understand equipment and issues occurring in the field. If you decide not to use Smart Call Home, you can still enable Anonymous Reporting to allow Cisco to securely receive minimal error and health information from the device. If you enable Anonymous Reporting, your customer identity will remain anonymous, and no identifying information will be sent.

Note When you enable Anonymous Reporting, you acknowledge your consent to transfer the specified data to Cisco or to vendors operating on behalf of Cisco (including countries outside the United States). Cisco maintains the privacy of all customers. For information about how Cisco treats personal information, see the Cisco Privacy Statement at http://www.cisco.com/web/siteassets/legal/privacy.html.

When Call Home is configured in an anonymous way, only crash, inventory, and test messages are sent to Cisco. No customer identifying information is sent.

For more information about what is sent in these messages, see the "Alert Group Trigger Events and Commands" section on page 24-5.

Smart Call Home

If you have a service contract directly with Cisco Systems, you can register your Call Home devices for the Cisco Smart Call Home service.

Smart Call Home provides these features:

- Continuous device health monitoring and real-time diagnostic alerts.
- Analysis of Smart Call Home messages and, if needed, Automatic Service Request generation routed to the correct TAC team, including detailed diagnostic information to speed problem resolution.

- Secure message transport directly from your device or through an HTTP proxy server or a downloadable Transport Gateway (TG). You can use a TG aggregation point to support multiple devices or in cases where security dictates that your devices may not be connected directly to the Internet.
- Web-based access to Smart Call Home messages and recommendations, inventory, and configuration information for all Smart Call Home devices provides access to associated field notices, security advisories, and end-of-life information.

For issues that can be identified as known, particularly GOLD diagnostics failures, depending on the Smart Call Home service support in place for your device and the severity of the alert, Automatic Service Requests will be generated with the Cisco TAC.

You need the following items to register:

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

For detailed information on Smart Call Home, see the Smart Call Home page at this location:

https://supportforums.cisco.com/community/netpro/solutions/smart_services/smartcallhome

Alert Group Trigger Events and Commands

Call Home trigger events are grouped into alert groups, with each alert group assigned CLI commands to execute when an event occurs. The CLI command output is included in the transmitted message. These tables list the trigger events included in each alert group, including the severity level of each event and the executed CLI commands for the alert group:

- Call Home Syslog Alert Group Events and Actions, Table 24-1 on page 24-6
- Call Home Crash Alert Group Events and Actions, Table 24-2 on page 24-6
- Call Home Configuration Alert Group Events and Actions, Table 24-3 on page 24-7
- Call Home Snapshot Alert Group Events and Actions, Table 24-4 on page 24-7
- Call Home Environmental Alert Group Events and Actions, Table 24-5 on page 24-7
- Call Home Inventory Alert Group Events and Actions, Table 24-6 on page 24-10
- Call Home Diagnostic Failure Alert Group Events and Actions, Table 24-7 on page 24-11
- Call Home Test Alert Group Events and Actions, Table 24-8 on page 24-12

Table 24-1 Call Home Syslog Alert Group Events and Actions

Alert Group Description:	Event logged to syslog		
Send to TAC:	No		
Executed Commands:	**show logging**, **show inventory**, **show switch virtual** (VSS mode only)		
Call Home Trigger Event	**Syslog Event**	**Sev**	**Description**
SYSLOG	LOG_EMERG	0	system is unusable
	LOG_ALERT	1	action must be taken immediately
	LOG_CRIT	2	critical conditions
	LOG_ERR	3	error conditions
	LOG_WARNING	4	warning conditions
	LOG_NOTICE	5	normal but signification condition
	LOG_INFO	6	informational
	LOG_DEBUG	7	debug-level messages

Table 24-2 Call Home Crash Alert Group Events and Actions

Send to TAC:	Yes		
Call Home Trigger Event	**Syslog Event**	**Sev**	**Description and Executed Commands:**
SYSTEM_CRASH	—	—	Events related to system crash. **show version** **show logging** **show region** **show inventory** **show stack** **show switch virtual** (VSS mode only) **more crashinfo** (this command shows the crashinfo file content)
MODULE_CRASH	—	—	Events related to system crash. **show version** **show logging** **show region** **show stack** **show switch virtual** (VSS mode only) **more crashinfo** (this command shows the crashinfo file content)
TRACEBACK	—	—	Detects software traceback events. **show version** **show logging** **show region** **show stack** **show switch virtual** (VSS mode only)

Table 24-3 Call Home Configuration Alert Group Events and Actions

Alert Group Description:	User-generated request for configuration or configuration change event		
Send to TAC:	Yes		
Executed Commands:	**show module**, **show version**, **show running-config all**, **show startup-config**, **show inventory**, **show switch virtual** (VSS mode only)		
Call Home Trigger Event	**Syslog Event**	**Sev**	**Description**
—	—	—	—

Table 24-4 Call Home Snapshot Alert Group Events and Actions

Alert Group Description:	Output from user-configured command list.		
Send to TAC:	Yes		
Executed Commands:	Any IOS command configured under the Snapshot alert group configuration mode.		
Call Home Trigger Event	**Syslog Event**	**Sev**	**Description**
—	—	—	—

Table 24-5 Call Home Environmental Alert Group Events and Actions

Alert Group Description:	Events related to power, fan and environment sensing elements such as temperature alarms		
Send to TAC:	Yes		
Executed Commands:	**show module**, **show environment**, **show logging**, **show inventory**, **show power**		
Call Home Trigger Event	**Syslog Event**	**Sev**	**Description**
FAN_FAILURE	FANPSINCOMPAT	4	Fan tray and power supply %d are incompatible
	ALARMCLR	4	The specified alarm condition has been cleared, and shutdown has been cancelled.
	FANHIOUTPUT	4	Version %d high-output fan-tray is in effect
	FANLOOUTPUT	4	Version %d low-output fan-tray is in effect
	FANVERCHK	4	Power-supply %d inserted is only compatible with Version %d fan-tray.
	FANTRAYFAILED	4	fan tray failed
	FANTRAYOK	4	fan tray OK
	FANCOUNTFAILED	4	Required number of fan trays is not present
	FANCOUNTOK	4	Required number of fan trays is present
	PSFANFAIL	4	the fan in power supply has failed
	PSFANOK	4	the fan in power supply is OK

Table 24-5 Call Home Environmental Alert Group Events and Actions (continued)

Alert Group Description:	Events related to power, fan and environment sensing elements such as temperature alarms		
Send to TAC:	Yes		
Executed Commands:	**show module**, **show environment**, **show logging**, **show inventory**, **show power**		
Call Home Trigger Event	**Syslog Event**	**Sev**	**Description**
TEMPERATURE_ALARM	MAJORTEMPALARM	2	It has exceeded allowed operating temperature range.
	MAJORTEMPALARMRECOVER	4	It has returned to allowed operating temperature range.
	MINORTEMPALARM	4	It has exceeded normal operating temperature range.
	MINORTEMPALARMRECOVER	4	It has returned to normal operating temperature range.
VTT_FAILED	VTTFAILED	4	VTT %d failed.
	VTTOK	4	VTT %d operational.
	VTTMAJFAILED	0	Too many VTT failures to continue system operation.
	VTTMAJRECOVERED	2	Enough VTTs operational to continue system operation.
CLOCK_FAILED	CLOCKFAILED	4	clock failed
	CLOCKOK	4	clock operational
	CLOCKMAJFAILED	0	too many clocks failed to continue system operation
	CLOCKMAJRECOVERED	2	enough clocks operational to continue system operation
	SHUTDOWN-SCHEDULED	2	shutdown for %s scheduled in %d seconds
	SHUTDOWN_NOT_SCHEDULED	2	Major sensor alarm for %s is ignored, %s will not be shutdown
	SHUTDOWN-CANCELLED	2	shutdown for cancelled
	SHUTDOWN	2	shutdown %s now because of %s
	SHUTDOWN-DISABLED	1	need to shutdown %s now but shutdown action is disabled!
	RESET_SCHEDULED	2	System reset scheduled in seconds
	CLOCK_SWITCHOVER	2	changing system switching clock
	CLOCK_A_MISSING	4	cannot detect clock A in the system
	CLOCK_B_MISSING	4	cannot detect clock B in the system
	USE_RED_CLOCK	4	system is using the redundant clock (clock B).
	ENABLED	4	power to module in slot %d set on
	DISABLED	4	power to module in slot %d set %s
	PSOK	4	power supply %d turned on.

Table 24-5 Call Home Environmental Alert Group Events and Actions (continued)

Alert Group Description:	Events related to power, fan and environment sensing elements such as temperature alarms		
Send to TAC:	Yes		
Executed Commands:	**show module**, **show environment**, **show logging**, **show inventory**, **show power**		
Call Home Trigger Event	**Syslog Event**	**Sev**	**Description**
POWER_SUPPLY_FAILURE	PSFAIL	4	power supply %d output failed.
	PSREDUNDANTMODE	4	power supplies set to redundant mode.
	PSCOMBINEDMODE	4	power supplies set to combined mode.
	PSREDUNDANTMISMATCH	4	power supplies rated outputs do not match.
	PSMISMATCH	4	power supplies rated outputs do not match.
	PSNOREDUNDANCY	4	Power supplies are not in full redundancy, power usage exceed lower capacity supply
	PSOCPSHUTDOWN	2	Power usage exceeds power supply %d allowable capacity.
	PSREDUNDANTONESUPPLY	4	in power-redundancy mode, system is operating on one power supply
	PSREDUNDANTBOTHSUPPLY	4	in power-redundancy mode, system is operating on both power supplies
	UNDERPOWERED	4	insufficient power to operate all FRUs in system.
	COULDNOTREPOWER	4	wanted to re-power FRU (slot %d) but could not.
	POWERDENIED	4	insufficient power, module in slot %d power denied.
	UNSUPPORTED	4	unsupported module in slot %d, power not allowed: %s.
	INSUFFICIENTPOWER	2	Powering down all linecards as there is not enough power to operate all critical cards
	INPUTCHANGE	4	Power supply %d input has changed. Power capacity adjusted to %sW
	PSINPUTDROP	4	Power supply %d input has droppe

Table 24-6 Call Home Inventory Alert Group Events and Actions

Alert Group Description:	Inventory status should be provided whenever a unit is cold-booted, or when FRUs are inserted or removed. This is considered a non-critical event, and the information is used for status and entitlement.		
Send to TAC:	Yes		
Executed Commands:	Commands executed for all Inventory messages sent in anonymous mode and for Delta Inventory message sent in full registration mode: **show module**, **show version**, **show inventory oid**, **show idprom all**, **show power**, **show ip traffic**, **show switch virtual** (VSS mode only) Commands executed for Full Inventory message sent in full registration mode: **show module**, **show version**, **show inventory oid**, **show idprom all**, **show power**, **show interfaces**, **show file systems**, **show data-corruption**, **show memory statistics**, **show process memory**, **show process cpu**, **show process cpu history**, **show crypto engine configuration**, **show buffers**, **show ip nat statistics**, **show ip traffic**, **show switch virtual** (VSS mode only)		
Call Home Trigger Event	**Syslog Event**	**Sev**	**Description**
HARDWARE_INSERTION	INSPS	6	Power supply inserted in slot %d
HARDWARE_REMOVAL	REMPS	6	Power supply removed from slot %d
	REMCARD	6	Card removed from slot %d, interfaces disabled
	STDBY_REMCARD	6	The OIR facility on Standby Supervior was notifed by the Active that a processor from slot[n] has been removed
HARDWARE_INSERTION	INSCAR	6	Card inserted in slot %d, interfaces are now online
	STDBY_INSCARD	6	Standby was notified, card online in slot %d
	SEQ_MISMATCH	6	SCP seq mismatch for card in slot %d : %s
HARDWARE_REMOVAL	UNKNOWN	3	Unknown card in slot %d, card is being disabled
	STDBY_UNKNOWN	3	Standby was notified, Unknown card in slot %d
	UNSUPPORTED	3	Card in slot %d is unsupported. %s
	PWRCYCLE	3	Card in module %d, is being power-cycled %s
	STDBY_PWRCYCLE	3	Standby was notified, Card in module %d is being power-cycled %s
	CONSOLE	6	Changing console ownership to %s processor
	RUNNING_CONFIG	6	During switchover, the OIR facility is unable to clean up running-config processor.
	DISALLOW	6	Supervisor attempting to come up as secondary in EHSA mode, will not be allowed
	REMFAN	6	Fan %d removed
HARDWARE_INSERTION	INSFAN	6	Fan %d inserted
	PSINSERTED	4	power supply inserted in slot %d.

Table 24-7 Call Home Diagnostic Failure Alert Group Events and Actions

Alert Group Description:	Events related to standard or intelligent line cards	
Send to TAC:	Yes	
Executed Commands:	**show module**, **show diagnostic result Module <#> detail**, **show version**, **show inventory**, **show buffers**, **show logging**, **show diagnostic result module all**, **show logging system last 100**	
Call Home Trigger Event:	DIAGNOSTICS_FAILURE	
Syslog Event	**Sev**	**Description**
C2PLUSWITHNODB	2	The constellation 2 plus module in slot %d has no forwarding daughter board. Power denied
DFCMISMATCH	2	Module %d DFC incompatible with Supervisor DFC. Power denied
BADFLOWCTRL	2	Module %d not at an appropriate hardware revision level to support DFC. Power denied
BADFLOWCTRL_WARN	2	WARNING: Module %d not at an appropriate hardware revision level to support DFC3
BADPINN1	2	Module %d not at an appropriate hardware revision level to coexist with system. Power denied
FANUPGREQ	2	Module %d not supported without fan upgrade
INSUFFCOO	4	Module %d cannot be adequately cooled
PROVISION	6	Module %d does not meet the provisioning requirements, power denied
PWRFAILURE	6	Module %d is being disabled due to power convertor failure
LC_FAILURE	3	Module %d has Major online diagnostic failure, %s
HARD_RESET	3	Module %d is being hard reset as a part of swichover error recovery
SOFT_RESET	3	Module %d is being soft reset as a part of swichover error recovery
DOWNGRADE	6	Fabric capable module %d not at an appropriate hardware revision level, and can only run in flowthrough mode
DIAG_OK		
DIAG_BYPASS		
DIAG_ERROR		
DIAG_MINOR_ERROR		
DIAG_MAJOR_ERROR		
DIAG_LINE_CARD_NOT_PRESENT		
DIAG_LINE_CARD_REMOVED		
DIAG_INVALID_TEST_ID_RANGE		
DIAG_INVALID_PORT_RANGE		
DIAG_IS_BUSY		
DIAG_IS_IDLE		
DIAG_NO_SCHEDULE		
DIAG_SCHEDULE_EXIST		
DIAG_NO_TEST		

Table 24-7 Call Home Diagnostic Failure Alert Group Events and Actions (continued)

Alert Group Description:	Events related to standard or intelligent line cards	
Send to TAC:	Yes	
Executed Commands:	**show module**, **show diagnostic result Module <#> detail**, **show version**, **show inventory**, **show buffers**, **show logging**, **show diagnostic result module all**, **show logging system last 100**	
Call Home Trigger Event:	DIAGNOSTICS_FAILURE	
Syslog Event	**Sev**	**Description**
DIAG_UNKNOWN		
DIAG_NOT_AVAILABLE		
DIAG_EXIT_ON_ERROR		
DIAG_EXIT_ON_FAIL_LIMIT_REACHED		
DIAG_INVALID_SCHEDULE		
DIAG_PF_DIAG_NOT_SUPORTED		
DIAG_IS_STOPPED		
DIAG_INVALID_DEVICE_RANGE		

Table 24-8 Call Home Test Alert Group Events and Actions

Alert Group Description:	—	
Send to TAC:	Yes	
Executed Commands:	**show version**, **show module**, **show inventory**	
Call Home Trigger Event:	—	
Syslog Event	**Sev**	**Description**
TEST	2	User-generated test message.

Message Contents

The following tables display the content formats of alert group messages:

- Table 24-9 describes the content fields of a short text message.
- Table 24-10 describes the content fields that are common to all long text and XML messages. The fields specific to a particular alert group message are inserted after the common fields.
- Table 24-11 describes the content fields for reactive messages (system failures that require a TAC case) and proactive messages (issues that might result in degraded system performance).
- Table 24-12 describes the content fields for an inventory message.

Table 24-9 Format for a Short Text Message

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 a system message

Table 24-10 Common Fields for All Long 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*	CallHome/EventTime
Message name	Name of message. Specific event names are listed in the "Alert Group Trigger Events and Commands" section on page 24-5.	(for short text message only)
Message type	Specifically Call Home.	CallHome/Event/Type
Message subtype	Specific type of message: full, delta, or test.	CallHome/Event/SubType
Message group	Specifically reactive or proactive.	(for long text message only)
Severity level	Severity level of message (see Table 24-13 on page 24-33).	Body/Block/Severity
Source ID	Product type for routing.	(for long text message only)

Table 24-10 Common Fields for All Long Text and XML Messages (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 be empty if the message is nonspecific to a fabric switch. The format is *type@Sid@serial*. • *type* is the product model number from backplane IDPROM. • @ 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: WS-C6509@C@12345678	CallHome/CustomerData/ContractData/DeviceId
Customer ID	Optional user-configurable field used for contract information or other ID by any support service.	CallHome/CustomerData/ContractData/CustomerId
Contract ID	Optional user-configurable field used for contract information or other ID by any support service.	CallHome/CustomerData/ContractData/ContractId
Site ID	Optional user-configurable field used for Cisco-supplied site ID or other data meaningful to alternate support service.	CallHome/CustomerData/ContractData/SiteId
Server ID	If the message is generated from the fabric switch, this is the unique device identifier (UDI) of the switch. The format is *type@Sid@serial*. • *type* is the product model number from backplane IDPROM. • @ 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: WS-C6509@C@12345678	(for long text message only)
Message description	Short text describing the error.	CallHome/MessageDescription
Device name	Node that experienced the event. This is the host name of the device.	CallHome/CustomerData/SystemInfo/Name
Contact name	Name of person to contact for issues associated with the node experiencing the event.	CallHome/CustomerData/SystemInfo/Contact

Table 24-10 Common Fields for All Long Text and XML Messages (continued)

Data Item (Plain Text and XML)	Description (Plain Text and XML)	XML Tag (XML Only)
Contact email	Email address of person identified as contact for this unit.	CallHome/CustomerData/SystemInfo/ContactEmail
Contact phone number	Phone number of the person identified as the contact for this unit.	CallHome/CustomerData/SystemInfo/ContactPhoneNumber
Street address	Optional field containing street address for RMA part shipments associated with this unit.	CallHome/CustomerData/SystemInfo/StreetAddress
Model name	Model name of the switch. This is the specific model as part of a product family name.	CallHome/Device/Cisco_Chassis/Model
Serial number	Chassis serial number of the unit.	CallHome/Device/Cisco_Chassis/SerialNumber
Chassis part number	Top assembly number of the chassis.	CallHome/Device/Cisco_Chassis/AdditionalInformation/ AD@name="PartNumber"/
System Object ID	The System ObjectID that uniquely identifies the system.	CallHome/Device/Cisco_Chassis/AdditionalInformation/ AD@name="sysObjectID"
SysDesc	System description for the managed element.	CallHome/Device/Cisco_Chassis/AdditionalInformation/ AD@name="sysDescr"
The following fields may be repeated if multiple CLI commands are executed for this alert group.		
Command output name	The exact name of the issued CLI command.	/aml/Attachments/Attachment/Name
Attachment type	Type (usually inline).	/aml/Attachments/Attachment@type
MIME type	Normally text/plain or encoding type.	/aml/attachments/attachment/Data@encoding
Command output text	Output of command automatically executed (see the "Alert Group Trigger Events and Commands" section on page 24-5).	/aml/attachments/attachment/atdata

Table 24-11 Fields for a Reactive or Proactive Event Message

Data Item (Plain Text and XML)	Description (Plain Text and XML)	XML Tag (XML Only)
Chassis hardware version	Hardware version of chassis.	CallHome/Device/Cisco_Chassis/HardwareVersion
Supervisor module software version	Top-level software version.	CallHome/Device/Cisco_Chassis/AdditionalInformation/ AD@name="SoftwareVersion"
Affected FRU name	Name of the affected FRU generating the event message.	CallHome/Device/Cisco_Chassis/Cisco_Card/Model
Affected FRU serial number	Serial number of affected FRU.	CallHome/Device/Cisco_Chassis/Cisco_Card/SerialNumber

Table 24-11 Fields for a Reactive or Proactive Event Message (continued)

Data Item (Plain Text and XML)	Description (Plain Text and XML)	XML Tag (XML Only)
Affected FRU part number	Part number of affected FRU.	CallHome/Device/Cisco_Chassis/Cisco_Card/PartNumber
FRU slot	Slot number of FRU generating the event message.	CallHome/Device/Cisco_Chassis/Cisco_Card/ LocationWithinContainer
FRU hardware version	Hardware version of affected FRU.	CallHome/Device/Cisco_Chassis/Cisco_Card/HardwareVersion
FRU software version	Software version(s) running on affected FRU.	CallHome/Device/Cisco_Chassis/Cisco_Card/SoftwareIdentity/VersionString
Process name	Name of process.	/aml/body/process/name
Process ID	Unique process ID.	/aml/body/process/id
Process state	State of process (for example, running or halted).	/aml/body/process/processState
Process exception	Exception or reason code.	/aml/body/process/exception

Table 24-12 Fields for an Inventory Event Message

Data Item (Plain Text and XML)	Description (Plain Text and XML)	XML Tag (XML Only)
Chassis hardware version	Hardware version of chassis.	CallHome/Device/Cisco_Chassis/HardwareVersion
Supervisor module software version	Top-level software version.	CallHome/Device/Cisco_Chassis/AdditionalInformation/AD@name="SoftwareVersion"
FRU name	Name of the affected FRU generating the event message.	CallHome/Device/Cisco_Chassis/Cisco_Card/Model
FRU s/n	Serial number of FRU.	CallHome/Device/Cisco_Chassis/Cisco_Card/SerialNumber
FRU part number	Part number of FRU.	CallHome/Device/Cisco_Chassis/Cisco_Card/PartNumber
FRU slot	Slot number of FRU.	CallHome/Device/Cisco_Chassis/Cisco_Card/LocationWithinContainer
FRU hardware version	Hardware version of FRU.	CallHome/Device/Cisco_Chassis/Cisco_Card/HardwareVersion
FRU software version	Software version(s) running on FRU.	CallHome/Device/Cisco_Chassis/Cisco_Card/SoftwareIdentity/VersionString

Sample Syslog Alert Notification in Long-Text Format

```
source:MDS9000
Switch Priority:7
Device Id:WS-C6509@C@FG@07120011
Customer Id:Example.com
Contract Id:123
Site Id:San Jose
Server Id:WS-C6509@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:User Name
Contact Email:admin@yourcompany.com
Contact Phone:+1 408 555-1212
Street Address:#1234 Picaboo Street, Any city, Any state, 12345
Event Description:2006 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:WS-C6509
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

```
From: example
Sent: Wednesday, April 25, 2007 7:20 AM
To: User (user)
Subject: System Notification From Router - syslog - 2007-04-25 14:19:55
GMT+00:00

<?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.example.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.example.com/services/DDCEService</aml-session:To>
<aml-session:Path>
<aml-session:Via>http://www.example.com/appliance/uri</aml-session:Via>
</aml-session:Path>
<aml-session:From>http://www.example.com/appliance/uri</aml-session:From>
<aml-session:MessageId>M2:69000101:C9D9E20B</aml-session:MessageId>
</aml-session:Session>
</soap-env:Header>
<soap-env:Body>
<aml-block:Block xmlns:aml-block="http://www.example.com/2004/01/aml-block">
<aml-block:Header>
<aml-block:Type>http://www.example.com/2005/05/callhome/syslog</aml-block:Type>
<aml-block:CreationDate>2007-04-25 14:19:55 GMT+00:00</aml-block:CreationDate>
<aml-block:Builder>
<aml-block:Name>Cat6500</aml-block:Name>
<aml-block:Version>2.0</aml-block:Version>
</aml-block:Builder>
```

```
<aml-block:BlockGroup>
<aml-block:GroupId>G3:69000101:C9F9E20C</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.example.com/2005/05/callhome" version="1.0">
<ch:EventTime>2007-04-25 14:19:55 GMT+00:00</ch:EventTime>
<ch:MessageDescription>03:29:29: %CLEAR-5-COUNTERS: Clear counter on all interfaces by
console</ch:MessageDescription>
<ch:Event>
<ch:Type>syslog</ch:Type>
<ch:SubType></ch:SubType>
<ch:Brand>Cisco Systems</ch:Brand>
<ch:Series>Catalyst 6500 Series Switches</ch:Series>
</ch:Event>
<ch:CustomerData>
<ch:UserData>
<ch:Email>user@example.com</ch:Email>
</ch:UserData>
<ch:ContractData>
<ch:CustomerId>12345</ch:CustomerId>
<ch:SiteId>building 1</ch:SiteId>
<ch:ContractId>abcdefg12345</ch:ContractId>
<ch:DeviceId>WS-C6509@C@69000101</ch:DeviceId>
</ch:ContractData>
<ch:SystemInfo>
<ch:Name>Router</ch:Name>
<ch:Contact></ch:Contact>
<ch:ContactEmail>user@example.com</ch:ContactEmail>
<ch:ContactPhoneNumber>+1 408 555-1212</ch:ContactPhoneNumber>
<ch:StreetAddress>270 E. Tasman Drive, San Jose, CA</ch:StreetAddress>
</ch:SystemInfo>
</ch:CustomerData>
<ch:Device>
<rme:Chassis xmlns:rme="http://www.example.com/rme/4.0">
<rme:Model>WS-C6509</rme:Model>
<rme:HardwareVersion>1.0</rme:HardwareVersion>
<rme:SerialNumber>69000101</rme:SerialNumber>
<rme:AdditionalInformation>
<rme:AD name="PartNumber" value="73-3438-03 01" />
<rme:AD name="SoftwareVersion" value="12.2(20070421:012711)" />
</rme:AdditionalInformation>
</rme:Chassis>
</ch:Device>
</ch:CallHome>
</aml-block:Content>
<aml-block:Attachments>
<aml-block:Attachment type="inline">
<aml-block:Name>show logging</aml-block:Name>
<aml-block:Data encoding="plain">
<![CDATA[
Syslog logging: enabled (0 messages dropped, 0 messages rate-limited, 0 flushes, 0
overruns, xml disabled, filtering disabled)
    Console logging: level debugging, 53 messages logged, xml disabled,
                     filtering disabled
    Monitor logging: level debugging, 0 messages logged, xml disabled,
                     filtering disabled
    Buffer logging: level debugging, 53 messages logged, xml disabled,
                    filtering disabled
```

```
    Exception Logging: size (4096 bytes)
    Count and timestamp logging messages: disabled
    Trap logging: level informational, 72 message lines logged

Log Buffer (8192 bytes):

00:00:54: curr is 0x20000

00:00:54: RP: Currently running ROMMON from F2 region
00:01:05: %SYS-5-CONFIG_I: Configured from memory by console
00:01:09: %SYS-5-RESTART: System restarted --
Cisco IOS Software, s72033_rp Software (s72033_rp-ADVENTERPRISEK9_DBG-VM), Experimental
Version 12.2(20070421:012711)
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Thu 26-Apr-07 15:54 by xxx

Firmware compiled 11-Apr-07 03:34 by integ Build [100]


00:01:01: %PFREDUN-6-ACTIVE: Initializing as ACTIVE processor for this switch

00:01:01: %SYS-3-LOGGER_FLUSHED: System was paused for 00:00:00 to ensure console
debugging output.

00:03:00: SP: SP: Currently running ROMMON from F1 region
00:03:07: %C6K_PLATFORM-SP-4-CONFREG_BREAK_ENABLED: The default factory setting for config
register is 0x2102.It is advisable to retain 1 in 0x2102 as it prevents returning to
ROMMON when break is issued.

00:03:18: %SYS-SP-5-RESTART: System restarted --
Cisco IOS Software, s72033_sp Software (s72033_sp-ADVENTERPRISEK9_DBG-VM), Experimental
Version 12.2(20070421:012711)
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Thu 26-Apr-07 18:00 by xxx
00:03:18: %SYS-SP-6-BOOTTIME: Time taken to reboot after reload =  339 seconds
00:03:18: %OIR-SP-6-INSPS: Power supply inserted in slot 1
00:03:18: %C6KPWR-SP-4-PSOK: power supply 1 turned on.
00:03:18: %OIR-SP-6-INSPS: Power supply inserted in slot 2
00:01:09: %SSH-5-ENABLED: SSH 1.99 has been enabled
00:03:18: %C6KPWR-SP-4-PSOK: power supply 2 turned on.
00:03:18: %C6KPWR-SP-4-PSREDUNDANTMISMATCH: power supplies rated outputs do not match.
00:03:18: %C6KPWR-SP-4-PSREDUNDANTBOTHSUPPLY: in power-redundancy mode, system is
operating on both power supplies.
00:01:10: %CRYPTO-6-ISAKMP_ON_OFF: ISAKMP is OFF
00:01:10: %CRYPTO-6-ISAKMP_ON_OFF: ISAKMP is OFF
00:03:20: %C6KENV-SP-4-FANHIOUTPUT: Version 2 high-output fan-tray is in effect
00:03:22: %C6KPWR-SP-4-PSNOREDUNDANCY: Power supplies are not in full redundancy, power
usage exceeds lower capacity supply
00:03:26: %FABRIC-SP-5-FABRIC_MODULE_ACTIVE: The Switch Fabric Module in slot 6 became
active.
00:03:28: %DIAG-SP-6-RUN_MINIMUM: Module 6: Running Minimal Diagnostics...
00:03:50: %DIAG-SP-6-DIAG_OK: Module 6: Passed Online Diagnostics
00:03:50: %OIR-SP-6-INSCARD: Card inserted in slot 6, interfaces are now online
00:03:51: %DIAG-SP-6-RUN_MINIMUM: Module 3: Running Minimal Diagnostics...
00:03:51: %DIAG-SP-6-RUN_MINIMUM: Module 7: Running Minimal Diagnostics...
00:03:51: %DIAG-SP-6-RUN_MINIMUM: Module 9: Running Minimal Diagnostics...
00:01:51: %MFIB_CONST_RP-6-REPLICATION_MODE_CHANGE: Replication Mode Change Detected.
Current system replication mode is Ingress
00:04:01: %DIAG-SP-6-DIAG_OK: Module 3: Passed Online Diagnostics
00:04:01: %OIR-SP-6-DOWNGRADE: Fabric capable module 3 not at an appropriate hardware
revision level, and can only run in flowthrough mode
00:04:02: %OIR-SP-6-INSCARD: Card inserted in slot 3, interfaces are now online
00:04:11: %DIAG-SP-6-DIAG_OK: Module 7: Passed Online Diagnostics
00:04:14: %OIR-SP-6-INSCARD: Card inserted in slot 7, interfaces are now online
```

```
00:04:35: %DIAG-SP-6-DIAG_OK: Module 9: Passed Online Diagnostics
00:04:37: %OIR-SP-6-INSCARD: Card inserted in slot 9, interfaces are now online
00:00:09: DaughterBoard (Distributed Forwarding Card 3)

Firmware compiled 11-Apr-07 03:34 by integ Build [100]


00:00:22: %SYS-DFC4-5-RESTART: System restarted --
Cisco IOS Software, c6lc2 Software (c6lc2-SPDBG-VM), Experimental Version
12.2(20070421:012711)
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Thu 26-Apr-07 17:20 by xxx
00:00:23: DFC4: Currently running ROMMON from F2 region
00:00:25: %SYS-DFC2-5-RESTART: System restarted --
Cisco IOS Software, c6slc Software (c6slc-SPDBG-VM), Experimental Version
12.2(20070421:012711)
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Thu 26-Apr-07 16:40 by username1
00:00:26: DFC2: Currently running ROMMON from F2 region
00:04:56: %DIAG-SP-6-RUN_MINIMUM: Module 4: Running Minimal Diagnostics...
00:00:09: DaughterBoard (Distributed Forwarding Card 3)

Firmware compiled 11-Apr-07 03:34 by integ Build [100]

slot_id is 8

00:00:31: %FLASHFS_HES-DFC8-3-BADCARD: /bootflash:: The flash card seems to be corrupted
00:00:31: %SYS-DFC8-5-RESTART: System restarted --
Cisco IOS Software, c6lc2 Software (c6lc2-SPDBG-VM), Experimental Version
12.2(20070421:012711)
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Thu 26-Apr-07 17:20 by username1
00:00:31: DFC8: Currently running ROMMON from S (Gold) region
00:04:59: %DIAG-SP-6-RUN_MINIMUM: Module 2: Running Minimal Diagnostics...
00:05:12: %DIAG-SP-6-RUN_MINIMUM: Module 8: Running Minimal Diagnostics...
00:05:13: %DIAG-SP-6-RUN_MINIMUM: Module 1: Running Minimal Diagnostics...
00:00:24: %SYS-DFC1-5-RESTART: System restarted --
Cisco IOS Software, c6slc Software (c6slc-SPDBG-VM), Experimental Version
12.2(20070421:012711)
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Thu 26-Apr-07 16:40 by username1
00:00:25: DFC1: Currently running ROMMON from F2 region
00:05:30: %DIAG-SP-6-DIAG_OK: Module 4: Passed Online Diagnostics
00:05:31: %SPAN-SP-6-SPAN_EGRESS_REPLICATION_MODE_CHANGE: Span Egress HW Replication Mode
Change Detected. Current replication mode for unused asic session 0 is Centralized
00:05:31: %SPAN-SP-6-SPAN_EGRESS_REPLICATION_MODE_CHANGE: Span Egress HW Replication Mode
Change Detected. Current replication mode for unused asic session 1 is Centralized
00:05:31: %OIR-SP-6-INSCARD: Card inserted in slot 4, interfaces are now online
00:06:02: %DIAG-SP-6-DIAG_OK: Module 1: Passed Online Diagnostics
00:06:03: %OIR-SP-6-INSCARD: Card inserted in slot 1, interfaces are now online
00:06:31: %DIAG-SP-6-DIAG_OK: Module 2: Passed Online Diagnostics
00:06:33: %OIR-SP-6-INSCARD: Card inserted in slot 2, interfaces are now online
00:04:30: %XDR-6-XDRIPCNOTIFY: Message not sent to slot 4/0 (4) because of IPC error
timeout. Disabling linecard. (Expected during linecard OIR)
00:06:59: %DIAG-SP-6-DIAG_OK: Module 8: Passed Online Diagnostics
00:06:59: %OIR-SP-6-DOWNGRADE_EARL: Module 8 DFC installed is not identical to system PFC
and will perform at current system operating mode.
00:07:06: %OIR-SP-6-INSCARD: Card inserted in slot 8, interfaces are now online

Router#]]></aml-block:Data>
</aml-block:Attachment>
</aml-block:Attachments>
</aml-block:Block>
</soap-env:Body>
```

```
</soap-env:Envelope>
```

Default Settings for Call Home

- Call Home feature status: disabled
- User-defined profile status: active
- Predefined Cisco TAC profile status: inactive
- Transport method: email
- Message format type: XML
- Destination message size for a message sent in long text, short text, or XML format: 3,145,728
- Alert group status: enabled
- Call Home message severity threshold: 0 (debugging)
- Message rate limit for messages per minute: 20
- AAA Authorization: disabled
- Call Home syslog message throttling: enabled
- Data privacy level: normal

How to Configure Call Home

- Configuring Call Home Customer Contact Information, page 24-21
- Configuring Destination Profiles, page 24-22
- Subscribing to Alert Groups, page 24-31
- Configuring Call Home Data Privacy, page 24-37
- Enabling Call Home, page 24-37
- Configuring Call Home Traffic Rate Limiting, page 24-38
- Configuring Syslog Throttling, page 24-38
- Testing Call Home Communications, page 24-38
- Configuring the Smart Call Home Service, page 24-42

Configuring Call Home Customer Contact Information

To configure the customer contact information, perform this task:

	Command	Purpose
Step 1	`Router#` **`configure terminal`**	Enters configuration mode.
Step 2	`Router(config)#` **`call-home`**	Enters Call Home configuration mode.
Step 3	`Router(cfg-call-home)#` **`contact-email-addr`** *`email-address`*	(Optional for anonymous mode) Assigns the customer's email address. Enter up to 200 characters in email address format with no spaces.

	Command	Purpose
Step 4	`Router(cfg-call-home)# phone-number +phone-number`	(Optional) Assigns the customer's phone number. **Note** The number must begin with a plus (**+**) prefix, and may contain only dashes (-) and numbers. Enter up to 16 characters. If you include spaces, you must enclose your entry in quotes (“”).
Step 5	`Router(cfg-call-home)# street-address street-address`	(Optional) Assigns the customer's street address where RMA equipment can be shipped. Enter up to 200 characters. If you include spaces, you must enclose your entry in quotes (“”).
Step 6	`Router(cfg-call-home)# customer-id text`	(Optional) Identifies the customer ID. Enter up to 64 characters. If you include spaces, you must enclose your entry in quotes (“”).
Step 7	`Router(cfg-call-home)# site-id text`	(Optional) Identifies the customer site ID. Enter up to 200 characters. If you include spaces, you must enclose your entry in quotes (“”).
Step 8	`Router(cfg-call-home)# contract-id text`	(Optional) Identifies the customer's contract ID for the switch. Enter up to 64 characters. If you include spaces, you must enclose your entry in quotes (“”).

This example shows the configuration of contact information:

```
Router# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# call-home
Router(cfg-call-home)# contact-email-addr username@example.com
Router(cfg-call-home)# phone-number +1-800-555-4567
Router(cfg-call-home)# street-address "1234 Picaboo Street, Any city, Any state, 12345"
Router(cfg-call-home)# customer-id Customer1234
Router(cfg-call-home)# site-id Site1ManhattanNY
Router(cfg-call-home)# contract-id Company1234
Router(cfg-call-home)# exit
Router(config)#
```

Configuring Destination Profiles

- Destination Profile Overview, page 24-23
- Configuring Call Home to Use VRF, page 24-23
- Configuring a Destination Profile to Send Email Messages, page 24-24
- Configuring an Anonymous Mode Profile, page 24-26
- Configuring an HTTP Proxy Server, page 24-27
- Configuring Syslog Throttling, page 24-38
- Destination Profile Management, page 24-28

Destination Profile Overview

A destination profile contains the required delivery information for an alert notification. At least one destination profile is required. You can configure multiple destination profiles of one or more types.

You can use the predefined destination profile or define a profile. If you define a new destination profile, you must assign a profile name.

You can configure the following attributes for a destination profile:

- Profile name—A string that uniquely identifies each user-defined destination profile. The profile name is limited to 31 characters and is not case-sensitive. You cannot use **all** as a profile name.
- Transport method—The transport mechanism, either email or HTTP (including HTTPS), for delivery of alerts.
  - For user-defined destination profiles, email is the default, and you can enable either or both transport mechanisms. If you disable both methods, email will be enabled.
  - For the predefined Cisco TAC profile, you can enable either transport mechanism, but not both.
- Destination address—The actual address related to the transport method to which the alert should be sent.
- Message formatting—The message format used for sending the alert.
  - For user-defined destination profiles, the format options are long-text, short-text, or XML. The default is XML.
  - The predefined Cisco TAC profile uses XML.
- Message size—The maximum destination message size. The valid range is 50 to 3,145,728 bytes and the default is 3,145,728 bytes.

Note

- The Call Home feature provides a predefined profile named CiscoTAC-1 that is inactive by default. The CiscoTAC-1 profile is intended for use with the Smart Call Home service, which requires certain additional configuration steps to enable the service with the Call Home feature. For more information about this profile, see the "Using the Predefined CiscoTAC-1 Destination Profile" section on page 24-30.
- If you use the Cisco Smart Call Home service, the destination profile must use the XML message format.

Configuring Call Home to Use VRF

To configure Call Home to use a VRF interface for Call Home email or for HTTP messages, perform this task:

	Command or Action	Purpose
Step 1	`Router#` **`configure terminal`**	Enters configuration mode.
Step 1	`Router(config)#` **`interface`** *`type`*	Selects an interface to configure.
Step 2	`Router(config-if)#` **`ip address`** *`ip_address mask`*	Assigns an IP address and subnet mask to the interface.

	Command or Action	Purpose
Step 3	`Router(config-if)# vrf forwarding call_home_vrf_name`	Associates the *call_home_vrf_name* VRF instance with the interface.
Step 4	`Router(config-if)# exit`	Exits interface configuration mode.

This example shows how to configure Call Home to use a VRF interface:

```
Router# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# interface gigabitethernet 1/1
Router(config-if)# ip address 10.10.10.10 0.0.0.0
Router(config-if)# vrf forwarding call_home_vrf
Router(config-if)# exit
Router(config)#
```

Configuring a Destination Profile to Send Email Messages

- Configuring Call Home to Use VRF for Email Messages, page 24-24 (optional)
- Configuring the Mail Server, page 24-25 (required)
- Configuring a Destination Profile for Email, page 24-25 (required)

Note To send Call Home email messages through a VRF interface, configure Call Home to use VRF (see "Configuring Call Home to Use VRF" section on page 24-23).

Configuring Call Home to Use VRF for Email Messages

To configure Call Home to use a VRF instance for Call Home email messages, perform this task:

	Command or Action	Purpose
Step 1	`Router# configure terminal`	Enters configuration mode.
Step 2	`Router(config)# call-home`	Enters Call Home configuration submode.
Step 3	`Router(cfg-call-home)# vrf call_home_vrf_name`	Specifies the VRF instance to use for Call Home email messages.

This example shows how to configure Call Home to use a VRF interface:

```
Router# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# call-home
Router(cfg-call-home)# vrf call_home_vrf
Router(cfg-call-home)# exit
Router(config)#
```

Configuring the Mail Server

To use the email message transport, perform this task:

	Command or Action	Purpose
Step 1	`Router# configure terminal`	Enters global configuration mode.
Step 2	`Router(config)# call-home`	Enters call home configuration mode.
Step 3	`Router(cfg-call-home)# mail-server {ipv4-address | ipv6-address | name} priority number`	Specifies an email server and its relative priority among configured email servers, where: • *ipv4-address*—Specifies an IPv4 address for the mail server. • *ipv6-address*—Specifies an IPv6 address for the mail server. • *name*—Specifies the mail server's fully qualified domain name (FQDN) of 64 characters or less. • *number*—Assigns a number between 1 (highest priority) and 100 (lowest priority). Higher priority (lower priority numbers) are tried first. • Repeat to define backup email servers (maximum four backup email servers, for a total of five email servers.

The following example shows the configuration of a primary mail server (named "smtp.example.com") and secondary mail server at IP address 192.168.0.1:

```
Router# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# call-home
Router(cfg-call-home)# mail-server smtp.example.com priority 1
Router(cfg-call-home)# mail-server 192.168.0.1 priority 2
Router(cfg-call-home)# exit
Router(config)#
```

Configuring a Destination Profile for Email

To configure a destination profile for email transport, complete this task:

	Command or Action	Purpose
Step 1	`Router# configure terminal`	Enters global configuration mode.
Step 2	`Router(config)# call-home`	Enters call home configuration mode.
Step 3	`Router(cfg-call-home)# sender from email-address`	(Optional) Assigns the email address that will appear in the from field in Call Home email messages. If no address is specified, the contact email address is used.
Step 4	`Router(cfg-call-home)# sender reply-to email-address`	(Optional) Assigns the email address that will appear in the reply-to field in Call Home email messages.
Step 5	`Router(cfg-call-home)# source-ip-address ip_address`	(Optional) Assigns a source IPv4 or IPv6 address that will be used for Call Home email messages.

	Command or Action	Purpose
Step 6	`Router(cfg-call-home)# source-interface interface-name`	(Optional) Specifies the source interface name to send Call Home e-mail messages. If no source interface name or source ip address is specified, an interface in the routing table is used.
Step 7	`Router(config-call-home)# profile name`	Enters call home destination profile configuration mode for the specified destination profile name. If the specified destination profile does not exist, it is created.
Step 8	`Router(cfg-call-home-profile)# destination transport-method email`	Configures the message transport method for email. (This is the default.)
Step 9	`Router(cfg-call-home-profile)# destination address email email_address`	Configures the destination email address to which Call Home messages are sent.
Step 10	`Router(cfg-call-home-profile)# destination preferred-msg-format {long-text | short-text | xml}`	(Optional) Configures a preferred message format. The default is XML.
Step 11	`Router(cfg-call-home-profile)# destination message-size bytes`	(Optional) Configures a maximum destination message size (from 50 to 3145728 bytes) for the destination profile. The default is 3145728 bytes.
Step 12	`Router(cfg-call-home-profile)# active`	(Optional) Enables the destination profile. By default, a user-defined profile is enabled when it is created.
Step 13	`Router(cfg-call-home-profile)# exit`	Exits call home destination profile configuration mode and returns to call home configuration mode.
Step 14	`Router(cfg-call-home)# end`	Returns to privileged EXEC mode.

Configuring an Anonymous Mode Profile

To configure an anonymous mode profile, perform this task:

	Command or Action	Purpose
Step 1	**`configure terminal`** **Example:** `Router# configure terminal`	Enters configuration mode.
Step 2	**`call-home`** **Example:** `Router(config)# call-home`	Enters the Call Home configuration submode.

	Command or Action	Purpose
Step 3	**profile** *name* **Example:** `Router(cfg-call-home) profile CiscoTAC-1`	Selects the TAC profile and enters profile configuration mode.
Step 4	**anonymous-reporting-only** **Example:** `Router(cfg-call-home-profile)# anonymous-reporting-only`	Enables anonymous mode for TAC profile. **Note** By default, CiscoTAC-1 profile sends a full report of all types of events subscribed in the profile. When **anonymous-reporting-only** is set, only crash, inventory, and test messages will be sent.

Configuring an HTTP Proxy Server

To specify an HTTP proxy server for Call Home HTTP(S) messages, perform this task:

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enters configuration mode.
Step 2	**call-home** **Example:** `Router(config)# call-home`	Enters Call Home configuration submode.
Step 3	**http-proxy** {*ipv4-address* | *ipv6-address* | *name*} **port** *port-number* **Example:** `Router(cfg-call-home)# http-proxy 1.1.1.1 port 1`	Specifies the proxy server for the HTTP request.

Configuring a Destination Profile to Send HTTP Messages

- Configuring the HTTP Source Interface, page 24-27
- Configuring a Destination Profile for HTTP, page 24-28

Configuring the HTTP Source Interface

To configure an HTTP client source interface, perform this task:

	Command or Action	Purpose
Step 1	`Router#` **configure terminal**	Enters global configuration mode.
Step 2	`Router(config)#` **ip http client source-interface** *type number*	Configures the source interface for the HTTP client. If the interface is associated with a VRF instance, the HTTP messages use the VRF instance.

Configuring a Destination Profile for HTTP

To configure a destination profile for HTTP transport, perform this task:

	Command or Action	Purpose
Step 1	`Router# configure terminal`	Enters global configuration mode.
Step 2	`Router(config)# call-home`	Enters call home configuration mode.
Step 3	`Router(config-call-home)# profile name`	Enters call home destination profile configuration mode for the specified destination profile. If the specified destination profile does not exist, it is created.
Step 4	`Router(cfg-call-home-profile)# destination transport-method http`	Enables the HTTP message transport method.
Step 5	`Router(cfg-call-home-profile)# destination address http url`	Configures the destination URL to which Call Home messages are sent. **Note** When entering a destination URL, include either **http://** or **https://**, depending on whether the server is a secure server. If the destination is a secure server, you must also configure a trustpoint CA.
Step 6	`Router(cfg-call-home-profile)# destination preferred-msg-format {long-text | short-text | xml}`	(Optional) Configures a preferred message format. The default is XML.
Step 7	`Router(cfg-call-home-profile)# destination message-size bytes`	(Optional) Configures a maximum destination message size for the destination profile.
Step 8	`Router(cfg-call-home-profile)# active`	Enables the destination profile. By default, a profile is enabled when it is created.
Step 9	`Router(cfg-call-home-profile)# exit`	Exits call home destination profile configuration mode and returns to call home configuration mode.
Step 10	`Router(cfg-call-home)# end`	Returns to privileged EXEC mode.

This example shows how to configure a destination profile for HTTP transport:

```
Router# configure terminal
Router(config)# call-home
Router(config-call-home)# profile test
Router(cfg-call-home-profile)# destination transport-method http
Router(cfg-call-home-profile)# destination address http https://example.url.com
Router(cfg-call-home-profile)# destination preferred-msg-format xml
Router(cfg-call-home-profile)# destination message-size 3,145,728
Router(cfg-call-home-profile)# active
Router(cfg-call-home-profile)# exit
Router(cfg-call-home)# end
```

Destination Profile Management

- Activating and Deactivating a Destination Profile, page 24-29
- Copying a Destination Profile, page 24-29
- Renaming a Destination Profile, page 24-30
- Using the Predefined CiscoTAC-1 Destination Profile, page 24-30
- Verifying the Call Home Profile Configuration, page 24-30

Activating and Deactivating a Destination Profile

Except for the predefined CiscoTAC-1 profile, all Call Home destination profiles are automatically activated when you create them. If you do not want to use a profile right way, you can deactivate the profile. The CiscoTAC-1 profile is inactive by default and must be activated to be used.

To activate or deactivate a destination profile, perform this task:

	Command or Action	Purpose
Step 1	`Router# configure terminal`	Enters global configuration mode.
Step 2	`Router(config)# call-home`	Enters call home configuration mode.
Step 3	`Router(config-call-home)# profile name`	Enters call home destination profile configuration mode for the specified destination profile. If the specified destination profile does not exist, it is created.
Step 4	`Router(cfg-call-home-profile)# active`	Enables the destination profile. By default, a new profile is enabled when it is created.
Step 5	`Router(cfg-call-home-profile)# no active`	Disables the destination profile.
Step 6	`Router(cfg-call-home)# end`	Exits call home destination profile configuration mode and returns to privileged EXEC mode.

This example shows how to activate a destination profile:

```
Router# configure terminal
Router(config)# call-home
Router(config-call-home)# profile test
Router(cfg-call-home-profile)# active
Router(cfg-call-home)# end
```

This example shows how to deactivate a destination profile:

```
Router# configure terminal
Router(config)# call-home
Router(config-call-home)# profile test
Router(cfg-call-home-profile)# no active
Router(cfg-call-home)# end
```

Copying a Destination Profile

To create a new destination profile by copying an existing profile, perform this task:

	Command or Action	Purpose
Step 1	`Router# configure terminal`	Enters global configuration mode.
Step 2	`Router(config)# call-home`	Enters call home configuration mode.
Step 3	`Router(cfg-call-home)# copy profile source_profile target_profile`	Creates a new destination profile with the same configuration settings as the existing destination profile, where: • *source_profile*—Specifies the existing name of the profile. • *target_profile*—Specifies a name for the new copy of the profile.

This example shows how to activate a destination profile:

```
Router# configure terminal
Router(config)# call-home
Router(config-call-home)# profile test
Router(cfg-call-home-profile)# copy profile profile1 profile2
```

Renaming a Destination Profile

To change the name of an existing profile, perform this task:

	Command or Action	Purpose
Step 1	`Router# configure terminal`	Enters global configuration mode.
Step 2	`Router(config)# call-home`	Enters call home configuration mode.
Step 3	`Router(cfg-call-home)# rename profile` *source_profile target_profile*	Renames an existing source file, where: • *source_profile*—Specifies the existing name of the profile. • *target_profile*—Specifies a new name for the existing profile.

This example shows how to activate a destination profile:

```
Router# configure terminal
Router(config)# call-home
Router(config-call-home)# profile test
Router(cfg-call-home-profile)# rename profile profile1 profile2
```

Using the Predefined CiscoTAC-1 Destination Profile

The CiscoTAC-1 profile is automatically configured in the Call Home feature for your use with the Cisco Smart Call Home service. This profile includes certain information, such as the destination email address and HTTPS URL, and default alert groups for communication with the Smart Call Home service. Some of these attributes, such as the destination email address, HTTPS URL, and message format cannot be modified.

You can use either email or http transport to communicate with the Smart Call Home service backend server. By default, the CiscoTAC-1 profile is inactive and uses email as the default transport method. To use email transport, you only need to enable the profile. However, to use this profile with the Cisco Smart Call Home service secure server (via HTTPS), you not only must enable the profile, but you must also change the transport method to HTTP as shown in the following example:

```
Router# configure terminal
Router(config)# call-home
Router(config-call-home)# profile CiscoTAC-1
Router(cfg-call-home-profile)# destination transport-method http
Router(cfg-call-home-profile)# active
```

For more information about additional requirements for Configuring the Smart Call Home service, see the "Smart Call Home Overview" section on page 24-42.

Verifying the Call Home Profile Configuration

To verify the profile configuration for Call Home, use the **show call-home profile** command. See the "Verifying the Call Home Configuration" section on page 24-45 for more information and examples.

Subscribing to Alert Groups

- Overview of Alert Group Subscription, page 24-31
- Configuring Alert Group Subscription, page 24-31
- Periodic Notification, page 24-33
- Message Severity Thresholds, page 24-33
- Configuring the Snapshot Command List, page 24-35
- Enabling AAA Authorization to Run IOS Commands for Call Home Messages, page 24-35
- Configuring Syslog Pattern Matching, page 24-36

Overview of Alert Group Subscription

An alert group is a predefined subset of Call Home alerts supported in all switches. Different types of Call Home alerts are grouped into different alert groups depending on their type. These alert groups are available:

- Crash
- Configuration
- Diagnostic
- Environment
- Inventory
- Snapshot
- Syslog

The triggering events for each alert group are listed in the "Alert Group Trigger Events and Commands" section on page 24-5, and the contents of the alert group messages are listed in the "Message Contents" section on page 24-13.

You can select one or more alert groups to be received by a destination profile.

Note A Call Home alert is only sent to destination profiles that have subscribed to the alert group containing that Call Home alert. In addition, the alert group must be enabled.

Configuring Alert Group Subscription

To subscribe a destination profile to an alert group, perform this task:

	Command	Purpose
Step 1	`Router#` **`configure terminal`**	Enters configuration mode.
Step 2	`Router(config)#` **`call-home`**	Enters Call Home configuration submode.
Step 3	`Router(cfg-call-home)#` **`alert-group`** {**`all`** | **`configuration`** | **`crash`** | **`diagnostic`** | **`environment`** | **`inventory`** | **`snapshot`** | **`syslog`**}	Enables the specified alert group. Use the keyword **all** to enable all alert groups. By default, all alert groups are enabled.

	Command	Purpose
Step 4	`Router(cfg-call-home)#` **`profile`** *`name`*	Enters the Call Home destination profile configuration submode for the specified destination profile.
Step 5	`Router(cfg-call-home-profile)#` **`subscribe-to-alert-group all`**	Subscribes this destination profile to all available alert groups using the lowest severity. **Note** • This command subscribes to the syslog debug default severity. This causes a large number of syslog messages to generate. You should subscribe to alert groups individually, using appropriate severity levels and patterns when possible. • As an alternative, you can subscribe to alert groups individually by specific type, as described in the following steps.
Step 6	`Router(cfg-call-home-profile)#` **`subscribe-to-alert-group configuration`** [**`periodic`** {**`daily`** *`hh:mm`* | **`monthly`** *`date hh:mm`* | **`weekly`** *`day hh:mm`*}]	Subscribes this destination profile to the Configuration alert group. The Configuration alert group can be configured for periodic notification, as described in the "Periodic Notification" section on page 24-33.
Step 7	**`subscribe-to-alert-group crash`** **Example:** `Router(cfg-call-home-profile)#` `subscribe-to-alert-group crash`	Subscribes to the Crash alert group in user profile. By default, TAC profile subscribes to the Crash alert group and cannot be unsubscribed.
Step 8	`Router(cfg-call-home-profile)#` **`subscribe-to-alert-group diagnostic`** [**`severity`** {**`catastrophic`** | **`critical`** | **`debugging`** | **`disaster`** | **`fatal`** | **`major`** | **`minor`** | **`normal`** | **`notification`** | **`warning`**}]	Subscribes this destination profile to the Diagnostic alert group. The Diagnostic alert group can be configured to filter messages based on severity, as described in the "Message Severity Thresholds" section on page 24-33.
Step 9	`Router(cfg-call-home-profile)#` **`subscribe-to-alert-group environment`** [**`severity`** {**`catastrophic`** | **`critical`** | **`debugging`** | **`disaster`** | **`fatal`** | **`major`** | **`minor`** | **`normal`** | **`notification`** | **`warning`**}]	Subscribes this destination profile to the Environment alert group. The Environment alert group can be configured to filter messages based on severity, as described in the "Message Severity Thresholds" section on page 24-33.
Step 10	`Router(cfg-call-home-profile)#` **`subscribe-to-alert-group inventory`** [**`periodic`** {**`daily`** *`hh:mm`* | **`monthly`** *`date hh:mm`* | **`weekly`** *`day hh:mm`*}]	Subscribes this destination profile to the Inventory alert group. The Inventory alert group can be configured for periodic notification, as described in the "Periodic Notification" section on page 24-33.
Step 11	**`subscribe-to-alert-group snapshot`** [**`periodic`** {**`daily`** *`hh:mm`* | **`hourly`** *`mm`* | **`interval`** *`mm`* | **`monthly`** *`date hh:mm`* | **`weekly`** *`day hh:mm`*}] **Example:** `Router(cfg-call-home-profile)#` `subscribe-to-alert-group snapshot periodic daily 12:00`	Subscribes this destination profile to the Snapshot alert group. The Snapshot alert group can be configured for periodic notification, as described in the "Periodic Notification" section on page 24-33. By default, the Snapshot alert group has no command to run. To have the output of commands appear in the snapshot message, add the commands into the alert group, as described in the "Configuring the Snapshot Command List" section on page 24-35.

	Command	Purpose
Step 12	`Router(cfg-call-home-profile)#` **`subscribe-to-alert-group syslog`** [**`severity`** {**`catastrophic`** | **`disaster`** | **`fatal`** | **`critical`** | **`major`** | **`minor`** | **`warning`** | **`notification`** | **`normal`** | **`debugging`**} [**`pattern`** *`string`*]]	Subscribes this destination profile to the Syslog alert group. The Syslog alert group can be configured to filter messages based on severity, as described in the "Message Severity Thresholds" section on page 24-33. You can specify a pattern to be matched in the syslog message, as described in the "Configuring Syslog Pattern Matching" section on page 24-36. If the pattern contains spaces, you must enclose it in quotes ("").
Step 13	`Router(cfg-call-home-profile)#` **`exit`**	Exits the Call Home destination profile configuration submode.

Periodic Notification

When you subscribe a destination profile to either the configuration, snapshot, or inventory alert group (see the "Configuring Alert Group Subscription" section on page 24-31), you can choose to receive the alert group messages asynchronously or periodically at a specified time. The sending period can be one of the following:

- Daily—Specify the time of day to send, using an hour:minute format *hh:mm*, with a 24-hour clock (for example, 14:30).
- Weekly—Specify the day of the week and time of day in the format *day hh:mm*, where the day of the week is spelled out (for example, monday).
- Monthly—Specify the numeric date, from 1 to 31, and the time of day, in the format *date hh:mm*.

The Snapshot alert group supports these options:

- Interval—Specifies the interval at which the periodic message is sent, from 1 to 60 minutes.
- Hourly—Specifies the minute of the hour at which the periodic message is sent, from 0 to 59 minutes.

Message Severity Thresholds

When you subscribe a destination profile to the Diagnostic, Environment, or Syslog alert group (see the "Configuring Alert Group Subscription" section on page 24-31), you can set a threshold for the sending of alert group messages based on the message's level of severity. Any message with a value lower than the destination profile's specified threshold is not sent to the destination.

The severity threshold is configured using the keywords in Table 24-13, and ranges from catastrophic (level 9, highest level of urgency) to debugging (level 0, lowest level of urgency). If no severity threshold is configured, the default is debugging (level 0).

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

Table 24-13 Severity and Syslog Level Mapping

Level	Keyword	Syslog Level	Description
9	**catastrophic**	N/A	Network-wide catastrophic failure.
8	**disaster**	N/A	Significant network impact.

Table 24-13 Severity and Syslog Level Mapping (continued)

Level	Keyword	Syslog Level	Description
7	**fatal**	Emergency (0)	System is unusable.
6	**critical**	Alert (1)	Critical conditions, immediate attention needed.
5	**major**	Critical (2)	Major conditions.
4	**minor**	Error (3)	Minor conditions.
3	**warning**	Warning (4)	Warning conditions.
2	**notification**	Notice (5)	Basic notification and informational messages. Possibly independently insignificant.
1	**normal**	Information (6)	Normal event signifying return to normal state.
0	**debugging**	Debug (7)	Debugging messages.

Configuring the Snapshot Command List

To configure the snapshot command list, perform this task:

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enters configuration mode.
Step 2	**call-home** **Example:** `Router(config)# call-home`	Enters Call Home configuration submode.
Step 3	**alert-group-config snapshot** **Example:** `Router(cfg-call-home)# alert-group-config snapshot`	Enters snapshot configuration mode. The **no** or **default** command will remove all snapshot command.
Step 4	**add-command** *command string* **Example:** `Router(cfg-call-home-snapshot)# add-command "show version"`	Adds the command to the Snapshot alert group. The **no** or **default** command will remove the corresponding command. • *command string*—IOS command. Maximum length is 128.
Step 5	**exit** **Example:** `Router(cfg-call-home-snapshot)# exit`	Exits and saves the configuration.

Enabling AAA Authorization to Run IOS Commands for Call Home Messages

To enable AAA authorization to run IOS commands that enable the collection of output for a Call Home message, perform this task:

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enters configuration mode.
Step 2	**call-home** **Example:** `Router(config)# call-home`	Enters Call Home configuration submode.

	Command or Action	Purpose
Step 3	**aaa-authorization** **Example:** `Router(cfg-call-home)# aaa-authorization`	Enables AAA authorization. **Note** By default, AAA authorization is disabled for Call Home.
Step 4	**aaa-authorization** [**username** *username*] **Example:** `Router(cfg-call-home)# aaa-authorization username user`	Specifies the username for authorization. • **username** *username*—Default username is callhome. Maximum length is 64.

Configuring Syslog Pattern Matching

When you subscribe a destination profile to the Syslog alert group (see the "Configuring Alert Group Subscription" section on page 24-31), you can optionally specify a text pattern to be matched within each syslog message. If you configure a pattern, a Syslog alert group message will be sent only if it contains the specified pattern and meets the severity threshold. If the pattern contains spaces, you must enclose it in quotes ("") when configuring it. You can specify up to five patterns for each destination profile.

Configuring Call Home Data Privacy

The call home data privacy feature scrubs data that is potentially sensitive (for example, IP addresses) from running configuration files to protect customer privacy.

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enters configuration mode.
Step 2	**call-home** **Example:** `Router(config)# call-home`	Enters the Call Home configuration submode.
Step 3	**data-privacy** {**level** {**normal** | **high**} | **hostname**} **Example:** `Router(cfg-call-home)# data-privacy level high`	Scrubs data from running configuration file to protect customer privacy. **Note** Enabling the data-privacy command can affect CPU utilization when scrubbing a large amount of data. • **normal** (default)—Scrubs all normal-level commands. • **high**—Scrubs all normal-level commands plus the IP domain name and IP address commands. • **hostname**—Scrubs all high-level commands plus the hostname command. **Note** In VSS mode, scrubbing the hostname from configuration messages can cause smart call home processing failure on the Cisco TAC backend server.

The following example shows the command output sent in XML message format to the Cisco TAC backend server, with the SR number specified:

```
Router# call-home send "show version; show run" http tac-service-request 123456
```

The following example shows the command output sent to the Cisco TAC backend server through the HTTP protocol and forwarded to a user-specified email address:

```
Router# call-home send "show version; show run" http destination-email-address
user@company.com
```

Enabling Call Home

To enable the Call Home feature, perform this task:

	Command	Purpose
Step 1	`Router# configure terminal`	Enters configuration mode.
Step 2	`Router(config)# service call-home`	Enables the Call Home feature.

Configuring Call Home Traffic Rate Limiting

To configure Call Home traffic rate limiting, perform this task:

	Command	Purpose
Step 1	`Router# configure terminal`	Enters configuration mode.
Step 2	`Router(config)# call-home`	Enters Call Home configuration submode.
Step 3	`Router(cfg-call-home)# rate-limit number`	(Optional) Specifies a limit on the number of messages sent per minute, from 1 to 60. The default is 20.

This example shows how to configure Call Home traffic rate limiting:

```
Router# configure terminal
Router(config)# call-home
Router(config-call-home)# profile test
Router(cfg-call-home-profile)# rate-limit 20
```

Configuring Syslog Throttling

To enable call-home syslog message throttling, which avoids sending repetitive call-home syslog messages, perform this task:

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enters configuration mode.
Step 2	**call-home** **Example:** `Router(config)# call-home`	Enters Call Home configuration submode.
Step 3	**syslog-throttling** **Example:** `Router(cfg-call-home)# syslog-throttling`	Enables call-home syslog message throttling, which avoids sending repetitive call-home syslog messages. By default, syslog message throttling is enabled.

Testing Call Home Communications

- Sending a Call Home Test Message Manually, page 24-39
- Sending a Call Home Alert Group Message Manually, page 24-39
- Sending a Request for an Analysis and Report, page 24-40
- Sending the Output of a Command, page 24-41

Sending a Call Home Test Message Manually

To manually send a Call Home test message, perform this task:

Command	Purpose
`Router# call-home test ["test-message"] profile name`	Sends a test message to the specified destination profile. The user-defined test message text is optional, but must be enclosed in quotes (“”) if it contains spaces. If no user-defined message is configured, a default message will be sent.

Sending a Call Home Alert Group Message Manually

To manually trigger a Call Home alert group message, perform this task:

	Command	Purpose
Step 1	`Router# call-home send alert-group configuration [profile name]`	Sends a configuration alert group message to one destination profile if specified, or to all subscribed destination profiles.
Step 2	`Router# call-home send alert-group {crash | diagnostic | snapshot} {module number | slot/subslot | slot/bay_number | switch x module number} [profile name]`	Sends a diagnostic alert group message to the configured destination profile if specified, or to all subscribed destination profiles. You must specify the module or port whose diagnostic information should be sent. If a virtual switching system (VSS) is used, you must specify the switch and module.
Step 3	`Router# call-home send alert-group inventory [profile name]`	Sends an inventory alert group message to one destination profile if specified, or to all subscribed destination profiles.

- Only the configuration, diagnostic, and inventory alert groups can be sent manually.
- When you manually trigger a configuration, diagnostic, or inventory alert group message and you specify a destination profile name, a message is sent to the destination profile regardless of the profile’s active status, subscription status, or severity setting.
- When you manually trigger a configuration or inventory alert group message and do not specify a destination profile name, a message is sent to all active profiles that have either a normal or periodic subscription to the specified alert group.
- When you manually trigger a diagnostic alert group message and do not specify a destination profile name, the command will cause the following actions:
  - For any active profile that subscribes to diagnostic events with a severity level of less than minor, a message is sent regardless of whether the module or interface has observed a diagnostic event.
  - For any active profile that subscribes to diagnostic events with a severity level of minor or higher, a message is sent only if the specified module or interface has observed a diagnostic event of at least the subscribed severity level; otherwise, no diagnostic message is sent to the destination profile.

Sending a Request for an Analysis and Report

To submit a request for report and analysis information from the Cisco Output Interpreter tool, perform this task:

	Command	Purpose
Step 1	`Router# call-home request output-analysis "show-command" [profile name] [ccoid user-id]`	Sends the output of the specified show command for analysis. The show command must be contained in quotes (“”).
Step 2	`Router# call-home request {config-sanity | bugs-list | command-reference | product-advisory} [profile name] [ccoid user-id]`	Sends the output of a predetermined set of commands such as the **show running-config all**, **show version**, and **show module** (standalone) or **show module switch all** (VS system) commands, for analysis. Specifies the type of report requested.

- If a **profile** *name* is specified, the request will be sent to the profile. If no profile is specified, the request will be sent to the Cisco TAC profile. The recipient profile does not need to be enabled for the call-home request. The profile should specify the email address where the transport gateway is configured so that the request message can be forwarded to the Cisco TAC and the user can receive the reply from the Smart Call Home service.
- The **ccoid** *user-id* is the registered identifier of the Smart Call Home user. If the *user-id* is specified, the response will be sent to the email address of the registered user. If no *user-id* is specified, the response will be sent to the contact email address of the device.
- Based on the keyword specifying the type of report requested, the following information will be returned:
  - **config-sanity**—Information on best practices as related to the current running configuration.
  - **bugs-list**—Known bugs in the running version and in the currently applied features.
  - **command-reference**—Reference links to all commands in the running configuration.
  - **product-advisory**—Product Security Incident Response Team (PSIRT) notices, End of Life (EOL) or End of Sales (EOS) notices, or field notices (FN) that may affect devices in your network.

This example shows a request for analysis of a user-specified show command:

```
Router# call-home request output-analysis "show diagnostic result module all" profile TG
```

Sending the Output of a Command

To execute one or more CLI commands and send the command output through HTTP or e-mail, perform this task:

Command	Purpose
`Router# call-home send {cli command | cli list} [email email msg-format {long-text | xml} | http {destination-email-address email}] [tac-service-request SR#]`	Executes the CLI or CLI list and sends output via e-mail or HTTP. • {*cli command* | *cli command list*}—Specifies the IOS command or list of IOS commands (separated by ';'). It can be any run command, including commands for all modules. The commands must be contained in quotes (""). • Without the **email** or **http** keywords, the output is sent in long-text format with the specified service request number to the Cisco TAC (attach@cisco.com). • **email** *email* **msg-format** {**long-text** | **xml**}—The **email** keyword and an e-mail address sends the command output that address. • **http** {**destination-email-address** *email*}—The **http** keyword sends the command output the to Smart Call Home backend server (URL specified in TAC profile) in XML format. To have the backend server forward the message to an e-mail address, specify **destination-email-address** *email* . The e-mail address, the service request number, or both must be specified. • **tac-service-request** *SR#*—Specifies the service request number. The service request number is required if the e-mail address is not specified or if a Cisco TAC email address is specified.

The following example shows how to send the output of a command to a user-specified e-mail address:

```
Router# call-home send "show diag" email support@example.com
```

The following example shows the command output sent in long-text format to attach@cisco.com, with the SR number specified:

```
Router# call-home send "show version; show run" tac-service-request 123456
```

The following example shows the command output sent in XML message format to callhome@cisco.com:

```
Router# call-home send "show version; show run" email callhome@cisco.com msg-format xml
```

The following example shows the command output sent in XML message format to the Cisco TAC backend server, with the SR number specified:

```
Router# call-home send "show version; show run" http tac-service-request 123456
```

The following example shows the command output sent to the Cisco TAC backend server through the HTTP protocol and forwarded to a user-specified email address:

```
Router# call-home send "show version; show run" http destination-email-address
user@company.com
```

Configuring the Smart Call Home Service

- Smart Call Home Overview, page 24-42
- Smart Call Home Service Prerequisites, page 24-42
- Configuring Smart Call Home with a Single Command, page 24-43
- Enabling the Smart Call Home Service, page 24-44
- Start Smart Call Home Registration, page 24-45

Note Configuring Smart Call Home with a Single Command is an alternative to Enabling the Smart Call Home Service and Start Smart Call Home Registration.

Smart Call Home Overview

For application and configuration information of the Cisco Smart Call Home service, see the "Quick Start for Smart Call Home" section of the *Smart Call Home User Guide*:

http://www.cisco.com/en/US/docs/switches/lan/smart_call_home/SCH31_Ch1.html#Quick_Start_for_Smart_Call_Home

The user guide includes configuration examples for sending Smart Call Home messages directly from your device or through a 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 may not be connected directly to the Internet.

Because the Smart Call Home service uses HTTPS as the transport method, you must also configure its CA as a trustpoint, as described in the *Smart Call Home User Guide*.

Tip From the Smart Call Home website, you can download a basic configuration script to assist you in the configuration of the Call Home feature for use with Smart Call Home service and the Cisco TAC. The script also assists in configuring the trustpoint CA for secure communications with the Smart Call Home service. The script, provided on an as-is basis, can be downloaded from a link under the "Smart Call Home Resources" heading at:
https://supportforums.cisco.com/community/netpro/solutions/smart_services/smartcallhome

Smart Call Home Service Prerequisites

- Verify that you have an active Cisco Systems service contract for the device being configured.
- Verify that you have IP connectivity to the Cisco HTTPS server.
- Obtain the latest Cisco Systems server security certificate.

Configuring Smart Call Home with a Single Command

Note This procedure is an alternative to Enabling the Smart Call Home Service and Start Smart Call Home Registration.

To enable all Call Home basic configurations using a single command, perform this task:

	Command or Action	Purpose
Step 1	**configure terminal** **Example:** `Router# configure terminal`	Enters configuration mode.
Step 2	**call-home reporting** {**anonymous** | **contact-email-addr** *email-address*} [**http-proxy** {*ipv4-address* | *ipv6-address* | *name*} **port** *port-number*] **Example:** `Router(config)# call-home reporting contact-email-addr email@company.com`	Enables all Call Home basic configurations using a single command. • **anonymous**—Enables Call-Home TAC profile to only send crash, inventory, and test messages and send the messages in an anonymous way. • **contact-email-addr**—Enables Smart Call Home service full reporting capability and sends a full inventory message from Call-Home TAC profile to Smart Call Home server to start full registration process. • **http-proxy** {*ipv4-address* | *ipv6-address* | *name*}—An ipv4 or ipv6 address or server name. Maximum length is 64. • **port** *port-number*—Port number. Range is 1 to 65535. **Note** HTTP proxy option allows you to make use of your own proxy server to buffer and secure internet connections from your devices. **Note** After successfully enabling Call Home either in anonymous or full registration mode with the **call-home reporting** command, an inventory message is sent out. If Call Home is enabled in full registration mode, a Full Inventory message for full registration mode is sent out. If Call Home is enabled in anonymous mode, an anonymous inventory message is sent out. For more information about what is sent in these messages, see the "Alert Group Trigger Events and Commands" section on page 24-5.

Enabling the Smart Call Home Service

Note This procedure, with Start Smart Call Home Registration, is an alternative to Configuring Smart Call Home with a Single Command.

The CiscoTAC-1 profile is predefined in the Call Home feature to communicate using email to the backend server for the Smart Call Home service. The URL to the Cisco HTTPS backend server is also predefined. This profile is inactive by default.

Unlike other profiles that you can configure in Call Home to support both transport methods, the CiscoTAC-1 profile can only use one transport method at a time. To use this profile with the Cisco Smart Call Home HTTPS server, you must change the transport method from email to HTTP and enable the profile. In addition, you must minimally specify a contact email address and enable the Call Home feature.

To enable the Smart Call Home service, perform this task:

	Command or Action	Purpose
Step 1	`Router#` **`configure terminal`**	Enters global configuration mode.
Step 2	`Router(config)#` **`call-home`**	Enters call home configuration mode.
Step 3	`Router(config-call-home)#` **`profile CiscoTAC-1`**	Enters call home destination profile configuration mode for the CiscoTAC-1 destination profile.
Step 4	`Router(cfg-call-home-profile)#` **`destination transport-method http`**	(Required for HTTPS) Configures the message transport method for http.
Step 5	`Router(cfg-call-home-profile)#` **`active`**	Enables the destination profile.
Step 6	`Router(cfg-call-home-profile)#` **`exit`**	Exits call home destination profile configuration mode and returns to call home configuration mode.
Step 7	`Router(cfg-call-home)#` **`contact-email-addr`** *`customer_email_address`*	Assigns the customer's email address. Enter up to 200 characters in email address format with no spaces.
Step 8	`Router(cfg-call-home)#` **`exit`**	Exits call home configuration mode and returns to global configuration mode.
Step 9	`Router(config)#` **`service call-home`**	Enables the Call Home feature.
Step 10	`Router(config)#` **`exit`**	Exits global configuration mode and returns to privileged EXEC mode.
Step 11	`Router#` **`copy running-config startup-config`**	Saves the configuration.

This example shows how to enable the Smart Call Home service:

```
Router(cfg-call-home-profile)# destination transport-method http
Router(cfg-call-home-profile)# active
Router(cfg-call-home-profile)# exit
Router(cfg-call-home)# contact-email-addr username@example.com
Router(cfg-call-home)# exit
Router(config)# service call-home
Router(config)# exit
Router# copy running-config startup-config
```

Start Smart Call Home Registration

Note This procedure, with Enabling the Smart Call Home Service, is an alternative to Configuring Smart Call Home with a Single Command.

To start the Smart Call Home registration process, perform this task:

Command or Action	Purpose
`Router# call-home send alert-group inventory profile CiscoTAC-1`	Manually sends an inventory alert group message to the CiscoTAC-1 destination profile.

After the Smart Call Home service is registered, you will receive an email from Cisco Systems. Follow the instructions in the email. The instructions include these procedures:

- To complete the device registration, launch the Smart Call Home web application at the following URL:

  https://tools.cisco.com/sch/
- Accept the Legal Agreement.
- Confirm device registration for Call Home devices with pending registration.

For more information about using the Smart Call Home web application, see the *Smart Call Home User Guide*. This user guide also includes configuration examples for sending Smart Call Home messages directly from your device or through a 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 must not be connected directly to the Internet.

Verifying the Call Home Configuration

To display the configured Call Home information, perform these tasks:

Command	Purpose
`Router# show call-home`	Displays the Call Home configuration in summary.
`Router# show call-home detail`	Displays the Call Home configuration in detail.
`Router# show call-home alert-group`	Displays the available alert groups and their status.
`Router# show call-home mail-server status`	Checks and displays the availability of the configured email server(s).
`Router# show call-home profile {all | name}`	Displays the configuration of the specified destination profile. Use the keyword **all** to display the configuration of all destination profiles.
`Router# show call-home statistics [detail | profile profile_name]`	Displays the statistics of Call Home events.

Examples 24-1 to 24-9 show sample results with Release 15.1(1)SY when using different options of the **show call-home** command.

Example 24-1 Configured Call Home Information

```
Router# show call-home
Current call home settings:
    call home feature : enable
    call home message's from address: switch@example.com
    call home message's reply-to address: support@example.com

    vrf for call-home messages: Not yet set up

    contact person's email address: technical@example.com

    contact person's phone number: +1-408-555-1234
    street address: 1234 Any Street, Any city, Any state, 12345
    customer ID: ExampleCorp
    contract ID: X123456789
    site ID: SantaClara

    source ip address: Not yet set up
    source interface: GigabitEthernet7/2
    Mail-server[1]: Address: smtp.example.com Priority: 1
    Mail-server[2]: Address: 192.168.0.1 Priority: 2
    http proxy: 192.168.1.2:80

    aaa-authorization: disable
    aaa-authorization username: callhome (default)
    data-privacy: normal
    syslog throttling: enable

    Rate-limit: 20 message(s) per minute

    Snapshot command[0]: show version
    Snapshot command[1]: show module

Available alert groups:
    Keyword                  State   Description
    ------------------------ ------- -------------------------------
    configuration            Enable  configuration info
    crash                    Enable  crash and traceback info
    diagnostic               Enable  diagnostic info
    environment              Enable  environmental info
    inventory                Enable  inventory info
    snapshot                 Enable  snapshot info
    syslog                   Enable  syslog info

Profiles:
    Profile Name: campus-noc
    Profile Name: CiscoTAC-1

Router#
```

Example 24-2 Configured Call Home Information in Detail

```
Router# show call-home detail
Current call home settings:
    call home feature : enable
    call home message's from address: switch@example.com
    call home message's reply-to address: support@example.com

    vrf for call-home messages: Not yet set up

    contact person's email address: technical@example.com

    contact person's phone number: +1-408-555-1234
    street address: 1234 Any Street, Any city, Any state, 12345
    customer ID: ExampleCorp
    contract ID: X123456789
    site ID: SantaClara

    source ip address: Not yet set up
    source interface: GigabitEthernet7/2
    Mail-server[1]: Address: smtp.example.com Priority: 1
    Mail-server[2]: Address: 192.168.0.1 Priority: 2
    http proxy: 192.168.1.2:80

    aaa-authorization: disable
    aaa-authorization username: callhome (default)
    data-privacy: normal
    syslog throttling: enable

    Rate-limit: 20 message(s) per minute

    Snapshot command[0]: show version
    Snapshot command[1]: show module

Available alert groups:
    Keyword                  State   Description
    ------------------------ ------- -------------------------------
    configuration            Enable  configuration info
    crash                    Enable  crash and traceback info
    diagnostic               Enable  diagnostic info
    environment              Enable  environmental info
    inventory                Enable  inventory info
    snapshot                 Enable  snapshot info
    syslog                   Enable  syslog info

Profiles:

Profile Name: campus-noc
    Profile status: ACTIVE
    Profile mode: Full Reporting
    Preferred Message Format: long-text
    Message Size Limit: 3145728 Bytes
    Transport Method: email
    Email address(es): noc@example.com
    HTTP  address(es): Not yet set up

    Alert-group               Severity
    ------------------------  ------------
    inventory                 normal

    Syslog-Pattern            Severity
    ------------------------  ------------
    N/A                       N/A

Profile Name: CiscoTAC-1
    Profile status: ACTIVE
    Profile mode: Full Reporting
    Preferred Message Format: xml
    Message Size Limit: 3145728 Bytes
```

```
    Transport Method: email
    Email address(es): callhome@cisco.com
    HTTP  address(es): https://tools.cisco.com/its/service/oddce/services/DDCEService

    Periodic configuration info message is scheduled every 12 day of the month at 17:06

    Periodic inventory info message is scheduled every 12 day of the month at 16:51

    Alert-group               Severity
    ------------------------  ------------
    crash                     normal
    diagnostic                minor
    environment               minor
    inventory                 normal

    Syslog-Pattern            Severity
    ------------------------  ------------
    .*                        major

Router#
```

Example 24-3 Available Call Home Alert Groups

```
Router# show call-home alert-group
Available alert groups:
    Keyword                  State   Description
    ------------------------ ------- ------------------------------
    configuration            Enable  configuration info
    crash                    Enable  crash and traceback info
    diagnostic               Enable  diagnostic info
    environment              Enable  environmental info
    inventory                Enable  inventory info
    snapshot                 Enable  snapshot info
    syslog                   Enable  syslog info

Router#
```

Example 24-4 Email Server Status Information

```
Router# show call-home mail-server status
Please wait. Checking for mail server status ...

Translating "smtp.example.com"
    Mail-server[1]: Address: smtp.example.com Priority: 1 [Not Available]
    Mail-server[2]: Address: 192.168.0.1 Priority: 2 [Not Available]

Router#
```

Example 24-5 Information for All Destination Profiles (Predefined and User-Defined)

```
Router# show call-home profile all

Profile Name: campus-noc
    Profile status: ACTIVE
    Profile mode: Full Reporting
    Preferred Message Format: long-text
    Message Size Limit: 3145728 Bytes
    Transport Method: email
    Email address(es): noc@example.com
    HTTP  address(es): Not yet set up

    Alert-group               Severity
    ------------------------  ------------
    inventory                 normal
```

```
    Syslog-Pattern            Severity
    ------------------------  ------------
    N/A                       N/A

Profile Name: CiscoTAC-1
    Profile status: ACTIVE
    Profile mode: Full Reporting
    Preferred Message Format: xml
    Message Size Limit: 3145728 Bytes
    Transport Method: email
    Email address(es): callhome@cisco.com
    HTTP  address(es): https://tools.cisco.com/its/service/oddce/services/DDCEService

    Periodic configuration info message is scheduled every 12 day of the month at 17:06

    Periodic inventory info message is scheduled every 12 day of the month at 16:51

    Alert-group               Severity
    ------------------------  ------------
    crash                     normal
    diagnostic                minor
    environment               minor
    inventory                 normal

    Syslog-Pattern            Severity
    ------------------------  ------------
    .*                        major

Router#
```

Example 24-6 Information for a User-Defined Destination Profile

```
Router# show call-home profile campus-noc

Profile Name: campus-noc
    Profile status: ACTIVE
    Profile mode: Full Reporting
    Preferred Message Format: long-text
    Message Size Limit: 3145728 Bytes
    Transport Method: email
    Email address(es): noc@example.com
    HTTP  address(es): Not yet set up

    Alert-group               Severity
    ------------------------  ------------
    inventory                 normal

    Syslog-Pattern            Severity
    ------------------------  ------------
    N/A                       N/A

Router#
```

Example 24-7 Call Home Statistics

```
Router# show call-home statistics
Message Types    Total                Email                HTTP
-------------   -------------------- -------------------- ------------------
Total Success   1                    1                    0
    Config      0                    0                    0
    Crash       0                    0                    0
    Diagnostic  0                    0                    0
    Environment 0                    0                    0
    Inventory   0                    0                    0
    Snapshot    0                    0                    0
```

```
    SysLog      0                   0                   0
    Test        0                   0                   0
    Request     0                   0                   0
    Send-CLI    1                   1                   0

Total In-Queue  0                   0                   0
    Config      0                   0                   0
    Crash       0                   0                   0
    Diagnostic  0                   0                   0
    Environment 0                   0                   0
    Inventory   0                   0                   0
    Snapshot    0                   0                   0
    SysLog      0                   0                   0
    Test        0                   0                   0
    Request     0                   0                   0
    Send-CLI    0                   0                   0

Total Failed    0                   0                   0
    Config      0                   0                   0
    Crash       0                   0                   0
    Diagnostic  0                   0                   0
    Environment 0                   0                   0
    Inventory   0                   0                   0
    Snapshot    0                   0                   0
    SysLog      0                   0                   0
    Test        0                   0                   0
    Request     0                   0                   0
    Send-CLI    0                   0                   0

Total Ratelimit
      -dropped  0                   0                   0
    Config      0                   0                   0
    Crash       0                   0                   0
    Diagnostic  0                   0                   0
    Environment 0                   0                   0
    Inventory   0                   0                   0
    Snapshot    0                   0                   0
    SysLog      0                   0                   0
    Test        0                   0                   0
    Request     0                   0                   0
    Send-CLI    0                   0                   0

Last call-home message sent time: 2012-10-22 21:35:48 GMT+08:00
```

Example 24-8 Call Home Statistics Detail

```
Router# show call-home statistics detail
Type/Subtype           Total                Email                HTTP
-------------------   -------------------- -------------------- -------------------
Total Success         1                    1                    0
 Config/delta         0                    0                    0
 Config/full          0                    0                    0
 Crash/module crash   0                    0                    0
 Crash/system crash   0                    0                    0
 Crash/traceback      0                    0                    0
 Diagnostic           0                    0                    0
 Environment          0                    0                    0
 Inventory/delta      0                    0                    0
 Inventory/full       0                    0                    0
 Snapshot             0                    0                    0
 SysLog               0                    0                    0
 Test                 0                    0                    0
 Request              0                    0                    0
```

```
 Send-CLI             1                    1                    0

Total In-Queue        0                    0                    0
 Config/delta         0                    0                    0
 Config/full          0                    0                    0
 Crash/module crash   0                    0                    0
 Crash/system crash   0                    0                    0
 Crash/traceback      0                    0                    0
 Diagnostic           0                    0                    0
 Environment          0                    0                    0
 Inventory/delta      0                    0                    0
 Inventory/full       0                    0                    0
 Snapshot             0                    0                    0
 SysLog               0                    0                    0
 Test                 0                    0                    0
 Request              0                    0                    0
 Send-CLI             0                    0                    0

Total Failed          0                    0                    0
 Config/delta         0                    0                    0
 Config/full          0                    0                    0
 Crash/module crash   0                    0                    0
 Crash/system crash   0                    0                    0
 Crash/traceback      0                    0                    0
 Diagnostic           0                    0                    0
 Environment          0                    0                    0
 Inventory/delta      0                    0                    0
 Inventory/full       0                    0                    0
 Snapshot             0                    0                    0
 SysLog               0                    0                    0
 Test                 0                    0                    0
 Request              0                    0                    0
 Send-CLI             0                    0                    0

Total Ratelimit
      -dropped        0                    0                    0
 Config/delta         0                    0                    0
 Config/full          0                    0                    0
 Crash/module crash   0                    0                    0
 Crash/system crash   0                    0                    0
 Crash/traceback      0                    0                    0
 Diagnostic           0                    0                    0
 Environment          0                    0                    0
 Inventory/delta      0                    0                    0
 Inventory/full       0                    0                    0
 Snapshot             0                    0                    0
 SysLog               0                    0                    0
 Test                 0                    0                    0
 Request              0                    0                    0
 Send-CLI             0                    0                    0

Last call-home message sent time: 2012-10-22 21:35:48 GMT+08:00

Router#
```

Example 24-9 Call Home Statistics profile campus-noc

```
Router#show call-home statistics profile campus-noc
                                                        Rate-limit   Last msg sent
Type/Subtype       Subscribe Success Inqueue Failed  Drop           (GMT+08:00)
------------------ ------------------------------------------------------------
Config/delta       normal    0       0       0       0                n/a
Config/full        bootup    0       0       0       0                n/a
```

```
Config/full         ondemand  0       0       0       0                n/a
Config/full         periodic  0       0       0       0                n/a
Crash/module crash  normal    0       0       0       0                n/a
Crash/system crash  normal    0       0       0       0                n/a
Crash/system crash  ondemand  0       0       0       0                n/a
Crash/traceback     normal    0       0       0       0                n/a
Diagnostic          normal    0       0       0       0                n/a
Diagnostic          ondemand  0       0       0       0                n/a
Environment         normal    0       0       0       0                n/a
Inventory/delta     normal    0       0       0       0                n/a
Inventory/full      bootup    0       0       0       0                n/a
Inventory/full      ondemand  0       0       0       0                n/a
Inventory/full      periodic  0       0       0       0                n/a
Snapshot            normal    0       0       0       0                n/a
Snapshot            ondemand  0       0       0       0                n/a
SysLog              normal    0       0       0       0                n/a
Test                normal    0       0       0       0                n/a
Request             normal    0       0       0       0                n/a

Router#
```

Tip For additional information about Cisco Catalyst 6500 Series Switches (including configuration examples and troubleshooting information), see the documents listed on this page:

http://www.cisco.com/en/US/products/hw/switches/ps708/tsd_products_support_series_home.html

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