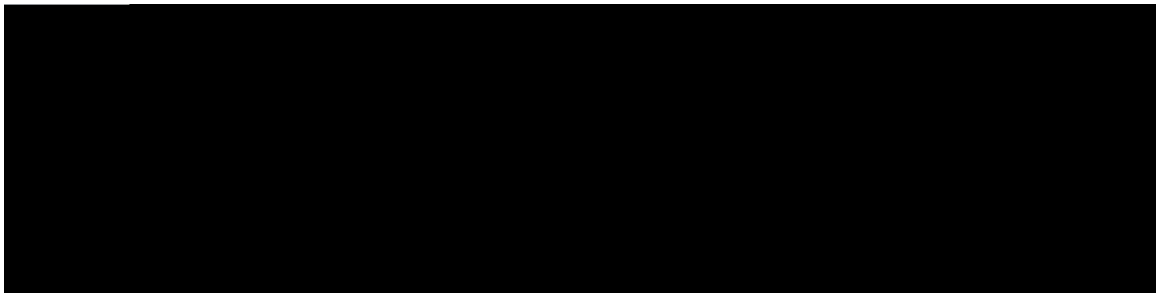

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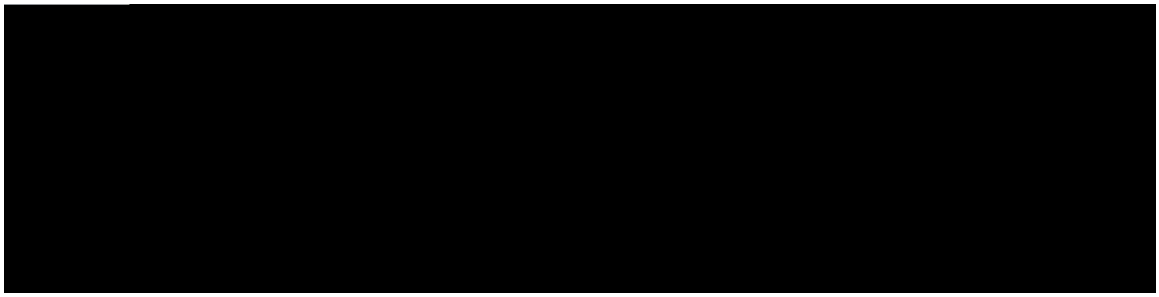
CHAPTER 20



Preface

This section briefly describes the objectives of this document and provides links to additional information on related products and services:

Related Documentation

- Documentation

Convention	Description
	A string is a nonquoted set of characters shown in

CHAPTER 1

CHAPTER 2

Section	Description
	Provides information

Using SSH to Access Console

Secure Shell (SSH) is a protocol which provides a secure remote access connection to network devices. To enable SSH support on the device:

Step 1 Configure the hostname:

```
Router#configure
```

```
Router#
```

Step 6 You now have access to the CLI in privileged EXEC mode and you can enter the necessary commands to complete your desired tasks.

Step 7 To exit the Telnet session, use the **exit** or **logout** command.

```
Router# logout
```

Accessing the CLI from a USB Serial Console Port

The router provides an additional mechanism for configuring the system: a type B miniport USB serial console that supports remote administration of the router using a type B USB-compliant cable. See the ِ‚Connecting to a Console Terminal M

T

	Comment

As a matter of routine maintenance on any Cisco router, users should back up the startup configuration file by copying the startup configuration file from NVRAM to one of the router's other file systems and, additionally, to a network server. Backing up the startup configuration file provides an easy method of recovering the startup configuration file if the startup configuration file in NVRAM becomes unusable for any reason.

The **copy** command can be

To perform a soft shutdown and then power

CLI Session Management

An inactivity timeout is configurable and can be enforced. Session locking provides

```
Router(config)# line console
```

o #

Information About Cisco Smart Licensing Client

How to Activate Cisco Smart Licensing Client

Enable Smart Licensing

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **license smart enable**
4. **exit**
5. **write memory**
6. **show license all**

DETAILED STEPS

	Command or Action	Purpose
	write memory Example:	Saves the running configuration to NVRAM.

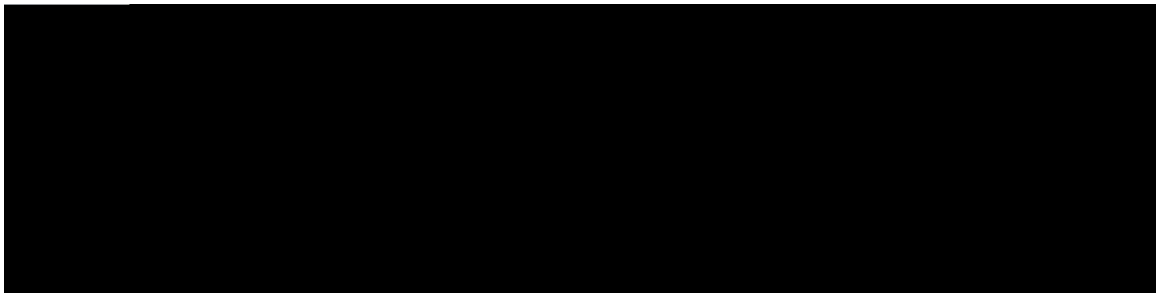
Configuration Examples for Cisco Smart Licensing Client

Example: Displays summary information about all licenses

The following example shows how to use the **show license all** command to display summary information about all ƒ

Example: Enabling Smart Licensing

The following example shows how to use the **license smart**



CHAPTER

You can

Logging

To specify the Gigabit Ethernet management interface as the source IP or IPv6 address for logging, enter the **logging host** *ip-address* **vrf Mgmt-intf** command:

```
Router(config)# logging host 172.17.1.1 vrf Mgmt-intf
```

SNMP-Related Services

To specify the Gigabit Ethernet management interface as the source of all SNMP trap mEth

```
Router(config)#RrfRgmt-intfR   c   c   c  \      ٣                          ٣
```

Attaching an ACL to VTY Lines

To

Legacy

An example showing the IOS web user interface home page is shown in the following figure.

router using

persistent web user interface transport map, you can define whether the graphics-based web user interface can be accessed through HTTP,

Step 2 Enter the **configur**

Similarly, the web browser's clock source, which is usually the personal computer, must display accurate time to

Step 2 Set the frequency of the auto-refresh interval using the drop-down menu.

Step 3 Set the frequency of the auto-refresh interval using the drop-down menu.

Step 4 Click the **Start** button to the right of the drop-down menu.
Immediately after

Enabling the web user interface using the default HTTPs port: Example

```
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# ip http secure-server
Router(config)# transport-map type persistent webui https-webui
Router(config-tmap)# secure-server
Router(config-tmap)# exit
Router(config)# transport type persistent webui input https-webui
*M
```

Console Port Overview

via diagnostic mode when the Cisco IOS process is not active. For

Configuring Persistent Telnet

Examples

In the following example, a transport map that will make all Telnet connections wait for a Cisco IOS XE vty line to become available before connecting to the router, while also allowing the user to interrupt the process and enter diagnostic mode, is configured and applied to the management Ethernet interface

x

Wait option: Wait

Method : ssh
Rule : wait with interrupt

Step 4 Use the reverse telnet method on the modem to verify the modem connectivity and configuration string:

CHAPTER 7

Installing the Software

This chapter includes the following sections:

The

To enable the license for the **HSECK9** feature, the **securityk9** technology package is also required. For more information about the **securityk9** technology package, see securityk9, on page 72.

Performance

The performance feature, which allows

LED Indicators

For information on LEDs on the routerthe

```
Building configuration...
[OK]
```

Cisco IOS-XE software,

Another variation of this procedure obtains the consolidated package from a USB flash drive. This is described in Installing Subpackages from a Consolidated Package on a Flash Drive, on page 86.

Before You Begin

Copy the consolidated package to the TFTP server.

SUMMARY STEPS

1. **show version**
2. **dir bootflash:**
3. **show platform**
4. **mkdir bootflash:** *URL-to-directory-name*
5. **request platform**

```
software.


ROM: IOS-XE ROMMON

Router uptime is 0 minutes
Uptime for this control processor is 3 minutes
System returned to ROM by reload
System image file is "tftp:           d
```

```
Slot         CPLD Version        Firmware Version
---------    ------------------- ------------------------------------
0            12090323            15.3(01r)S [ciscouser-ISRRO...
1            12090323            15.3(01r)S [ciscouser-ISRRO...
2            12090323            15.3(01r)S [ciscouser-ISRRO...
R0           12090323            15.3(01r)S [ciscouser-ISRRO...
F0           12090323            15.3(01r)S [ciscouser-ISRRO...

Router# mkdir bootflash:isr4400-universalk9.dir1
Create directory filename [isr4400-universalk9.dir1]?
Created dir bootflash:/isr4400-universalk9.dir1
Router# request platform software package expand file bootflash:isr4400-universalk9.NIM.bin

to bootflash:isr4400-universalk9.dir1
Verifying parameters
Validating package type
Copying package files
SUCCESS:
```

Package: firmware_sm_1t3e3,

```
File: bootflash:isr4400-universalk9.dir1/isr4400-firmware_dsp_sp2700-BLD-BLD_MCP_DEV_LATEST_
20120710_164422SSA.pkg, on: RP1/0
Built: 2012-07-10_16.22, by: mcpre
File SHA1 checksum: 8334565edf7843fe246783b1d5c6ed933d96d79e

Package: firmware_fpge, version: 2012-07-10_16.22_mcpre, status: n/a
```

Installing Subpackages from a Consolidated Package on a Flash Drive

The steps for installing subpackages from a consolidated package on a USB flash drive are similar to those described in Installing Subpackages from a Consolidated Package, on page 80.

Step 1 **show version**

Step 2 **dir usb***n***:**

Step 3 **show platform**

Step 4 **mkdir bootflash:***URL-to-directory-name*

Step 5 **request platform software package expand fileusb***n***:** ***package-name to URL-to-directory-name***

Step 6 **reload**

Step 7 **boot** *URL-to-directory-name/***packages.conf**

Step 8 **show version installed**

ROM:RSA Self Test Passed
ROM:Sha512 Self Test Passed
Self Tests

000:

SUMMAR

```
Router# mkdir
```

File SHA1 checksum:

Upgrading the Firmware on xDSL NIMs

To upgrade the firmware on a xDSL Network Interface Module (NIM), perform these steps:

Before You Begin

When you

```
Copy in progress...CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCC
425288648 bytes copied in 44.826 secs (9487544 bytes/sec)
Router#
Router#
Router#dir bootflash:mydir
```

```
*Dec 12 09:28:51.438: %CMRP-3-PFU_MISSING:cmand:  The platform does not detect a power
supply in slot 1
*Dec 12
```

```
*Dec 12 09:30:31.152: %LINK-3-UPDOWN: Interface ATM0/1/0, changed state to down
*Dec 12 09:30:31.470: %LINK-3-UPDOWN: Interface Ethernet0/2/0, changed state to down
*Dec 12 09:30:31.470: %LINK-3-UPDOWN: Interface ATM0/2/0, changed state to down
*Dec 12 09:31:03.074: %CONTROLLER-5-UPDOWN:
```

Total LOLS: 0   0

	DS Channel1	DS Channel0	US Channel1	US Channel0
Speed (kbps):	NA	100014	NA	100014
SRA Previous Speed:	NA	0	NA	0
Previous Speed:	NA	0	NA	0

```
                    Proceed with reload of module? [confirm]
                    Router#
                    *Dec 12 09:55:59.645: %IOSXE_OIR-6-SOFT_RELOADSPA: SPA(NIM-VAB-A)
                    reloaded on subslot 0/2
                    *Dec 12 09:55:59.646: %SPA_OIR-6-OFFLINECARD: SPA (NIM-VAB-A) offline in subslot 0/2
                    *Dec 12 09:55:59.647: %CONTROLLER-5-UPDOWN: Controller VDSL 0/2/0, changed state to down
                    *Dec 12 09:57:22.514: new extended attributes received from iomd(slot 0 bay 2 board 0)
                    *Dec 12 09:57:22.514: %IOSXE_OIR-6-SOFT_RELOADSPA: SPA(NIM-VAB-A)
                     reloaded on subslot 0/2
                    *Dec 12 09:57:22.515: %SPA_OIR-6-OFFLINECARD: SPA (NIM-VAB-A) offline in subslot 0/2
                    Router#
                    Router#
                    *Dec 12 09:58:35.471: %SPA_OIR-6-ONLINECARD: SPA (NIM-VAB-A) online in subslot 0/2
stwn                *Dec 12 09:58:37.470: %LINK-3-UPDOWN: Interface Ethernet0/2/0, changed state to
```

[redacted]

CHAPTER 8

SUMMARY STEPS

1. **configure terminal**
2. **hostname** *name*
3. **enable secret** *password*
4. **no ip domain-lookup**

DETAILED STEPS

SUMMARY STEPS

1. **interface gigabitethernet** *slot/bay/port*
2. **ip address** *ip-address mask*
3. **ipv6 address** *ipv6-address/prefix*
4. **no shutdown**
5. **exit**

DETAILED STEPS

To configure a loopback interface, follow these steps.

SUMMARY STEPS

1. **interface** *type number*
2. (Option 1) **ip address** *ip-address mask*
3. (Option 2) **ipv6 address** *ipv6-address/prefix*
4. **exit**

DETAILED STEPS

Verifying Loopback Interface Configuration

Enter the **show interface loopback** command. You should see an output

SUMMARY STEPS

1. **line** [**aux | console | tty | vty**] *line-number*
2. **password** *password*
3. **login**
4. **exec-timeout** *minutes* [*seconds*]
5. **exit**
6. **line** [**aux | console | tty | vty**] *line-number*
7. **password** *password*

	Command or Action	Purpose

Step 6	**line** [**aux** | **console** | **tty** | **vty**] *line-number*
	
	Example:
	`Router(config)# line vty 0 4`
	`Router(config-line)#`
		Specifies a virtual terminal for remote console access.

	pq Ω ¶	Specifies a uniqu - password ; h ծ Ե Ե

N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1,

DETAILED STEPS

```
vrf definition Mgmt-intf
 !
 address-family ipv4
 exit-address-family
 !
 address-family ipv6
 exit-address-family
!
enable password cisco
!
no aaa new-model
!
transport-map type console consolehandler
 banner wait ^C
Waiting for IOS vty line
^C
 banner diagnostic ^C
Welcome to diag mode
^C
!
clock timezone EST -4 0
!
!


ip domain name
```

DETAILED STEPS

Configuring the Interfaces: Example

The following example shows the **interface gigabitEthernet** command being used to add the interface and set the IP address.

CHAPTER 10

Cisco IOS Process Resources

You can view CPU utilization statistics on active processes and see the amount of memory being used in these processes using the **show memory** command and the **show process cpu** command. These commands provide a representation of memory and CPU utilization from the perspective of only the Cisco IOS process; they do not include information for resources on the

The following sections describe the fields in

BootFlash Disk Monitoring

The bootflash disk must have enough free space to store two core dumps.

Clearing a Visual Alarm

```
Source                    Severity      Description [Index]
------                    --------      -------------------
Power Supply Bay 0        CRITICAL      Power Supply Missing [0]
GigabitEthernet0/0/0      CRITICAL      Physical Port Link Down [1]
GigabitEthernet0/0/1      CRITICAL      Physical Port Link Down [1]
GigabitEthernet0/0/2      CRITICAL      Physical Port Link Down [1]
GigabitEthernet0/0/3      CRITICAL      Physical Port Link Down [1]
xcvr container 0/0/0      INFO          Transceiver Missing [0]
xcvr container 0/0/1      INFO          Transceiver Missing [0]
xcvr container 0/0/2      INFO          Transceiver Missing [0]
xcvr container 0/0/3      INFO          Transceiver Missing [0]
```

To view critical alarms, use the **show facility-alarm status critical** command, as shown

```
  Firmware version            : 12.2(20120618:163328)[ciscouser-ESGROM_20120618_GAMMA 101]
Slot:
```

CHAPTER 11

	Note the time of the message and investigate the kernel error message logs to learn more about the problem and see if it is correctable. If the problem cannot be corrected or the logs are not helpful, copy the error message exactly as a

	This message will appear with other messages related to the process. Check the other messages to determine the reason for the failures and see if

	This message will appear with other messages related to the process. Check the other messages to determine the reason for the failures and see if corrective action can be taken. If the problem persists, copy the message exactly as it appears on the console or in the system log. Research and attempt to resolve the issue using the tools and utilities provided at: http://www.cisco.com/tac. With some Tht

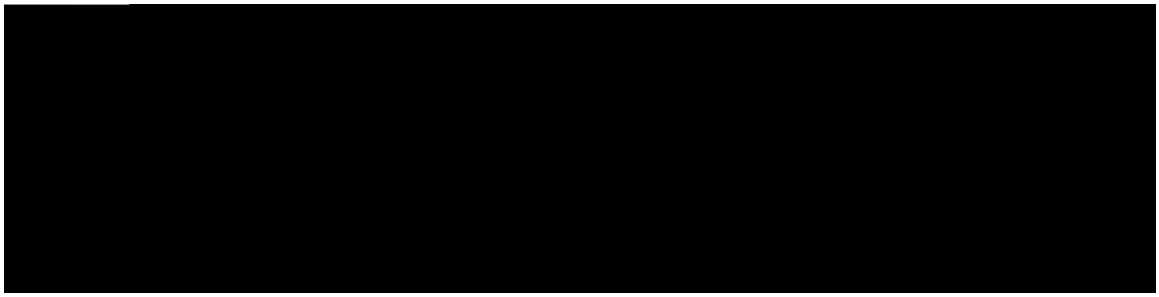
Error Message: `%PMAN-3-PROC_BAD_EXECUTABLE : Bad executable or permission problem with process [chars]`

Explanation	Recommended Action
The executable file used for the process is bad or has permission problem.	Ensure that the named executable is replaced with the correct executable.

Explanation	Recommended Action
	No user

CHAPTER 12

binos	Notice
binos/brand	Notice
bipc	Notice
bsignal	Notice
btrace	Notice
cce	Notice
cdllib	Notice
cef	Notice
chasfs	Notice
chasutil	Notice
erspan	Notice
ess	Notice
ether-channel	Notice
evlib	Notice
evutil	Notice
file_alloc	Notice
fman_rp	Notice
fpm	Notice
fw	Notice
icmp	Notice
interfaces	Notice
iosd	Notice
ipc	Notice
ipclog	Notice
iphc	Notice



CHAPTER

Environmental Monitoring and Reporting Functions

Monitoring and reporting functions allow you

Status Level	Description
	An out-of-tolerance temperature

Main Power Supply in Slot 1 is Powered Off

When the main power supply in slot 1 is powered off, the system displays the following message:

```
%IOSXE_PEM-3-PEMFAIL: The PEM in slot 1 is switched off or encounterlays
```

These commands show the

```
*Sep 12 00:45:13.956: Inserting into queue 1 on spoke 173.
*Sep 12 00:45:13.956: Rotation count=60 Displacement=0
```

debug platform software cman env monitor polling: Example

```
Router# debug platform software cman env monitor polling
platform software cman env monitor polling debugging is on
Router#
*Sep 12 00:46:13.962:
```

debug power [inline|main]: Example

In this example, there is one 1000W power supply and one 450W power supply. Inline and main power output is shown.

```
Router# debug
```

Product Identifier (PID) :

```
Slot Sensor Current State Reading
---- ------ ------------- -------
P0 Temp: Temp 1 Normal 28 Celsius
P0 Temp: Temp 2 Normal 43 Celsius
P0 Temp: Temp 3 Normal 44 Celsius
P0 V: PEM Out Normal 12404 mV
P0 I: PEM In Normal 1 A
P0 I: PEM Out Normal 7 A
P0 P: In pwr Normal 106 Watts
P0 P: Out pwr Normal 87 Watts
P0 RPM: fan0 Normal 2952 RPM
P2 RPM: fan0 Normal 4421 RPM
P2 RPM: fan1 Normal 4394 RPM
P2 RPM: fan2 Normal 4433 RPM
P2 RPM: fan3 Normal 4410 RPM
P2 P: pwr Normal 6 Watts
POE0 Temp: Temp 1 Normal 44 Celsius
POE0 I: 12v In Normal 2 A
POE0 V: 12v In Normal 12006 mV
```

```
Temp: Temp 2 P0 Normal 43 Celsius
Temp: Temp 3 P0 Normal 44 Celsius
V: PEM Out P0 Normal 12404 mV
I: PEM In P0 Normal 1 A
I: PEM Out P0 Normal 8 A
P: In pwr P0 Normal 111 Watts
P:
```

PID: XXX-XXXX-XX , VID: XXX, SN: DCA1614Y022

NAME: "Fan Tray", DESCR: "Cisco ISR4450 Fan Assembly"
PID: ACS-4450-FANASSY , VID: , SN:

NAME: "POE Module 0", DESCR: "Single POE for Cisco ISR4451"
PID: PWR-POE-4400 , **N**

show platform diag: Example

```
Router# show platform diag
Chassis type:
```

Internal state N

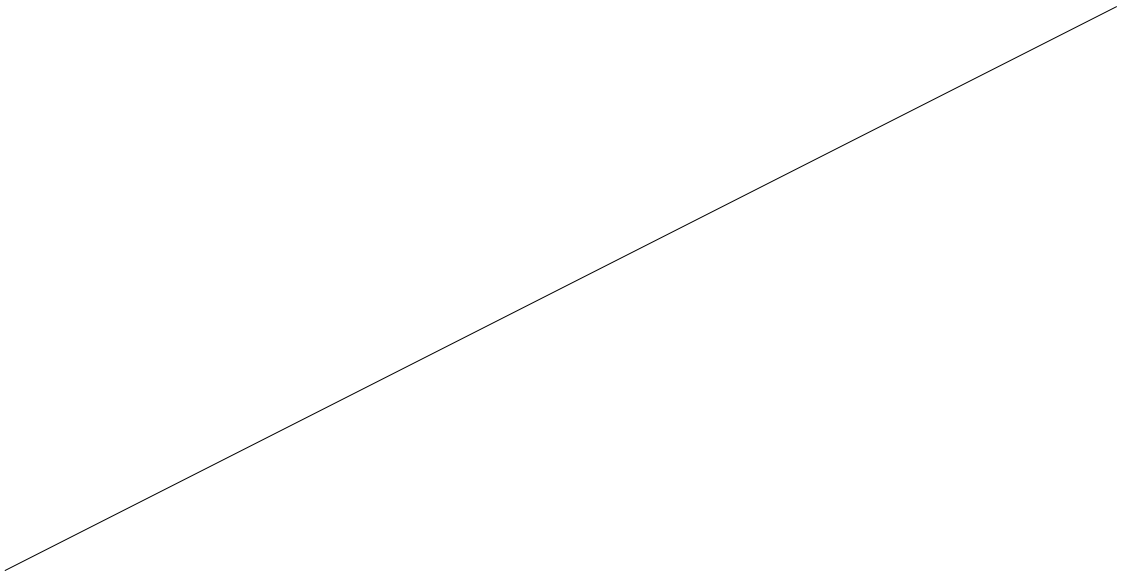
```
IRQ: 0.00, SIRQ: 0.10, IOwait: 0.00
```

show diag slot RO eeprom detail: Example

```
Router# show diag slot R0 eeprom detail
Slot R0
```

Total

To ensure the PoE feature is functional on the external PoE module, verify the availabili ex



Monitoring Your Power Supply

Y

Note CDP is not enabled by default on Cisco Aggregation Services Routers or on the Cisco CSR 1000v.

For more information on using CDP, see Cisco Discovery

Technical Assistance

Description	Link
The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies. To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds. Access to most tools M lsa	http://www.cisco.com/cisco/web/support/index.html

Groups of redundant interfaces are known as redundancy groups. The following figure depicts the active-standby device scenario. It shows how the

Restrictions

- The failover time for a box-to-box application is higher

Verifying Interchassis High Availability

Use the following **show** commands to

The following example shows details of the redundancy application transport client:

```
Router#
```

```
Negotiation: Enabled
Priority: 50
```

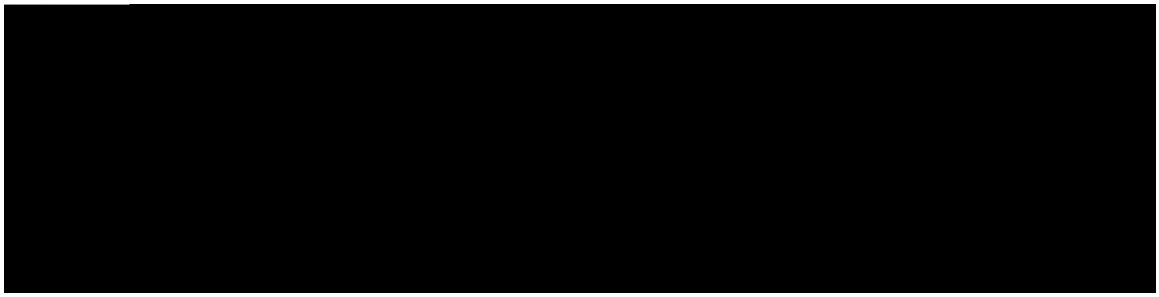
```
Negotiation: Enabled
Priority: 50
Protocol state: Standby-hot
Ctrl Intf(s) state: Up
Active Peer: address 1.1.1.2, priority 150, intf Gi0/0/0
Standby Peer: Local
Log counters:
role change to active: 0
role change to standby: 1
disable events: rg down state
```

VMAC	0007.b422.14d6				
VIP	4.1.255.254				
Shut	no shut				
Decrement	11	eemc	e	t	0/0/22.6

Local Diag: 0, Demand mode: 0, Poll bit: 0

The **debug bfd event** displays debugging information about BFD state transitions:

Related Topic	Document Title
	Security Configuration Guide: Zone-Based Policy Firewall, Cisco IOS XE Release 3S at: http://www.cisco.com/c/en/us/us/



CHAPTER

Prerequisites for Call Home

The following are the prerequisites before you

DETAILED STEPS

Enabling and Disabling Call Home

T

DETAILED STEPS

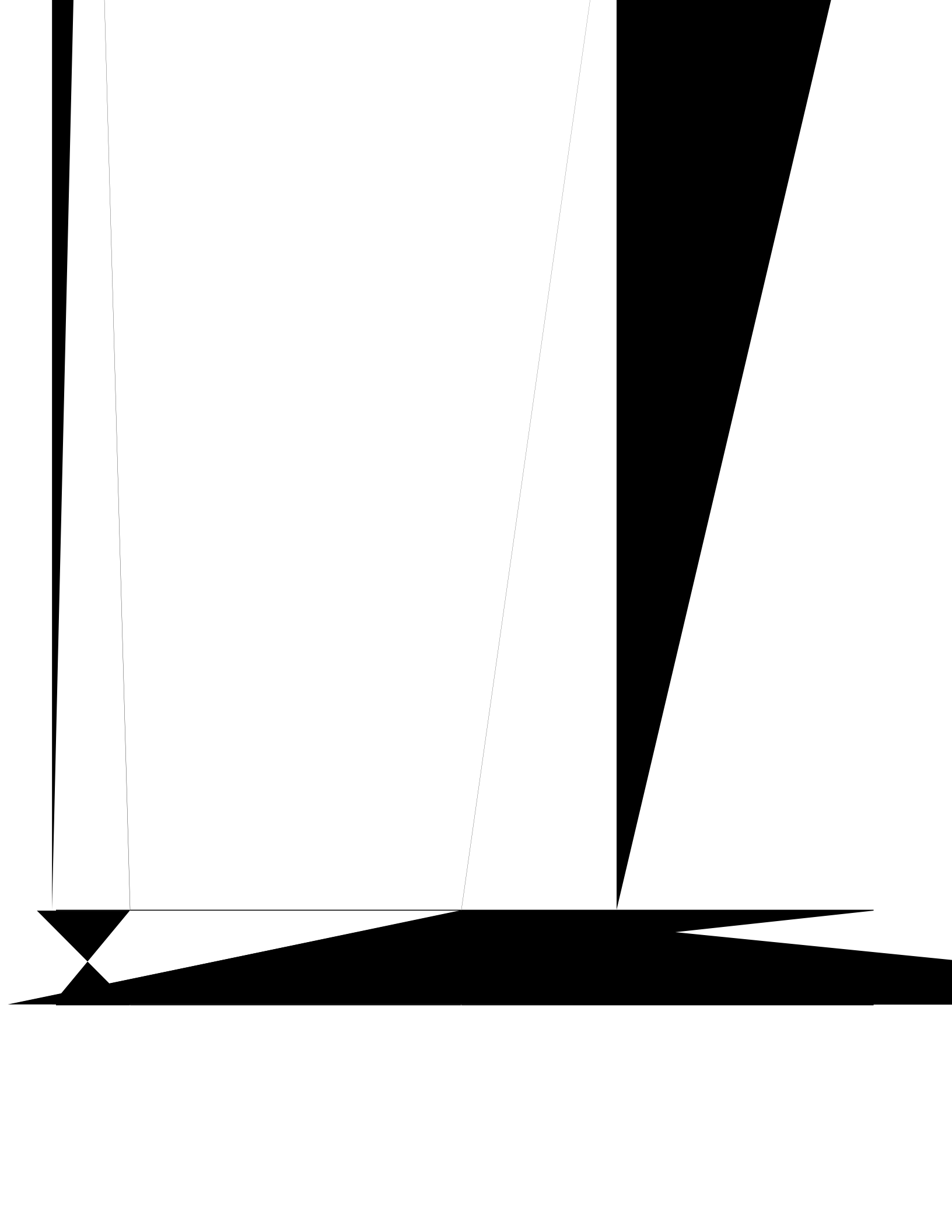
Example

The following example shows how to configure contact information:

```
Router# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#
```

DETAILED STEPS

	Command or Action	Purpose
		Sets the profile to



	Command or Action	Purpose
	Example: `Router(cfg-call-home-profile)# subscribe-to-alert-group snapshot periodic`	

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

Table 13: Severity and Syslog Level Mapping

DETAILED STEPS

DETAILED STEPS

	Command or Action	Purpose
	[**no**] **syslog-throttling**	Enables or disables call-home syslog message throttling and avoids sending repetitive call-home syslog messages.

	Command or Action	Purpose

- When you manually trigger a crash, snapshot,

Example

The following example shows a request for analysis of a user-specified **show** command:

```
Router# call-home request output-analysis "show diag" profile TG
```

Manually Sending Command Output Message for One Command or a Command List

You can use the **call-home send** command to execute an IOS command or a list of IOS commands and send the

	Command or Action	Purpose
		℃

- The device monitors the event and executes the actions defined in the DS when the event happens.

Diagnostic Signature Events and Actions

The events and actions sections are the key areas used in diagnostic signatures. The event section defines all event attributes that are used for event detection. The action section lists all actions which should be performed after

- script

DS action types call-home and emailto collect event data and send

The predefined CiscoTAC-1 profile is enabled as a DS profile by default and

	Command or Action	Purpose
	profile *profile-name* Example:	Configures a destination profile for Call Home and enters call-home profile configuration mode.

	Command or Action	Purpose
	Example: `Router# show call-home diagnostic-signature actions`	

Configuration Examples for Diagnostic Signatures

The following example shows how to enable the periodic downloading request for diagnostic signature (DS) files. This configuration will send download requests to the service call-home server daily at 2:30 p.m. to check for updated DS files. The transport method is set to HTTP.

```
Router>
```

```
call home feature : enable
call home message's from address: router@example.com
call home message's reply-to address: support@example.com

vrf for call-home messages: Not yet set up

contact person's
```

syslog throttling: enable

Rate-limit:

```
    syslog                  Enable  syslog info
Router#
```

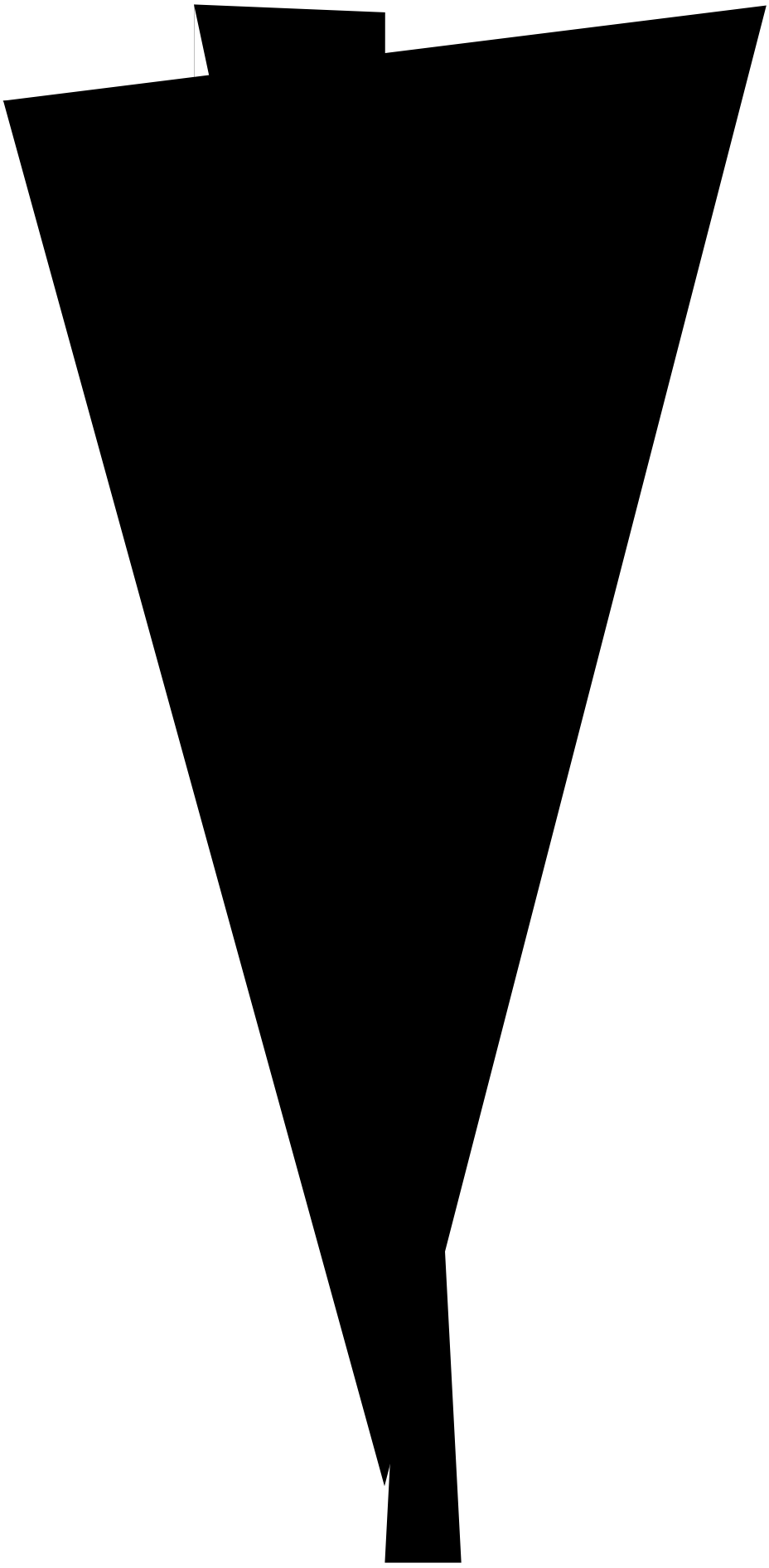
E-Mail Server Status Information

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

Table 14: Default Call Home Settings

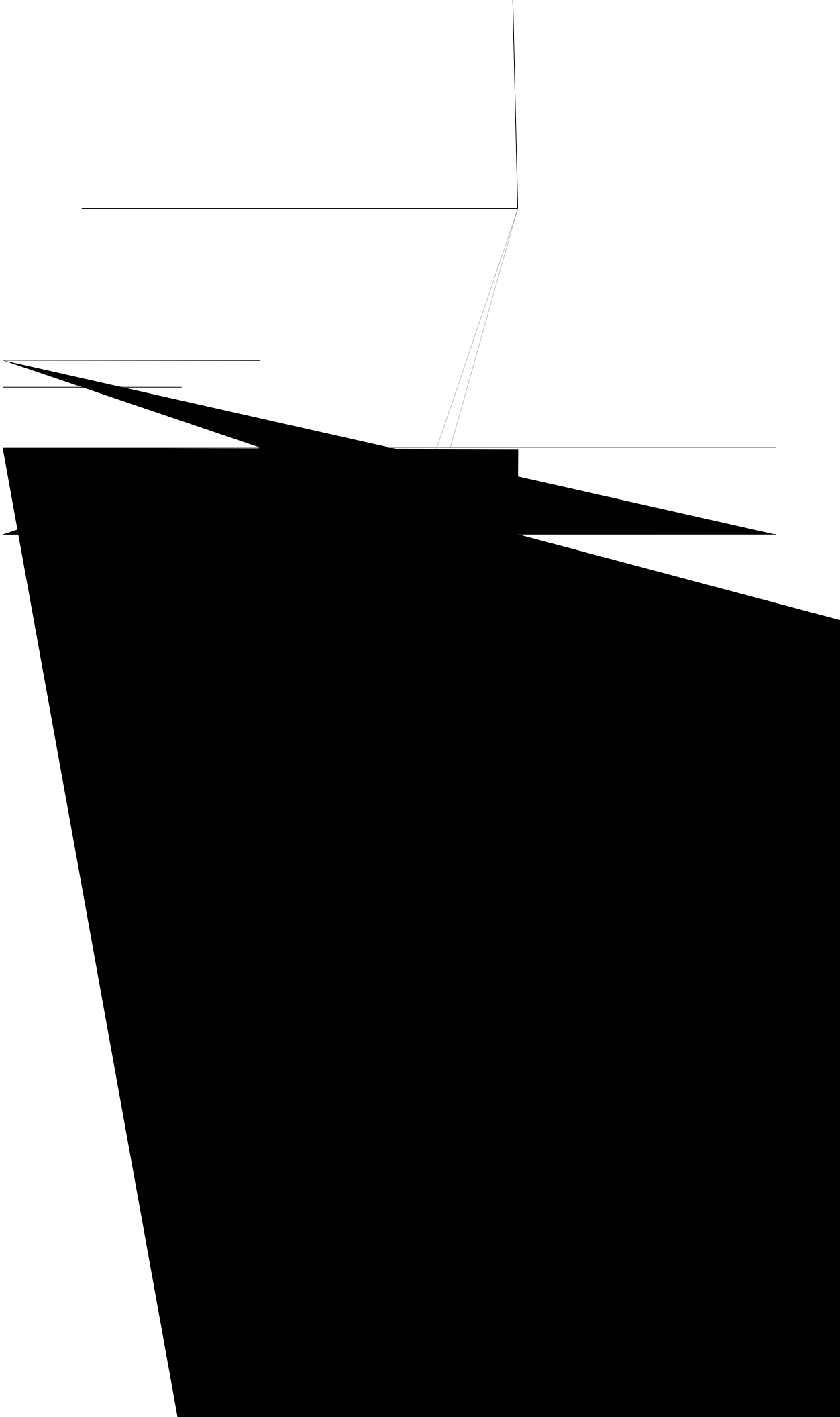
Table 15: Call Home Alert Groups, Events, and Actions

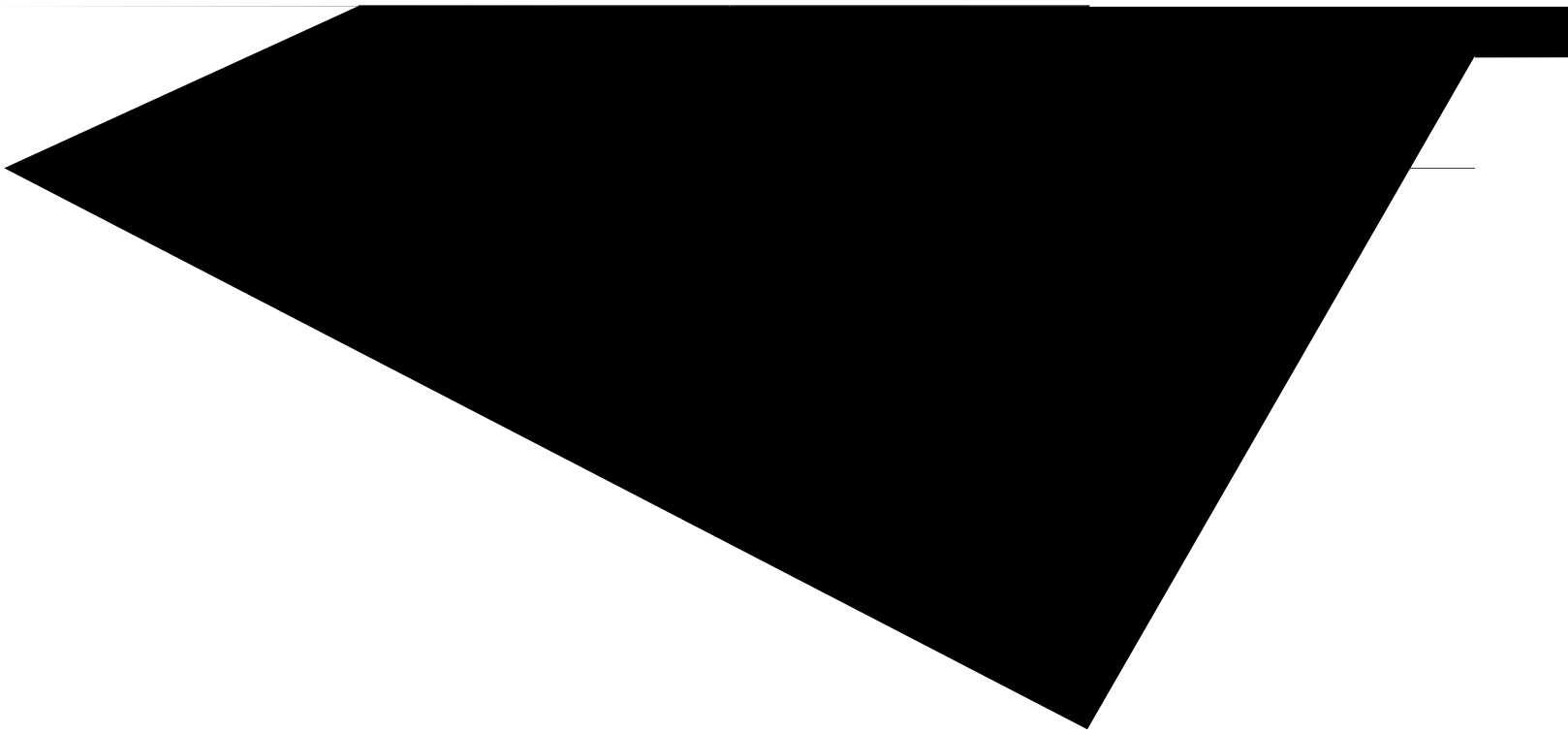
Alert Group	Call Home Trigger Event	Syslog Event	Severity	Description and Commands Executed
				Events related to software crash. The following commands are executed: **show version** **show loggingl how**



Alert Group	Call Home Trigger Event	Syslog Event	Severity	Description and Commands Executed
ج	SYSLOG	LOG_DEBUG	7	Debug-level messages.
				User-generated test message. The following commands a

Table 17: Common Fields for All Long Text and XML Messages





```
</aml-block:Header>
<aml-block:Content>
<ch:CallHome xmlns:ch="http://www.cisco.com/2005/05/callhome" version="1.0">
<ch:EventTime>2014-08-13 21:42:49 GMT+00:00</ch:EventTime>
<ch:MessageDescription>*Aug 13 21:42:49.406: %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>ISR XE Series Routers</ch:Series>
</ch:Event>
<ch:CustomerData>
<ch:UserData>
<ch:Email>admin@yourdomain.com</ch:Email>
</ch:UserData>
<ch:ContractData>
<ch:CustomerId></ch:CustomerId>
<ch:SiteId></ch:SiteId>
<ch:ContractId></ch:ContractId>
<ch:DeviceId>ISR4451-X/K9@C@FTX1830AKF9</ch:DeviceId>
</ch:ContractData>
<ch:SystemInfo>
<ch:Name>Router</ch:Name>
<ch:Contact></ch:Contact>
<ch:ContactEmail>admin@yourdomain.com</ch:ContactEmail>
<ch:ContactPhoneNumber></ch:ContactPhoneNumber>
<ch:StreetAddress></ch:StreetAddress>
</ch:SystemInfo>
<ch:CCOID></ch:CCOID>
</ch:CustomerData>
<ch:Device>
<rme:Chassis
```

Technical Assistance

Description	Link
The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies. To receive securitC	http://www.cisco.com/techsupport d £ technical

CHAPTER 10

ManagingCiscoEnhancedServicesandNetwork Interface Modules

Enhanced Service

- Configuring the Cisco Fourth-Generation T1/E1 Voice and WAN Network Interface Module
- Installing the Cisco PVDM4

Note For a Cisco SSD carrier card NIM or Cisco HDD carrier card NIM, only slot 0 and one of the subslots 1, 2, or 3 must be used.

The following example

Cisco UCS E-Series Server

For more information, see the documentation

Implementing SMs and NIMs on Y

baudrate

Power Supply

	Command or Action	Purpose
		reload *mm* Stops and restarts the specified module.

```
Router# show platform hardware backplaneswitch-manager R0 status
slot  bay   port   enable   link status   speed(Mbps)   duplex   autoneg   pause_tlex
```

CoS 4				0	0
CoS 5				0	0
CoS 6				0	0
CoS 7				0	0
STP	0				
backpress	0				
congest	0		0		
purge/cell	0				
no destination	0				
Pause PFC	0			0	
CoS 0	0				
CoS 1	0				
CoS 2	0				
CoS 3	0				
CoS 4	0				
CoS 5	0				
CoS 6	0				
CoS 7	0				

Backplane Ethernet Switch

The backplane Ethernet switch on your router provides connectivity to Enhanced Service Modules and Network Interface Modules (NIMs). The backplane Ethernet switch facilitates all packet transfers between the host router and its pluggable modules.

The backplane Ethernet switch act as a manager for the host router and controls the module and exchanges logical flow-control information with the module to ensure accurate feedback to the router features. See Managing Modules and Interfaces, on page 257

Viewing Backplane Switch Statistics

Statistics reports for each slot show incoming

```
  Jabber                    0                              0
  MTU                       0
Drops
  CoS 0                                                    0                    0
  CoS 1                                                    0                    0
  CoS 2                                                    0                    0
  CoS 3                                                    0                    0
  CoS 4                                                    0                    0
  CoS 5                                                    0                    0
  CoS 6                                                    0                    0
  CoS 7                                                    0                    0
  STP                       0
  backpress                 0
  congest                   0                    0
  purge/cell                0
  no destination           65
Pause                       0                              0
```

Viewing Slot Assignments

Use the **show inventory** command in privileged EXEC mode to view the

- **show platform**
- **show platform software backplaneswitch-manager RP [active [detail]]**
- **show platform hardware backplaneswitch-manager RPactive CP statistics**
- **show platform hardware backplaneswitch-manager RP active summary**
- **show platform hardware backplaneswitch-manager [R0 [status] | RP]**
- **show diag all eeprom details**

show platform

```
Router# show platform
Chassis type:
```

1	0	GE0	0	0	0	0

```
2/0/1       um     umb    umb     umb      -      umb     umb     umb     umb     umb     umb     umb
   umb     umb      0
2/0/0       um     umb    umb     umb     umb      -      umb     umb     umb     umb     umb     umb
   umb     umb      6
0/1/1       um     umb    umb     umb     umb     umb      -      umb     umb     umb     umb     umb
   umb     umb      0
0/1/0       um     umb    umb     umb     umb     umb     umb       -      umb     umb     umb     umb
   umb     umb      0
0/2/1       um     umb    umb     umb     umb     umb     umb     umb      -      umb     umb     umb
   umb     umb      0
0/2/0       um     umb    umb     umb     umb     umb     umb     umb     umb      -      umb     umb
   umb     umb      0
0/3/1       um     umb    umb     umb     umb     umb     umb     umb     umb     umb      -      umb
   umb     umb      0
0/3/0       um     umb    umb     umb     umb     umb     umb     umb     umb     umb     umb      -
   umb     umb      0
0/4/1       um     umb    umb     umb     umb     umb     umb     umb     umb     umb     umb     umb
     -     umb      0
0/4/0       um     umb    umb     umb     umb     umb     umb     umb     umb     umb     umb     umb
   umb      -       0

Port VLAN membership: [untagged vlan] U=untagged T=tagged <VLAN range begin>-<VLAN range
end>

    CP
```

```
        RMA Number                : 0-0-0-0
        RMA History               : 00
        Version Identifier (VID)  : XXX
        Product Identifier (PID)  : XXXX-XXXX-XX
        CLEI Code                 : 0000000000
        Environment Monitor Data  : 41 01 C2 42 00 00 F8 00
                                    50 01 F4 1B 58 03 E8 1F
                                    4A 05 DC 21 34 07 D0 21
                                    FC 09 C4 22 60 0B B8 22
                                    92 0D AC 22 D8 0F A0 22
                                    F8 11 94 22 F6 13 88 23
                                    3C 15 7C 23 28 17 70 23
                                    00 19 64 22 D8 1B 58 22
                                    C4 1D 4C 22 BA 1F 40 22
                                    A6 21 34 22 9C 23 28 22
                                    92 25 1C 22 88 27 10 22
                                    60
        Board Revision            : P0
Power/Fan Module P1 EEPROM data is not initialized

Power/Fan Module P2 EEPROM data is not initialized

Slot R0 EEPROM data:

        EEPROM version            : 4
        Compatible Type           : 0xFF
        PCB Serial Number         : FOC15520B7L
        Controller Type           : 1902
        Hardware Revision         : 1.0
        PCB Part Number           :
```

```
SPA EEPROM data for subslot 0/4 is not available
SPA EEPROM data for subslot 1/0 is not available
SPA EEPROM data for subslot 1/1 is not available
SPA EEPROM data for subslot 1/2 is not available
SPA EEPROM data for subslot 1/3 is not available
SPA EEPROM data for subslot 1/4 is not available
SPA EEPROM data for subslot 2/0 is not available
SPA EEPROM data for subslot 2/1 is not available
SPA EEPROM data for subslot 2/2 is not available
SPA EEPROM data for subslot
```

CHAPTER 17

SFP Auto-Detect and Auto-Failover

Cisco 4000 Series Integrated Services Routers (ISRs) provide a Front Panel Gigabit Ethernet (FPGE) port that supports copper and fiber concurrent connections. Media can be configured for

Global Address, on page 270

Link-Lock Address

A link-local address is an IPv6 unicast address that can be automatically configured on any interface

DETAILED STEPS

```
dialer-group 1
no11111
```

CHAPTER 18

Cellular IPv6 Address

This chapter provides an overview of the IPv6 addresses and

CHAPTER 19

Configuring Voice Functionality

This chapter provides information about configuring voice functionality on the Cisco 4000 Series Integrated Services Routers (ISRs).

This chapter includes these sections:

E1 R2 Signaling Configuration

To

```
(config)# controller E1 0/2/0
 eefje(config)# controller E1 0/2/0
 eefje(config-controller)#ds0-group 1 timeslots 1 type r2-digital ?
dtmf               DTMF tone signaling
r2-compelled       R2 Compelled Register Signaling
r2-non-compelled   R2 Non Compelled Register Signaling
r2-semi-compelled  R2 Semi Compelled Register Signaling

...
```

The Cisco implementation of R2 signaling has

```
voice-port 0:1
 cptone BE

!--- The cptone command is country specific.
```

```
0:1 prefix 123
!
```

```
 Got Event R2_TONE_TIMER
*Jan 29 21:32:26.752: R2_IN_CONNECT: call end dial
*Jan 29 21:32:26.752: r2_reg_end_dial(0  w
```

DETAILED STEPS

```
7451738112 bytes total (7015186432 bytes free)
```

Compiled Sun 09-Sep-12 21:28 by mcpre

Table 22: Subpackages

```
isr4400-rpaccess.BLD_MCP_DEV_LATEST_20120910_000023.SSA.pkg
454283  -rw-    78938264  Sep 13 2012 18:46:06 +00:00
isr4400-rpbase.BLD_MCP_DEV_LATEST_20120910_000023.SSA.pkg
454284  -rw-    451775
```

```
Boot image size = 78938264 (0x4b48098) bytes
ROM:RSA Self Test
```

4194304K bytes of physical

```
373153  drwx      114688  Sep 13 2012 18:54:03 +00:00  tracelogs
```

```
Address or name of remote host []? 10.81.116.4
Source filename []?
```

Organization Unit

Certificate Serial Number : 50F48F33
Hash Algorithm : SHA512
Signature Algorithm : 2048-bit RSA
Key Version

PackageName: rpbase
Build: BLD_Ma ʎ D

APPENDIX A

Unsupported Commands

The Cisco 4000 Series routers contain a series of commands with the **logging** or **platform** keywords that either produce no output or produce output that is not useful for cust tathe

- show platform software ethernet rp active l2cp interface GigabitEthernet0
- show platform software ethernet rp active loopback
- show platform software ethernet rp active vfi
- show platform software ethernet r0 vfi
- show platform software ethernet r0 vfi id 0
- show platform software ethernet r0 vfi name GigabitEthernet0
- show platform software ethernet