

Cisco FXOS Troubleshooting for the 1000/1200/2100/3100/4200 with ASA

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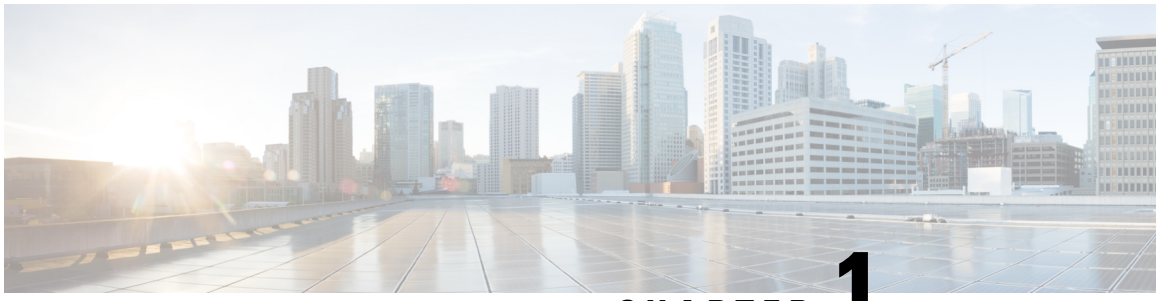
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CHAPTER 1

About the FXOS CLI

For the Firepower 1000, 2100, and Secure Firewall 1200/3100/4200 in Appliance mode, only show commands and advanced troubleshooting commands are available from the Secure Firewall eXtensible Operating System (FXOS) CLI.

For the Firepower 2100 in Platform mode, you must use FXOS to configure basic operating parameters and hardware interface settings. For more information about configuring the Secure Firewall ASA with FXOS, see the Firepower 2100 ASA Platform Mode FXOS Configuration Guide.

- FXOS CLI Managed Object Model, on page 1
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FXOS CLI Managed Object Model

FXOS uses a managed object model, where managed objects are abstract representations of physical or logical entities that can be managed. For example, chassis, network modules, ports, and processors are physical entities represented as managed objects, and licenses, user roles, and platform policies are logical entities represented as managed objects.

Four general commands are available for object management:

- **create** *object*
- **delete** *object*
- **enter** *object*
- **scope** *object*

Note For Appliance mode, **create** and **delete** commands are not available.

You can use the **scope** command with any managed object, whether a permanent object or a user-instantiated object. The other commands allow you to create and manage user-instantiated objects. For every **create** *object* command, a corresponding **delete** *object* and **enter** *object* command exists. You can use the **enter** *object* command to create new objects and edit existing objects, so you can use it instead of the **create** *object* command, which will give an error if an object already exists.

At any time, you can enter the **?** character to display the options available at the current state of the command syntax.

Access the ASA and FXOS CLI for Appliance Mode

You can use the ASA CLI to troubleshoot or configure the ASA instead of using ASDM. You can access the CLI by connecting to the console port. You can later configure SSH access to the ASA on any interface; SSH access is disabled by default. See the ASA general operations configuration guide for more information.

You can also access the FXOS CLI from the ASA CLI for troubleshooting purposes.

Procedure

Step 1 Connect your management computer to the console port. Be sure to install any necessary serial drivers for your operating system. Use the following serial settings:

- 9600 baud
- 8 data bits
- No parity
- 1 stop bit

You connect to the ASA CLI. There are no user credentials required for console access by default.

Step 2 Access privileged EXEC mode.

enable

You are prompted to change the password the first time you enter the **enable** command.

Example:

```
ciscoasa> enable
Password:
The enable password is not set. Please set it now.
Enter Password: ******
Repeat Password: ******
ciscoasa#
```

The enable password that you set on the ASA is also the FXOS **admin** user password if the ASA fails to boot up, and you enter FXOS failsafe mode.

All non-configuration commands are available in privileged EXEC mode. You can also enter configuration mode from privileged EXEC mode.

To exit privileged EXEC mode, enter the **disable**, **exit**, or **quit** command.

Step 3 Access global configuration mode.

configure terminal

Example:

```
ciscoasa# configure terminal
ciscoasa(config)#
```

You can begin to configure the ASA from global configuration mode. To exit global configuration mode, enter the **exit**, **quit**, or **end** command.

Step 4 (Optional) Connect to the FXOS CLI.

connect fxos [**admin**]

- **admin**—Provides admin-level access. Without this option, users have read-only access. Note that no configuration commands are available even in admin mode.

You are not prompted for user credentials. The current ASA username is passed through to FXOS, and no additional login is required. To return to the ASA CLI, enter **exit** or type **Ctrl-Shift-6**, **x**.

Within FXOS, you can view user activity using the **scope security/show audit-logs** command.

Example:

```
ciscoasa# connect fxos admin
Connecting to fxos.
Connected to fxos. Escape character sequence is 'CTRL-^X'.
firepower#
firepower# exit
Connection with FXOS terminated.
Type help or '?' for a list of available commands.
ciscoasa#
```

Access the ASA and FXOS CLI in Platform Mode

This section describes how to connect to the FXOS and ASA console and how to connect to FXOS using SSH.

Connect to FXOS with SSH

You can connect to FXOS on Management 1/1 with the default IP address, 192.168.45.45. If you configure remote management, you can also connect to the data interface IP address on the non-standard port, by default, 3022.

To connect using SSH to the ASA, you must first configure SSH access according to the ASA general operations configuration guide.

You can connect to the ASA CLI from FXOS, and vice versa.

FXOS allows up to 8 SSH connections.

Procedure

Step 1 On the management computer connected to Management 1/1, SSH to the management IP address (by default https://192.168.45.45, with the username: **admin** and password: **Admin123**).

You can log in with any username if you added users in FXOS. If you configure remote management, SSH to the ASA data interface IP address on port 3022 (the default port).

Step 2 Connect to the ASA CLI.

connect asa

To return to the FXOS CLI, enter **Ctrl+a**, **d**.

Example:

```
firepower-2110# connect asa
Attaching to Diagnostic CLI ... Press 'Ctrl+a then d' to detach.
Type help or '?' for a list of available commands.
ciscoasa>
```

Step 3 If you SSH to the ASA (after you configure SSH access in the ASA), connect to the FXOS CLI.

connect fxos

You are prompted to authenticate for FXOS; use the default username: **admin** and password: **Admin123**. To return to the ASA CLI, enter **exit** or type **Ctrl-Shift-6**, **x**.

Example:

```
ciscoasa# connect fxos
Connecting to fxos.
Connected to fxos. Escape character sequence is 'CTRL-^X'.

FXOS 2.2(2.32) kp2110

firepower-2110 login: admin
Password: Admin123
Last login: Sat Jan 23 16:20:16 UTC 2017 on pts/1
Successful login attempts for user 'admin' : 4
Cisco Firepower Extensible Operating System (FX-OS) Software

[…]

firepower-2110#
firepower-2110# exit
Remote card closed command session. Press any key to continue.
Connection with fxos terminated.
Type help or '?' for a list of available commands.
ciscoasa#
```

Connect to the Console Port to Access FXOS and ASA CLI

The Firepower 2100 console port connects you to the FXOS CLI. From the FXOS CLI, you can then connect to the ASA console, and back again.

You can only have one console connection at a time. When you connect to the ASA console from the FXOS console, this connection is a persistent console connection, not like a Telnet or SSH connection.

Procedure

Step 1 Connect your management computer to the console port. The Firepower 2100 ships with a DB-9 to RJ-45 serial cable, so you will need a third party serial-to-USB cable to make the connection. Be sure to install any necessary USB serial drivers for your operating system. Use the following serial settings:

- 9600 baud
- 8 data bits
- No parity
- 1 stop bit

You connect to the FXOS CLI. Enter the user credentials; by default, you can log in with the **admin** user and the default password, **Admin123**. You are prompted to change the **admin** password when you first log in.

Step 2 Connect to the ASA:

connect asa

Example:

```
firepower-2110# connect asa
Attaching to Diagnostic CLI ... Press 'Ctrl+a then d' to detach.
Type help or '?' for a list of available commands.
ciscoasa>
```

Step 3 To return to the FXOS console, enter **Ctrl+a**, **d**.

Save and Filter Show Command Output

You can save the output of **show** commands by redirecting the output to a text file. You can filter the output of **show** commands by piping the output to filtering commands.

Saving and filtering output are available with all **show** commands but are most useful when dealing with commands that produce a lot of text. For example, you can show all or parts of the configuration by using the **show configuration** command. Copying the configuration output provides a way to backup and restore a configuration.

Note Show commands do not show the secrets (password fields), so if you want to paste a configuration into a new device, you will have to modify the show output to include the actual passwords.

Filter Show Command Output

To filter the output of a **show** command, use the following subcommands. Note that in the following syntax description, the initial vertical bar | after the **show** command is the pipe character and is part of the command, not part of the syntax description. The filtering options are entered after the command's initial | character.

show *command* **|** {**begin** *expression* | **count** | **cut** *expression* | **egrep** *expression* | **end** *expression* | **exclude** *expression* | **grep** *expression* | **head** | **include** *expression* | **last** | **less** | **no-more** | **sort** *expression* | **tr** *expression* | **uniq** *expression* | **wc**}

Filtering Options

These are the filtering subcommands:

- **begin**—Finds the first line that includes the specified pattern, and display that line and all subsequent lines.
- **count**—Counts the number of lines.
- **cut**—Removes ("cut") portions of each line.
- **egrep**—Displays only those lines that match the extended-type pattern.
- **end**—Ends with the line that matches the pattern.
- **exclude**—Excludes all lines that match the pattern and show all other lines.
- **grep**—Displays only those lines that match the pattern.
- **head**—Displays the first lines.
- **include**—Displays only those lines that match the pattern.
- **last**—Displays the last lines.
- **less**—Filters for paging.
- **no-more**—Turns off pagination for command output.
- **sort**—Sorts the lines (stream sorter).
- **tr**—Translates, squeezes, and/or deletes characters.
- **uniq**—Discards all but one of successive identical lines.
- **wc**—Displays a count of lines, words, and characters.

expression

An expression, or pattern, is typically a simple text string. Do not enclose the expression in single or double-quotes—these will be seen as part of the expression. Also, trailing spaces will be included in the expression.

Note Several of these subcommands have additional options that let you further control the filtering. For example, with **show configuration | head** and **show configuration | last**, you can use the **lines** keyword to change the number of lines displayed; the default is 10. As another example, with **show configuration | sort**, you can add the option **-u** to remove duplicate lines from the output. (Complete descriptions of these options is beyond the scope of this document; refer to the FXOS help output for the various commands, and to the appropriate Linux help, for more information.)

Examples

The following example shows how to determine the number of lines currently in the system event log:

```
FP9300-A# show sel 1/1 | count
3008
FP9300-A#
```

The following example shows how to display lines from the system event log that include the string “error”:

```
FP9300-A# show sel 1/1 | include error
968 | 05/15/2016 16:46:25 | CIMC | System Event DDR4_P2_H2_EC
C #0x99 | Upper critical - going high | Asserted | Reading 20
000 >= Threshold 20000 error
FP9300-A#
```

Related Topics

Save Show Command Output, on page 7

Save Show Command Output

You can save the output of **show** commands by redirecting the output to a text file.

show *command* [> { **ftp:** | **scp:** | **sftp:** | **tftp:** | **volatile:** | **workspace:** }] | [>> { **volatile:** | **workspace:** }]

Syntax Description

> { **ftp:** | **scp:** | **sftp:** | **tftp:** | **volatile:** | **workspace:** }	Redirects the **show** command output to a specified text file using the selected transport protocol. After you enter the command, you are queried for remote server name or IP address, user name, file path, and so on. If you press **Enter** at this point, the output is saved locally.
>> { **volatile:** | **workspace:** }	Appends the **show** command output to the appropriate text file, which must already exist.

Example

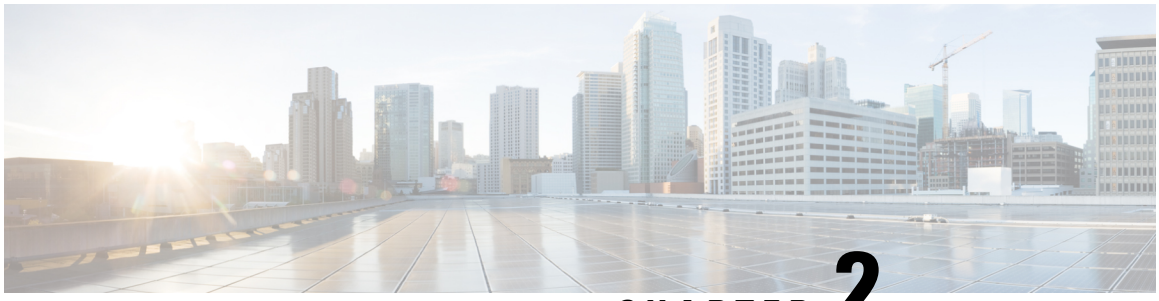
The following example attempts to save the current configuration to the system workspace; a configuration file already exists, which you can choose to overwrite or not.

```
FP9300-A# show configuration > workspace
File already exists, overwrite (y/n)?[n]n
Reissue command with >> if you want to append to existing file
```

```
FP9300-A#
```

Related Topics

Filter Show Command Output, on page 6



CHAPTER 2

Reimaging and System Recovery

This section includes procedures to troubleshoot bootup issues and perform password recovery.

- Appliance Mode Failsafe, on page 9
- Perform a Factory Reset (Reset the Password), on page 9
- Boot from ROMMON, on page 12
- Reformat the SSD File System (Firepower 2100), on page 17
- Restore the Factory Default Configuration, on page 19
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Appliance Mode Failsafe

If the Firepower 1000, Firepower 2100 in Appliance Mode, Secure Firewall 1200, Secure Firewall 3100, or Secure Firewall 4200 fails to boot into ASA, it will boot into FXOS failsafe mode. In this mode, FXOS allows minimal configuration to allow diagnosis and recovery of the system. You can configure the management interface with an IP address, DNS, and NTP so you can download and install the ASA image. Only the management interface can be configured in failsafe mode. When you log into FXOS, use the admin user and the ASA enable password that you set previously.

Firepower 2100 Platform mode allows FXOS configuration of chassis functions at all times.

The procedures in this chapter note Firepower 2100 Appliance Mode and Platform Mode differences.

Perform a Factory Reset (Reset the Password)

If you cannot log into FXOS (either because you forgot the password, or the SSD disk1 file system was corrupted), you can restore the FXOS configuration to the factory default using ROMMON. The admin password is reset to the default **Admin123**. This procedure also resets the ASA configuration. If you know the password, and want to restore the factory default configuration from within FXOS, see Restore the Factory Default Configuration, on page 19.

Before you begin

You must have console access for this procedure.

Procedure

Step 1 Connect to the console port, and power on the device. Press **Esc** during the bootup when prompted to reach the ROMMON prompt.

Pay close attention to the monitor.

Example:

```
********************************************************************************
Cisco System ROMMON, Version 1.0.06, RELEASE SOFTWARE
Copyright (c) 1994-2018  by Cisco Systems, Inc.
Compiled Thu 04/06/2018 12:16:16.21 by builder
********************************************************************************

Current image running: Boot ROM0
Last reset cause: ResetRequest
DIMM_1/1 : Present
DIMM_2/1 : Present

Platform FPR-2130 with 32768 MBytes of main memory
BIOS has been successfully locked !!
MAC Address: 0c:75:bd:08:c9:80

Use BREAK or ESC to interrupt boot.
Use SPACE to begin boot immediately.
```

Press **Esc** at this point.

Step 2 Perform a factory reset.

rommon 2 > **factory-reset**

Note
For ROMMON version 1.0.04, use the **password_reset** command; this command was changed to **factory-reset** in later versions. To verify the ROMMON version, enter **show info**.

```
rommon 1 > show info

Cisco System ROMMON, Version 1.0.06, RELEASE SOFTWARE
Copyright (c) 1994-2018  by Cisco Systems, Inc.
Compiled Wed 11/01/2018 18:38:59.66 by builder
```

You will be prompted multiple times to confirm that you want to erase your configuration, and then boot up the image.

Note
If you are not prompted to boot the image, enter the **boot** command.

Example:

Firepower 2100 Platform Mode:

```
rommon 2 > factory-reset
Warning: All configuration will be permanently lost with this operation
         and application will be initialized to default configuration.
         This operation cannot be undone after booting the application image.
```

```
         Are you sure you would like to continue ? yes/no [no]: yes
         Please type 'ERASE' to confirm the operation or any other value to cancel: ERASE

Performing factory reset...
File size is 0x0000001b
Located .boot_string
Image size 27 inode num 16, bks cnt 1 blk size 8*512

Rommon will continue to boot disk0: fxos-k8-fp2k-lfbff.2.3.1.132.SSB
Are you sure you would like to continue ? yes/no [no]: yes
File size is 0x0817a870
Located fxos-k8-fp2k-lfbff.2.3.1.132.SSB
```

Firepower 1000, 2100, Secure Firewall 1200, Secure Firewall 3100 and Secure Firewall 4200 Appliance Mode:

Note
During bootup, the system prompts you to log into FXOS and to set the admin password; although you will not cause any harm by logging in, you should continue to wait until it boots up the ASA. You should log in at the ASA prompt, where you will be prompted to change the enable password. It is this enable password that the system uses for the FXOS login.

```
rommon 2 > factory-reset
Warning: All configuration will be permanently lost with this operation
         and application will be initialized to default configuration.
         This operation cannot be undone after booting the application image.

         Are you sure you would like to continue ? yes/no [no]: yes
         Please type 'ERASE' to confirm the operation or any other value to cancel: ERASE

Performing factory reset...


Execute 'boot' command afterwards for factory-reset to be initiated.
Use of reset/reboot/reload command will cancel the factory-reset request!
rommon 3 > boot
firepower-2140 login:
Cisco ASA: CMD=-start, CSP-ID=cisco-asa.99.13.1.108__asa_001_JAD200900ZRN2001A1, FLAG=''
Cisco ASA starting ...
[...]
firepower-2140 login: admin (automatic login)
Please wait for Cisco ASA to come online...1...
[...]
User enable_1 logged in to ciscoasa
Logins over the last 1 days: 1.
Failed logins since the last login: 0.
 Attaching to ASA CLI ... Press 'Ctrl+a then d' to detach.
Type help or '?' for a list of available commands.

ciscoasa> enable
The enable password is not set.  Please set it now.
Enter  Password: *****
Repeat Password: *****
Note: Save your configuration so that the password can be used for FXOS failsafe access and
 persists across reboots
("write memory" or "copy running-config startup-config").
ciscoasa# write memory
```

Step 3 If you are not prompted to boot the image, enter the **boot** command, which loads the default boot image.

Step 4 Complete the setup tasks in the getting started guide.

Boot from ROMMON

If you cannot boot the device, it will boot into ROMMON where you can boot FXOS from a TFTP server or a USB drive formatted as EXT2/3/4 or VFAT/FAT32. After booting into FXOS, you can then reformat the eMMC (the internal flash device that holds the software images). After you reformat, then you need to re-download the images to the eMMC. This procedure retains all configuration, which is stored on the separate ssd1.

The eMMC file system might get corrupted because of a power failure or other rare condition.

Before you begin

You must have console access for this procedure.

Procedure

Step 1 If you cannot boot up, the system will boot into ROMMON.

If it does not automatically boot into ROMMON, press **Esc** during the bootup when prompted to reach the ROMMON prompt. Pay close attention to the monitor.

Example:

```
********************************************************************************
Cisco System ROMMON, Version 1.0.06, RELEASE SOFTWARE
Copyright (c) 1994-2018  by Cisco Systems, Inc.
Compiled Thu 04/06/2018 12:16:16.21 by builder
********************************************************************************

Current image running: Boot ROM0
Last reset cause: ResetRequest
DIMM_1/1 : Present
DIMM_2/1 : Present

Platform FPR-2130 with 32768 MBytes of main memory
BIOS has been successfully locked !!
MAC Address: 0c:75:bd:08:c9:80

Use BREAK or ESC to interrupt boot.
Use SPACE to begin boot immediately.
```

Press **Esc** at this point.

Step 2 Boot from an image on a USB drive formatted as EXT2/3/4 or VFAT/FAT32, or boot over the network using TFTP.

Note
For 9.12 and earlier, if you boot FXOS from ROMMON, and the currently-installed image is also bootable, make sure you boot the same version as the currently-installed image. Otherwise, an FXOS/ASA version

mismatch will cause the ASA to crash. In 9.13 and later, booting FXOS from ROMMON prevents ASA from loading automatically.

If you want to boot from USB:

boot -b usb:*/path/filename*

Note
If you insert the USB drive while the system is running, you will need to reboot the system before it will recognize the USB drive.

The device boots up to the FXOS CLI. Use the **dir usb:** command to view the disk contents.

Example:

```
rommon 1 > dir usb:
rommon 2 > boot -b usb:/cisco-asa-fp2k.9.20.2.SPA
```

If you want to boot from TFTP:

Set the network settings for Management 1/1, and load the ASA package using the following ROMMON commands.

ADDRESS=*management_ip_address*

NETMASK=*subnet_mask*

SERVER=*tftp_ip_address*

GATEWAY=*gateway_ip_address*

IMAGE=*path/filename*

set

sync

tftpdnld -b

The FXOS image downloads and boots up to the CLI.

See the following information:

- **set**—Shows the network settings. You can also use the **ping** command to verify connectivity to the server.
- **sync**—Saves the network settings.
- **tftpdnld -b**—Loads FXOS.

Example:

```
rommon 1 > ADDRESS=10.86.118.4
rommon 2 > NETMASK=255.255.252.0
rommon 3 > SERVER=10.86.118.21
rommon 4 > GATEWAY=10.86.118.1
rommon 5 > IMAGE=cisco-asa-fp2k.9.8.2.SPA
rommon 6 > set
ROMMON Variable Settings:
  ADDRESS=10.86.118.4
  NETMASK=255.255.252.0
  GATEWAY=10.86.118.21
  SERVER=10.86.118.21
```

```
  IMAGE=cisco-asa-fp2k.9.8.2.SPA
  CONFIG=
  PS1="rommon ! > "

rommon 7 > sync
rommon 8 > tftpdnld -b
Enable boot bundle: tftp_reqsize = 268435456

             ADDRESS: 10.86.118.4
             NETMASK: 255.255.252.0
             GATEWAY: 10.86.118.21
              SERVER: 10.86.118.1
               IMAGE: cisco-asa-fp2k.9.8.2.SPA
             MACADDR: d4:2c:44:0c:26:00
           VERBOSITY: Progress
               RETRY: 40
          PKTTIMEOUT: 7200
             BLKSIZE: 1460
            CHECKSUM: Yes
                PORT: GbE/1
             PHYMODE: Auto Detect

link up
Receiving cisco-asa-fp2k.9.8.2.SPA from 10.86.118.21!!!!!!!!
[…]
```

Ping to troubleshoot connectivity to the server:

```
rommon 1 > ping 10.86.118.21
Sending 10, 32-byte ICMP Echoes to 10.86.118.21 timeout is 4 seconds
!!!!!!!!!!
Success rate is 100 percent (10/10)
rommon 2 >
```

Step 3 Log in to FXOS using your current admin password.

Note
If you do not know your credentials, or cannot log in due to disk corruption, you should perform a factory reset using the ROMMON **factory-reset** command (see Perform a Factory Reset (Reset the Password), on page 9). After performing the factory reset, restart this procedure to boot into FXOS, and log in with the default credentials (**admin**/**Admin123**).

Step 4 Reformat the eMMC.

connect local-mgmt

format emmc

Enter **yes**.

Example:

```
firepower-2110# connect local-mgmt
firepower-2110(local-mgmt)# format emmc
All bootable images will be lost.
Do you still want to format? (yes/no):yes
```

Step 5 Configure the Management interface so you can download the ASA image from a server.

If you use USB, you can skip this step.

a) Enter the fabric-interconnect scope:

scope fabric-interconnect a

b) Set the new management IP information:

set out-of-band static ip *ip* **netmask** *netmask* **gw** *gateway*

c) Commit the configuration:

commit-buffer

Example:

```
firepower# scope fabric-interconnect a
firepower /fabric-interconnect # set out-of-band static ip 10.1.1.5 netmask 255.255.255.0
gw 10.1.1.1
firepower /fabric-interconnect* # commit-buffer
```

Note
If you encounter the following error, you must disable DHCP before committing the change. Follow the commands below to disable DHCP.

```
firepower /fabric-interconnect* # commit-buffer
Error: Update failed: [Management ipv4 address (IP <ip> / net mask <netmask> ) is not in
the same network of current DHCP server IP range <ip - ip>.
Either disable DHCP server first or config with a different ipv4 address.]
firepower /fabric-interconnect* # exit
firepower* # scope system
firepower /system* # scope services
firepower /system/services* # disable dhcp-server
firepower /system/services* # commit-buffer
```

Step 6 Re-download and boot the ASA package.

a) Download the package. Because you booted temporarily from USB or TFTP, you must still download the image to the local disk.

scope firmware

download image *url*

show download-task

Specify the URL for the file being imported using one of the following:

Note
Make sure to specify an IP address for the server and not a hostname; FXOS cannot resolve FQDNs.

- **ftp:**//*username@server_ip*/[*path*/]*image_name*
- **scp:**//*username@server_ip*/[*path*/]*image_name*
- **sftp:**//*username@server_ip*/[*path*/]*image_name*
- **tftp:**//*server_ip*[**:***port*]/[*path*/]*image_name*
- **usbA:**/*path*/*filename*

Example:

```
firepower-2110# scope firmware
firepower-2110 /firmware # download image tftp://10.86.118.21/cisco-asa-fp2k.9.8.2.SPA
Please use the command 'show download-task' or 'show download-task detail' to check
download progress.
firepower-2110 /firmware # show download-task
Download task:
    File Name Protocol Server          Port       Userid          State
    --------- -------- --------------- ---------- --------------- -----
    cisco-asa-fp2k.9.8.2.SPA
              Tftp     10.88.29.21             0                 Downloaded
```

b) When the package finishes downloading (**Downloaded** state), boot the package.

show package

scope auto-install

install security-pack version *version*

In the **show package** output, copy the **Package-Vers** value for the **security-pack version** number. The chassis installs the ASA image and reboots.

Example:

```
firepower 2110 /firmware # show package
Name                                       Package-Vers
------------------------------------------ ------------
cisco-asa-fp2k.9.8.2.SPA                   9.8.2
firepower 2110 /firmware # scope auto-install
firepower 2110 /firmware/auto-install # install security-pack version 9.8.2
The system is currently installed with security software package not set, which has:
   - The platform version: not set
If you proceed with the upgrade 9.8.2, it will do the following:
   - upgrade to the new platform version 2.2.2.52
   - install with CSP asa version 9.8.2
During the upgrade, the system will be reboot

Do you want to proceed ? (yes/no):yes

This operation upgrades firmware and software on Security Platform Components
Here is the checklist of things that are recommended before starting Auto-Install
(1) Review current critical/major faults
(2) Initiate a configuration backup

Attention:
   If you proceed the system will be re-imaged. All existing configuration will be lost,

   and the default configuration applied.
Do you want to proceed? (yes/no):yes

Triggered the install of software package version 9.8.2
Install started. This will take several minutes.
For monitoring the upgrade progress, please enter 'show' or 'show detail' command.
```

Step 7 Wait for the chassis to finish rebooting (5-10 minutes).

Although FXOS is up, you still need to wait for the ASA to come up (5 minutes). Wait until you see the following messages:

```
firepower-2110#
Cisco ASA: CMD=-install, CSP-ID=cisco-asa.9.8.2.2__asa_001_JAD20280BW90MEZR11, FLAG=''
Verifying signature for cisco-asa.9.8.2.2 ...
Verifying signature for cisco-asa.9.8.2.2 ... success

Cisco ASA: CMD=-start, CSP-ID=cisco-asa.9.8.2.2__asa_001_JAD20280BW90MEZR11, FLAG=''
Cisco ASA starting ...
Registering to process manager ...
Cisco ASA started successfully.
...
```

Reformat the SSD File System (Firepower 2100)

If you successfully logged into FXOS, but you see disk corruption error messages, you can reformat SSD1 where the FXOS and ASA configuration is stored. This procedure restores the FXOS configuration to the factory default. For Platform Mode, the admin password is reset to the default **Admin123**. This procedure also resets the ASA configuration.

This procedure does not apply to other models, which do not allow you to erase the SSD while still retaining the startup image.

Procedure

Step 1 Connect to the FXOS CLI from the console port.

- Firepower 2100 in Appliance Mode—You connect to ASA initially at the console port. To connect to FXOS, enter the **connect fxos admin** command.
- Firepower 2100 in Platform Mode—You connect to FXOS initially at the console port. Login as **admin** and the admin password.

Step 2 Reformat SSD1.

connect local-mgmt

format ssd1

Example:

Firepower 2100 Appliance Mode:

Note
During bootup, the system prompts you to log into FXOS and to set the admin password; although you will not cause any harm by logging in, you should continue to wait until it boots up the ASA. You should log in at the ASA prompt, where you will be prompted to change the enable password. It is this enable password that the system uses for the FXOS login.

```
firepower-2110# connect local-mgmt
firepower-2110(local-mgmt)# format ssd1
All configuration will be lost.
```

```
Do you still want to format? (yes/no):yes
Broadcast message from root@firepower-2140 (Fri Aug 16 19:53:45 2019):
All shells being terminated due to system /sbin/reboot
[  457.119988] reboot: Restarting system

[...]

********************************************************************************
Cisco System ROMMON, Version 1.0.12, RELEASE SOFTWARE
Copyright (c) 1994-2019  by Cisco Systems, Inc.
Compiled Mon 06/17/2019 16:23:23.36 by builder
********************************************************************************

Current image running: Boot ROM0
Last reset cause: ResetRequest (0x00001000)
DIMM_1/1 : Present
DIMM_2/1 : Present

Platform FPR-2140 with 65536 MBytes of main memory
BIOS has been successfully locked !!
MAC Address: 70:7d:b9:75:23:00

Use BREAK or ESC to interrupt boot.
Use SPACE to begin boot immediately.
Located '.boot_string' @ cluster 98101.

[...]

Primary SSD discovered
Primary SSD has incorrect partitions
Skipping prompt because disk is blank
Formating Primary SSD...
Creating config partition: START: 1MB END: 1001MB

[...]

firepower-2140 login:
Waiting for Application infrastructure to be ready...
Verifying the signature of the Application image...
Cisco ASA: CMD=-start, CSP-ID=cisco-asa.9.13.0.33__asa_001_JMX2134Y38S4F4RBT1, FLAG=''
Cisco ASA starting ...
Cisco ASA started successfully.

[...]

INFO: Unable to read firewall mode from flash
       Writing default firewall mode (single) to flash

INFO: Unable to read cluster interface-mode from flash
        Writing default mode "None" to flash
The 3DES/AES algorithms require a Encryption-3DES-AES entitlement.
The 3DES/AES algorithms require a Encryption-3DES-AES entitlement.
Cisco Adaptive Security Appliance Software Version 9.13.0.33

User enable_1 logged in to ciscoasa
Logins over the last 1 days: 1.
Failed logins since the last login: 0.
firepower-2140 login: admin (automatic login)

Successful login attempts for user 'admin' : 1
Attaching to ASA CLI ... Press 'Ctrl+a then d' to detach.
Type help or '?' for a list of available commands.

ciscoasa> enable
```

```
The enable password is not set.  Please set it now.
Enter  Password: *****
Repeat Password: *****
```

Step 3 Complete the setup tasks in the getting started guide.

Restore the Factory Default Configuration

You can restore the FXOS configuration to the factory default. This procedure also resets the ASA deployment and configuration. The admin password is also reset to the default **Admin123**; but because you perform this procedure in FXOS, you must know the current admin password. If you do not know the admin password, use the procedure in Perform a Factory Reset (Reset the Password), on page 9.

The admin password is the same as the ASA enable password.

Before you begin

You must have console access for this procedure.

Procedure

Step 1 Connect to the FXOS CLI from the console port.

connect fxos admin

Step 2 Connect to local management:

connect local-mgmt

Example:

```
firepower-2120# connect local-mgmt
firepower-2120(local-mgmt)#
```

Step 3 Erase all FXOS configuration, and restore the chassis to its original factory default configuration.

erase configuration

Example:

```
firepower-2120(local-mgmt)# erase configuration
All configurations will be erased and system will reboot. Are you sure? (yes/no):
```

Step 4 Confirm that you want to erase the configuration by entering **yes** at the command prompt.

The system erases all configuration from your chassis and then reboots.

Note
During bootup, the system prompts you to log into FXOS and to set the admin password; although you will not cause any harm by logging in, you should continue to wait until it boots up the ASA. You should log in

at the ASA prompt, where you will be prompted to change the enable password. It is this enable password that the system uses for the FXOS login.

Perform a Secure Erase

The secure erase feature erases all data on the SSDs so that data cannot be recovered even by using special tools on the SSD itself. You should perform a secure erase when decomissioning the device.

For the Firepower 2100, the software image is not erased, so you can still boot into the ASA. For other models, the software image is erased, so the device will boot into ROMMON, where you can download a new image.

Before you begin

- For the Firepower 1000, if you reimage from an threat defense to an ASA, you may need to power cycle the device to allow the Secure Erase feature. The Secure Erase feature requires a power cycle after you upgrade to threat defense 6.5 or later, or if you reimage to ASA from threat defense 6.4; a reboot alone is not sufficient.
- You must have console access for this procedure.

Procedure

Step 1 Connect to the FXOS CLI from the console port.

- Firepower 2100 in Platform Mode—You connect to FXOS initially at the console port. Login as **admin** and the admin password.
- All other models—You connect to ASA initially at the console port. To connect to FXOS, enter the **connect fxos admin** command.

Step 2 Enter local management.

local-mgmt

Example:

```
Firepower# connect local-mgmt
Firepower(local-mgmt)#
```

Step 3 Secure erase the SSDs.

erase secure {**all** | **ssd1** | **ssd2**}

- **all**—Erases all SSDs. The Firepower 2100 or Secure Firewall 3100 includes 2 SSDs, while the Firepower 1000 includes only SSD1.
- **ssd1**—Erases only SSD1.
- **ssd2**—Erases only SSD2.

Step 4 (All models except Firepower 2100 in Platform Mode) You boot into ROMMON. Boot a new image according to Boot from ROMMON, on page 12.

Perform a Complete Reimage

This procedure reformats the device, and returns it to its factory default settings. After performing this procedure, you must download the new software images. You might want to perform a complete reimage if you are repurposing the device and want to remove both configuration and software images.

Before you begin

- You must have console access for this procedure.
- Download the ASA package to a TFTP server or a USB drive formatted as EXT2/3/4 or VFAT/FAT32.
- If you use USB, install the drive before you start. If you insert the USB drive while the system is running, you will need to reboot the system before it will recognize the USB drive.

Procedure

Step 1 Unregister the ASA from the Smart Software Licensing server, either from the ASA CLI/ASDM or from the Smart Software Licensing server.

Step 2 Connect to the FXOS CLI from the console port.

- Firepower 2100 in Platform Mode—You connect to FXOS initially at the console port. Login as **admin** and the admin password.
- All other models—You connect to ASA initially at the console port. To connect to FXOS, enter the **connect fxos admin** command.

Step 3 Reformat the system.

connect local-mgmt

format everything

Enter **yes**, and the device reboots.

Example:

```
firepower-2110# connect local-mgmt
firepower-2110(local-mgmt)# format everything
All configuration and bootable images will be lost.
Do you still want to format? (yes/no):yes
```

Step 4 Press **Esc** during the bootup when prompted to reach the ROMMON prompt. Pay close attention to the monitor.

Example:

```
**********************************************************************
```

```
Cisco System ROMMON, Version 1.0.03, RELEASE SOFTWARE
Copyright (c) 1994-2017  by Cisco Systems, Inc.
Compiled Thu 04/06/2017 12:16:16.21 by builder
********************************************************************************

Current image running: Boot ROM0
Last reset cause: ResetRequest
DIMM_1/1 : Present
DIMM_2/1 : Present

Platform FPR-2130 with 32768 MBytes of main memory
BIOS has been successfully locked !!
MAC Address: 0c:75:bd:08:c9:80

Use BREAK or ESC to interrupt boot.
Use SPACE to begin boot immediately.
```

Press **Esc** at this point.

Step 5 Boot from the ASA package on a USB drive formatted as EXT2/3/4 or VFAT/FAT32, or boot over the network using TFTP.

If you want to boot from USB:

boot -b usb:*/path/filename*

Note
If you insert the USB drive while the system is running, you will need to reboot the system before it will recognize the USB drive.

Use the **dir usb:** command to view the disk contents in Firepower 1000 and 2100.

Example:

```
rommon 1 > dir usb:
rommon 2 > boot -b usb:/cisco-asa-fp2k.9.8.2.SPA
```

If you want to boot from TFTP:

Set the network settings for Management 1/1, and load the ASA package using the following ROMMON commands.

ADDRESS=*management_ip_address*

NETMASK=*subnet_mask*

SERVER=*tftp_ip_address*

GATEWAY=*gateway_ip_address*

IMAGE=*path/filename*

set

sync

tftpdnld -b

See the following information:

- **set**—Shows the network settings. You can also use the **ping** command to verify connectivity to the server.

- **sync**—Saves the network settings.
- **tftpdnld -b**—Loads the ASA package.

Example:

```
rommon 1 > ADDRESS=10.86.118.4
rommon 2 > NETMASK=255.255.252.0
rommon 3 > SERVER=10.86.118.21
rommon 4 > GATEWAY=10.86.118.1
rommon 5 > IMAGE=cisco-asa-fp2k.9.8.2.SPA
rommon 6 > set
ROMMON Variable Settings:
  ADDRESS=10.86.118.4
  NETMASK=255.255.252.0
  GATEWAY=10.86.118.21
  SERVER=10.86.118.21
  IMAGE=cisco-asa-fp2k.9.8.2.SPA
  CONFIG=
  PS1="rommon ! > "

rommon 7 > sync
rommon 8 > tftpdnld -b
Enable boot bundle: tftp_reqsize = 268435456

             ADDRESS: 10.86.118.4
             NETMASK: 255.255.252.0
             GATEWAY: 10.86.118.21
              SERVER: 10.86.118.1
               IMAGE: cisco-asa-fp2k.9.8.2.SPA
             MACADDR: d4:2c:44:0c:26:00
           VERBOSITY: Progress
               RETRY: 40
          PKTTIMEOUT: 7200
             BLKSIZE: 1460
            CHECKSUM: Yes
                PORT: GbE/1
             PHYMODE: Auto Detect

link up
Receiving cisco-asa-fp2k.9.8.2.SPA from 10.86.118.21!!!!!!!!
[…]
```

Ping to troubleshoot connectivity to the server:

```
rommon 1 > ping 10.86.118.21
Sending 10, 32-byte ICMP Echoes to 10.86.118.21 timeout is 4 seconds
!!!!!!!!!!
Success rate is 100 percent (10/10)
rommon 2 >
```

Step 6 Once the system comes up, log in to FXOS using the default username: **admin** and password: **Admin123**.

Step 7 Configure the Management interface so you can download the ASA image from a server.

If you use USB, you can skip this step.

a) Enter the fabric-interconnect scope:

scope fabric-interconnect a

b) Set the new management IP information:

set out-of-band static ip *ip* **netmask** *netmask* **gw** *gateway*

c) Commit the configuration:

commit-buffer

Example:

```
firepower# scope fabric-interconnect a
firepower /fabric-interconnect # set out-of-band static ip 10.1.1.5 netmask 255.255.255.0
gw 10.1.1.1
firepower /fabric-interconnect* # commit-buffer
```

Note
If you encounter the following error, you must disable DHCP before committing the change. Follow the commands below to disable DHCP.

```
firepower /fabric-interconnect* # commit-buffer
Error: Update failed: [Management ipv4 address (IP <ip> / net mask <netmask> ) is not in
the same network of current DHCP server IP range <ip - ip>.
Either disable DHCP server first or config with a different ipv4 address.]
firepower /fabric-interconnect* # exit
firepower* # scope system
firepower /system* # scope services
firepower /system/services* # disable dhcp-server
firepower /system/services* # commit-buffer
```

Step 8 Download and boot the ASA package. Because you booted temporarily from USB or TFTP, you must still download the image to the local disk.

a) Download the package.

scope firmware

download image *url*

show download-task

You can download the package from the same TFTP server or USB drive you used earlier, or another server reachable on Management 1/1. Specify the URL for the file being imported using one of the following:

Note
Make sure to specify an IP address for the server and not a hostname; FXOS cannot resolve FQDNs.

- **ftp://***username@server_ip*/[*path*/]*image_name*
- **scp://***username@server_ip*/[*path*/]*image_name*
- **sftp://***username@server_ip*/[*path*/]*image_name*
- **tftp://***server_ip*[**:***port*]/[*path*/]*image_name*
- **usbA:/***path*/*filename*

Example:

```
firepower-2110# scope firmware
firepower-2110 /firmware # download image tftp://10.86.118.21/cisco-asa-fp2k.9.8.2.SPA
Please use the command 'show download-task' or 'show download-task detail' to check
download progress.
firepower-2110 /firmware # show download-task
Download task:
    File Name Protocol Server          Port       Userid          State
    --------- -------- --------------- ---------- --------------- -----
    cisco-asa-fp2k.9.8.2.SPA
              Tftp     10.88.29.21             0                 Downloaded
```

b) When the package finishes downloading (**Downloaded** state), boot the package.

show package

scope auto-install

install security-pack version *version*

In the **show package** output, copy the **Package-Vers** value for the **security-pack version** number. The chassis installs the ASA package and reboots.

Example:

```
firepower 2110 /firmware # show package
Name                                       Package-Vers
------------------------------------------ ------------
cisco-asa-fp2k.9.8.2.SPA                   9.8.2
firepower 2110 /firmware # scope auto-install
firepower 2110 /firmware/auto-install # install security-pack version 9.8.2
The system is currently installed with security software package not set, which has:
   - The platform version: not set
If you proceed with the upgrade 9.8.2, it will do the following:
   - upgrade to the new platform version 2.2.2.52
   - install with CSP asa version 9.8.2
During the upgrade, the system will be reboot

Do you want to proceed ? (yes/no):yes

This operation upgrades firmware and software on Security Platform Components
Here is the checklist of things that are recommended before starting Auto-Install
(1) Review current critical/major faults
(2) Initiate a configuration backup

Attention:
   If you proceed the system will be re-imaged. All existing configuration will be lost,

   and the default configuration applied.
Do you want to proceed? (yes/no):yes

Triggered the install of software package version 9.8.2
Install started. This will take several minutes.
For monitoring the upgrade progress, please enter 'show' or 'show detail' command.
```

Note
Ignore the message, "All existing configuration will be lost, and the default configuration applied." The configuration will not be erased, and the default configuration is not applied.

Step 9 Wait for the chassis to finish rebooting (5-10 minutes), and log in to FXOS as admin.

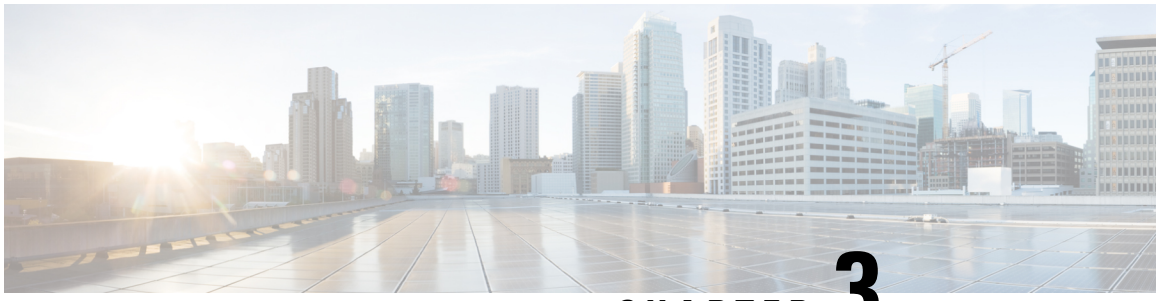
Although FXOS is up, you still need to wait for the ASA to come up (5 minutes). Wait until you see the following messages:

```
firepower-2110#
Cisco ASA: CMD=-install, CSP-ID=cisco-asa.9.8.2__asa_001_JAD20280BW90MEZR11, FLAG=''
Verifying signature for cisco-asa.9.8.2 ...
Verifying signature for cisco-asa.9.8.2 ... success

Cisco ASA: CMD=-start, CSP-ID=cisco-asa.9.8.2__asa_001_JAD20280BW90MEZR11, FLAG=''
Cisco ASA starting ...
Registering to process manager ...
Cisco ASA started successfully.
[…]
```

History for System Recovery

Feature	Version	Details
Secure Erase	9.13(1)	The secure erase feature erases all data on the SSDs so that data cannot be recovered even by using special tools on the SSD itself. You should perform a secure erase when decomissioning the device. New/Modified commands: **erase secure** (local-mgmt)



CHAPTER 3

FXOS Troubleshooting Commands

This section includes common troubleshooting commands.

- Chassis Mode Troubleshooting Commands, on page 27
- Eth-Uplink Mode Troubleshooting Commands, on page 32
- Fabric Interconnect Mode Troubleshooting Commands, on page 34
- Connect Local-Mgmt Troubleshooting Commands for the Firepower 2100 in Platform Mode, on page 37
- Connect Local-Mgmt Troubleshooting Commands for the Secure Firewall 3100, on page 42
- Connect Local-Mgmt Troubleshooting Commands for the Secure Firewall 4200 in Appliance Mode, on page 54
- Security Services Mode Troubleshooting Commands, on page 63
- Packet Capture for Secure Firewall 3100/4200, on page 65

Chassis Mode Troubleshooting Commands

Use the following chassis mode FXOS CLI commands to troubleshoot issues with your system.

show environment

Displays environment information for the chassis.

For example:

```
FPR2100 /chassis # show environment expand detail
Chassis 1:
Overall Status: Power Problem
        Operability: Operable
        Power State: Ok
        Thermal Status: Ok
PSU 1:
            Overall Status: Powered Off
            Operability: Unknown
            Power State: Off
            Voltage Status: Unknown
        PSU 2:
            Overall Status: Operable
            Operability: Operable
            Power State: On
            Voltage Status: Ok
        Tray 1 Module 1:
            Overall Status: Operable
            Operability: Operable
            Power State: On
```

```
Fan 1:
            Overall Status: Operable
            Operability: Operable
            Power State: On
        Fan 2:
            Overall Status: Operable
            Operability: Operable
            Power State: On
        Fan 3:
            Overall Status: Operable
            Operability: Operable
            Power State: On
        Fan 4:
            Overall Status: Operable
            Operability: Operable
            Power State: On
        Server 1:
            Overall Status: Ok
                Memory Array 1:
                    Current Capacity (MB): 32768
                    Populated: 2
                    DIMMs:
                    ID  Overall Status           Capacity (MB)
                    --- ------------------------ -------------
                      1 Operable                 16384
                      2 Operable                 16384
                CPU 1:
                    Presence: Equipped
                    Cores: 8
                    Product Name: Intel(R) Xeon(R) CPU D-1548 @ 2.00GHz
                    Vendor: GenuineIntel
                    Thermal Status: OK
                    Overall Status: Operable
                    Operability: Operable
```

scope fan

Enters the fan mode on Firepower 2110, 2120, and Secure Firewall 3100 series devices.

scope fan-module

Enters the fan mode on Firepower 2130, 2140, and Secure Firewall 3100 devices. From this mode, you can display detailed information about the chassis fan.

For example:

```
FPR2100 /chassis # show fan-module expand detail
Fan Module:
    Tray: 1
    Module: 1
    Overall Status: Operable
    Operability: Operable
    Power State: On
    Presence: Equipped
    Product Name: Cisco Firepower 2000 Series Fan Tray
    PID: FPR2K-FAN
    Vendor: Cisco Systems, Inc
    Fan:
        ID: 1
        Overall Status: Operable
        Operability: Operable
        Power State: On
        Presence: Equipped
        ID: 2
        Overall Status: Operable
        Operability: Operable
        Power State: On
        Presence: Equipped
```

show inventory

Displays inventory information such as the chassis number, vendor, and serial number.
Note: This command only applies to Firepower 2130 and Secure Firewall 3100 devices.
For example:

```
    FPR2100 /chassis # show inventory
Chassis    PID             Vendor            Serial (SN) HW Revision
---------- --------------- ----------------- ----------- -----------
         1 FPR-2140        Cisco Systems, In JAD201005FC 0.1
```

show inventory expand

Displays detailed inventory information about FRUable components such as the chassis, PSU, and network modules.
For example:

```
    FPR2100 /chassis #   show inventory expand detail
    Chassis 1:
        Product Name: Cisco Firepower 2000 Appliance
        PID: FPR-2130
        VID: V01
        Vendor: Cisco Systems, Inc
        Model: FPR-2130
        Serial (SN): JAD2012091X
        HW Revision: 0.1
        PSU 1:
            Presence: Equipped
            Product Name: Cisco Firepower 2000 Series AC 400W Power Supply
            PID: FPR2K-PWR-AC-400
            VID: V01
            Vendor: Cisco Systems, Inc
            Serial (SN): LIT2010CAFE
            HW Revision: 0
        PSU 2:
            Presence: Equipped
            Product Name: Cisco Firepower 2000 Series AC 400W Power Supply
            PID: FPR2K-PWR-AC-400
            VID: V01
            Vendor: Cisco Systems, Inc
            Serial (SN): LIT2010CAFE
            HW Revision: 0
        Fan Modules:
            Tray 1 Module 1:
                Presence: Equipped
                Product Name: Cisco Firepower 2000 Series Fan Tray
                PID: FPR2K-FAN
                Vendor: Cisco Systems, Inc
        Fans:
            ID Presence
            -- --------
             1 Equipped
             2 Equipped
             3 Equipped
             4 Equipped
    Fabric Card 1:
        Description: Cisco SSP FPR 2130 Base Module
        Number of Ports: 16
        State: Online
        Vendor: Cisco Systems, Inc.
        Model: FPR-2130
        HW Revision: 0
        Serial (SN): JAD2012091X
        Perf: N/A
        Operability: Operable
```

```
    Overall Status: Operable
    Power State: Online
    Presence: Equipped
    Thermal Status: N/A
    Voltage Status: N/A
Fabric Card 2:
    Description: 8-port 10 Gigabit Ethernet Expansion Module
    Number of Ports: 8
    State: Online
    Vendor: Cisco Systems, Inc.
    Model: FPR-NM-8X10G
    HW Revision: 0
    Serial (SN): JAD19510AKD
    Perf: N/A
    Operability: Operable
    Overall Status: Operable
    Power State: Online
    Presence: Equipped
    Thermal Status: N/A
    Voltage Status: N/A
```

scope psu

Enters the power supply unit mode. From this mode, you can view detailed information about the power supply unit.

For example:

```
FPR2100 /chassis #  show psu expand detail
PSU:
    PSU: 1
    Overall Status: Powered Off
    Operability: Unknown
    Power State: Off
    Presence: Equipped
    Voltage Status: Unknown
    Product Name: Cisco Firepower 2000 Series AC 400W Power Supply
    PID: FPR2K-PWR-AC-400
    VID: V01
    Vendor: Cisco Systems, Inc
    Serial (SN): LIT2010CAFE
    Type: AC
    Fan Status: Ok
    PSU: 2
    Overall Status: Operable
    Operability: Operable
    Power State: On
    Presence: Equipped
    Voltage Status: Ok
    Product Name: Cisco Firepower 2000 Series AC 400W Power Supply
    PID: FPR2K-PWR-AC-400
    VID: V01
    Vendor: Cisco Systems, Inc
    Serial (SN): LIT2010CAFE
    Type: AC
    Fan Status: Ok
```

scope stats

Enters the stats mode. From this mode, you can view detailed information about the chassis statatistics.

For example:

```
FPR2100 /chassis # show stats
Chassis Stats:
    Time Collected: 2016-11-14T21:19:46.317
    Monitored Object: sys/chassis-1/stats
    Suspect: No
```

```
    Outlet Temp1 (C): 43.000000
    Outlet Temp2 (C): 41.000000
    Inlet Temp (C): 30.000000
    Internal Temp (C): 34.000000
    Thresholded: 0
Fan Stats:
    Time Collected: 2016-11-14T21:19:46.317
    Monitored Object: sys/chassis-1/fan-module-1-1/fan-1/stats
    Suspect: No
    Speed (RPM): 17280
    Thresholded: 0
    Time Collected: 2016-11-14T21:19:46.317
    Monitored Object: sys/chassis-1/fan-module-1-1/fan-2/stats
    Suspect: No
    Speed (RPM): 17340
    Thresholded: 0
    Time Collected: 2016-11-14T21:19:46.317
    Monitored Object: sys/chassis-1/fan-module-1-1/fan-3/stats
    Suspect: No
    Speed (RPM): 17280
    Thresholded: 0
    Time Collected: 2016-11-14T21:19:46.317
    Monitored Object: sys/chassis-1/fan-module-1-1/fan-4/stats
    Suspect: No
    Speed (RPM): 17280
    Thresholded: 0
Psu Stats:
    Time Collected: 2016-11-14T21:19:46.318
    Monitored Object: sys/chassis-1/psu-1/stats
    Suspect: No
    Input Current (A): 0.000000
    Input Power (W): 8.000000
    Input Voltage (V): 0.000000
    Psu Temp1 (C): 32.000000
    Psu Temp2 (C): 36.000000
    Psu Temp3 (C): 32.000000
    Fan Speed (RPM): 0
    Thresholded: 0
    Time Collected: 2016-11-14T21:19:46.318
    Monitored Object: sys/chassis-1/psu-2/stats
    Suspect: No
    Input Current (A): 0.374000
    Input Power (W): 112.000000
    Input Voltage (V): 238.503006
    Psu Temp1 (C): 36.000000
    Psu Temp2 (C): 47.000000
    Psu Temp3 (C): 47.000000
    Fan Speed (RPM): 2240
    Thresholded: 0
CPU Env Stats:
    Time Collected: 2016-11-14T21:19:46.317
    Monitored Object: sys/chassis-1/blade-1/board/cpu-1/env-stats
    Suspect: No
    Temperature (C): 46.000000
    Thresholded: 0
    Time Collected: 2016-11-14T21:19:46.317
    Monitored Object: sys/chassis-1/blade-1/npu/cpu-1/env-stats
    Suspect: No
    Temperature (C): 38.000000
    Thresholded: 0
```

Eth-Uplink Mode Troubleshooting Commands

Use the following eth-uplink mode FXOS CLI commands to troubleshoot issues with your system.

show detail

Displays detailed information about your device's Ethernet uplink.
For example:

```
FPR2100 /eth-uplink # show detail
    Ethernet Uplink:
        Mode: Security Node
        MAC Table Aging Time (dd:hh:mm:ss): 00:04:01:40
        VLAN Port Count Optimization: Disabled
        Current Task:
```

scope fabric a

Enters the eth-uplink interface mode. From this mode, you can view port channel, statistics, and interface information.
For example:

```
FPR2100 /eth-uplink/fabric # show interface
Interface:
    Port Name      Port Type          Admin State Oper State       State Reason
    -------------- ------------------ ----------- ---------------- ------------
    Ethernet1/1    Data               Enabled     Up               Up
    Ethernet1/2    Data               Enabled     Link Down        Down
    Ethernet1/3    Data               Disabled    Link Down        Down
    Ethernet1/4    Data               Disabled    Link Down        Down
    Ethernet1/5    Data               Disabled    Link Down        Down
    Ethernet1/6    Data               Disabled    Link Down        Down
    Ethernet1/7    Data               Disabled    Link Down        Down
    Ethernet1/8    Data               Disabled    Link Down        Down
    Ethernet1/9    Data               Disabled    Link Down        Down
    Ethernet1/10   Data               Disabled    Link Down        Down
    Ethernet1/11   Data               Disabled    Link Down        Down
    Ethernet1/12   Data               Disabled    Link Down        Down
    Ethernet1/13   Data               Disabled    Link Down        Down
    Ethernet1/14   Data               Disabled    Link Down        Down
    Ethernet1/15   Data               Disabled    Link Down        Down
    Ethernet1/16   Data               Disabled    Link Down        Down
    Ethernet2/1    Data               Disabled    Link Down        Down
    Ethernet2/2    Data               Disabled    Link Down        Down
    Ethernet2/3    Data               Disabled    Link Down        Down
    Ethernet2/4    Data               Disabled    Link Down        Down
    Ethernet2/5    Data               Disabled    Link Down        Down
    Ethernet2/6    Data               Disabled    Link Down        Down
    Ethernet2/7    Data               Disabled    Link Down        Down
    Ethernet2/8    Data               Disabled    Link Down        Down


FPR2100 /eth-uplink/fabric # show port-channel
    Port Channel:
        Port Channel Id Name             Port Type          Admin State            Oper
 State            State Reason
        --------------- ---------------- ------------------           -----------
          -----------------           ------------
        1               Port-channel1    Data               Disabled
     Link Down                      Down
```

```
FPR2100 /eth-uplink/fabric/port-channel # show stats
    Ether Error Stats:
        Time Collected: 2016-11-14T21:27:16.386
        Monitored Object: fabric/lan/A/pc-1/err-stats
        Suspect: No
        Rcv (errors): 0
        Align (errors): 0
        Fcs (errors): 0
        Xmit (errors): 0
        Under Size (errors): 0
        Out Discard (errors): 0
        Deferred Tx (errors): 0
        Int Mac Tx (errors): 0
        Int Mac Rx (errors): 0
        Thresholded: Xmit Delta Min
    Ether Loss Stats:
        Time Collected: 2016-11-14T21:27:16.386
        Monitored Object: fabric/lan/A/pc-1/loss-stats
        Suspect: No
        Single Collision (errors): 0
        Multi Collision (errors): 0
        Late Collision (errors): 0
        Excess Collision (errors): 0
        Carrier Sense (errors): 0
        Giants (errors): 0
        Symbol (errors): 0
        SQE Test (errors): 0
        Thresholded: 0
    Ether Pause Stats:
        Time Collected: 2016-11-14T21:27:16.386
        Monitored Object: fabric/lan/A/pc-1/pause-stats
        Suspect: No
        Recv Pause (pause): 0
        Xmit Pause (pause): 0
        Resets (resets): 0
        Thresholded: 0
    Ether Rx Stats:
        Time Collected: 2016-11-14T21:27:16.386
        Monitored Object: fabric/lan/A/pc-1/rx-stats
        Suspect: No
        Total Packets (packets): 0
        Unicast Packets (packets): 0
        Multicast Packets (packets): 0
        Broadcast Packets (packets): 0
        Total Bytes (bytes): 0
        Jumbo Packets (packets): 0
        Thresholded: 0
    Ether Tx Stats:
       Time Collected: 2016-11-14T21:27:16.386
        Monitored Object: fabric/lan/A/pc-1/tx-stats
        Suspect: No
        Total Packets (packets): 0
        Unicast Packets (packets): 0
        Multicast Packets (packets): 0
        Broadcast Packets (packets): 0
        Total Bytes (bytes): 0
        Jumbo Packets (packets): 0
    FPR2100 /eth-uplink/fabric/interface # show stats
    Ether Error Stats:
        Time Collected: 2016-11-14T21:27:46.395
        Monitored Object: sys/switch-A/slot-1/switch-ether/port-1/err-stats
        Suspect: No
        Rcv (errors): 0
```

```
    Align (errors): 0
    Fcs (errors): 0
    Xmit (errors): 0
    Under Size (errors): 0
    Out Discard (errors): 0
    Deferred Tx (errors): 0
    Int Mac Tx (errors): 0
    Int Mac Rx (errors): 0
    Thresholded: Xmit Delta Min
Ether Loss Stats:
    Time Collected: 2016-11-14T21:27:46.395
    Monitored Object: sys/switch-A/slot-1/switch-ether/port-1/loss-stats
    Suspect: No
    Single Collision (errors): 0
    Multi Collision (errors): 0
    Late Collision (errors): 0
    Excess Collision (errors): 0
    Carrier Sense (errors): 0
    Giants (errors): 7180
    Symbol (errors): 0
    SQE Test (errors): 0
    Thresholded: 0
Ether Pause Stats:
    Time Collected: 2016-11-14T21:27:46.395
    Monitored Object: sys/switch-A/slot-1/switch-ether/port-1/pause-stats
    Suspect: No
    Recv Pause (pause): 0
    Xmit Pause (pause): 0
    Resets (resets): 0
    Thresholded: 0
Ether Rx Stats:
    Time Collected: 2016-11-14T21:27:46.395
    Monitored Object: sys/switch-A/slot-1/switch-ether/port-1/rx-stats
    Suspect: No
    Total Packets (packets): 604527
    Unicast Packets (packets): 142906
    Multicast Packets (packets): 339031
    Broadcast Packets (packets): 122590
    Total Bytes (bytes): 59805045
    Jumbo Packets (packets): 0
    Thresholded: 0
Ether Tx Stats:
    Time Collected: 2016-11-14T21:27:46.395
    Monitored Object: sys/switch-A/slot-1/switch-ether/port-1/tx-stats
    Suspect: No
    Total Packets (packets): 145018
    Unicast Packets (packets): 145005
    Multicast Packets (packets): 0
    Broadcast Packets (packets): 13
    Total Bytes (bytes): 13442404
    Jumbo Packets (packets): 0
    Thresholded: 0
```

Fabric Interconnect Mode Troubleshooting Commands

Use the following fabric-interconnect mode FXOS CLI commands to troubleshoot issues with your system.

show card

Displays information on a fabric card.

For example:

```
FPR2100 /fabric-interconnect # show card detail expand
Fabric Card:
    Id: 1
    Description: Cisco SSP FPR 2130 Base Module
    Number of Ports: 16
    State: Online
    Vendor: Cisco Systems, Inc.
    Model: FPR-2130
    HW Revision: 0
    Serial (SN): JAD2012091X
    Perf: N/A
    Operability: Operable
    Overall Status: Operable
    Power State: Online
    Presence: Equipped
    Thermal Status: N/A
    Voltage Status: N/A
```

show image

Displays all available images.

```
firepower /firmware # show image
Name                                       Type                Version
------------------------------------------ ------------------- -------
cisco-asa-9.10.1.csp                       Firepower Cspapp    9.10.1
cisco-asa-9.9.2.csp                        Firepower Cspapp    9.9.2
fxos-k8-fp2k-firmware.0.4.04.SPA           Firepower Firmware  0.4.04
fxos-k8-fp2k-lfbff.82.1.1.303i.SSA         Firepower System    82.1(1.303i)
fxos-k8-fp2k-npu.82.1.1.303i.SSA           Firepower Npu       82.1(1.303i)
fxos-k8-fp2k-npu.82.1.1.307i.SSA           Firepower Npu       82.1(1.307i)
fxos-k9-fp2k-manager.82.1.1.303i.SSA       Firepower Manager   82.1(1.303i)
```

show package

Displays all available packages.

```
firepower /firmware # show package
    Name                                       Package-Vers
    ------------------------------------------ ------------
    cisco-ftd-fp2k.9.10.1.SSA                  9.10.1
    cisco-ftd-fp2k.9.9.2.SSA                   9.9.2
```

show package *package_name* expand

Displays the package details.

```
    firepower /firmware # show package cisco-ftd-fp2k.9.10.1.SSA expand
    Package cisco-ftd-fp2k.9.10.1.SSA:
        Images:
            cisco-asa.9.10.1.csp
            fxos-k8-fp2k-firmware.0.4.04.SPA
            fxos-k8-fp2k-lfbff.82.1.1.303i.SSA
            fxos-k8-fp2k-npu.82.1.1.303i.SSA
            fxos-k9-fp2k-manager.82.1.1.303i.SSA
```

scope auto-install

Enters the auto-install mode. From this mode, you can view the current FXOS upgrade state.

```
firepower /firmware/auto-install # show
    Firmware Auto-Install:
        Package-Vers Oper State                 Upgrade State
        ------------ --------------------------- -------------
        9.10.1           Scheduled                    Installing Application
```

scope firmware

Enters the firmware mode. From this mode, you can view download task information.
For example:

```
FPR2100 /firmware # show download-task
    Download task:
        File Name                                    Protocol Server          Port
     Userid          State
        ---------                                 -------- --------------- ----------
 --------------- -----
        cisco-ftd-fp2k.9.10.1.SSA                    Scp      172.29.191.78
   0 danp            Downloaded
        cisco-ftd-fp2k.9.9.1.SSA                     Scp      172.29.191.78
   0 danp            Downloaded
```

scope download-task

Enters the download-task mode. From this mode, you can view additional details about each download task and restart the download task.
For example:

```
Download task:
    File Name: test.SSA
    Protocol: Scp
    Server: 172.29.191.78
    Port: 0
    Userid: user
    Path: /tmp
    Downloaded Image Size (KB): 0
    Time stamp: 2016-11-15T19:42:29.854
    State: Failed
    Transfer Rate (KB/s): 0.000000
    Current Task: deleting downloadable test.SSA on
local(FSM-STAGE:sam:dme:FirmwareDownloaderDownload:DeleteLocal)
firepower /firmware/download-task # show fsm status
File Name: test.SSA
    FSM 1:
        Remote Result: End Point Failed
        Remote Error Code: ERR MO Illegal Iterator State
        Remote Error Description: End point timed out. Check for IP, port, password,
disk space or network access related issues.#
        Status: Download Fail
        Previous Status: Download Fail
        Timestamp: 2016-11-15T19:42:29.854
        Try: 2
        Progress (%): 0
        Current Task: deleting downloadable test.SSA on
local(FSM-STAGE:sam:dme:FirmwareDownloaderDownload:DeleteLocal)

    firepower /firmware/download-task # restart
    Password:
```

scope psu

Enters the power supply unit mode. From this mode, you can view detailed information about the power supply unit.
For example:

```
    FPR2100 /chassis #  show psu expand detail
    PSU:
        PSU: 1
        Overall Status: Powered Off
        Operability: Unknown
        Power State: Off
```

```
Presence: Equipped
Voltage Status: Unknown
Product Name: Cisco Firepower 2000 Series AC 400W Power Supply
PID: FPR2K-PWR-AC-400
VID: V01
Vendor: Cisco Systems, Inc
Serial (SN): LIT2010CAFE
Type: AC
Fan Status: Ok
PSU: 2
Overall Status: Operable
Operability: Operable
Power State: On
Presence: Equipped
Voltage Status: Ok
Product Name: Cisco Firepower 2000 Series AC 400W Power Supply
PID: FPR2K-PWR-AC-400
VID: V01
Vendor: Cisco Systems, Inc
Serial (SN): LIT2010CAFE
Type: AC
Fan Status: Ok
```

Connect Local-Mgmt Troubleshooting Commands for the Firepower 2100 in Platform Mode

Use the following connect local-mgmt mode FXOS CLI commands to troubleshoot issues with your Firepower 2100 in Platform mode. To access connect local-mgmt mode, enter:

FPR2100# **connect local-mgmt**

show lacp

Displays detailed information about EtherChannel LACP.
For example:

```
FPR2100(local-mgmt)# show lacp neighborFlags:  S - Device is requesting Slow LACPDUs
        F - Device is requesting Fast LACPDUs
        A - Device is in Active mode       P - Device is in Passive mode

Channel group: 11

Partner (internal) information:

          Partner                Partner                       Partner
Port      System ID             Port Number     Age         Flags
Eth1/1    32768,286f.7fec.5980  0x10e           13 s        FA


          LACP Partner           Partner           Partner
          Port Priority        Oper Key        Port State
          32768                0x16            0x3f

          Port State Flags Decode:
          Activity:   Timeout:   Aggregation:   Synchronization:
          Active      Long       Yes            Yes

          Collecting:   Distributing:   Defaulted:   Expired:
          Yes           Yes             No          No
```

```
          Partner                 Partner                       Partner
Port      System ID              Port Number     Age          Flags
Eth1/2    32768,286f.7fec.5980  0x10f           5  s         FA

          LACP Partner           Partner           Partner
          Port Priority        Oper Key        Port State
          32768                0x16            0x3f

          Port State Flags Decode:
          Activity:   Timeout:   Aggregation:   Synchronization:
          Active      Long       Yes             Yes

          Collecting:   Distributing:   Defaulted:   Expired:
          Yes           Yes             No           No


FP2100(local-mgmt)# show lacp counters

              LACPDUs         Marker      Marker Response    LACPDUs
Port       Sent   Recv     Sent   Recv    Sent    Recv      Pkts Err
--------------------------------------------------------------------
Channel group: 11
Eth1/1     4435   3532     0      0        0      0         0
Eth1/2     4566   3532     0      0        0      0         0
```

show portchannel

Displays detailed information about EtherChannels.
For example:

```
FPR2100(local-mgmt)# show portchannel summary
Flags:  D - Down        P - Up in port-channel (members)
I - Individual  H - Hot-standby (LACP only)
s - Suspended   r - Module-removed
S - Switched    R - Routed
U - Up (port-channel)
M - Not in use. Min-links not met
------------------------------------------------------------------------------
Group Port-       Type     Protocol  Member Ports
      Channel
------------------------------------------------------------------------------
11    Po11(U)     Eth      LACP      Eth1/1(P)    Eth1/2(P)
```

show portmanager

Displays detailed information about physical interfaces.
For example:

```
FPR2100(local-mgmt)# show portmanager counters ethernet 1 1
Good Octets Received                              : 105503260
Bad Octets Received                               : 0
MAC Transmit Error                                : 0
Good Packets Received                             : 1376050
Bad Packets Received                              : 0
BRDC Packets Received                             : 210
MC Packets Received                               : 1153664
Size 64                                           : 1334830
Size 65 to 127                                    : 0
Size 128 to 255                                   : 0
Size 256 to 511                                   : 41220
Size 512 to 1023                                  : 0
Size 1024 to Max                                  : 0
```

```
Good Octets Sent                                  : 0
Good Packets Sent                                 : 0
Excessive Collision                               : 0
MC Packets Sent                                   : 0
BRDC Packets Sent                                 : 0
Unrecognized MAC Received                         : 0
FC Sent                                           : 0
Good FC Received                                  : 0
Drop Events                                       : 0
Undersize Packets                                 : 0
Fragments Packets                                 : 0
Oversize Packets                                  : 0
Jabber Packets                                    : 0
MAC RX Error Packets Received                     : 0
Bad CRC                                           : 0
Collisions                                        : 0
Late Collision                                    : 0
bad FC Received                                   : 0
Good UC Packets Received                          : 222176
Good UC Packets Sent                              : 0
Multiple Packets Sent                             : 0
Deferred Packets Sent                             : 0
Size 1024 to 15180                                : 0
Size 1519 to Max                                  : 0
txqFilterDisc                                     : 0
linkChange                                        : 1
```

```
FPR2100(local-mgmt)# show portmanager port-info ethernet 1 1
port_info:
        if_index:    0x1081000
        type:        PORTMGR_IPC_MSG_PORT_TYPE_PHYSICAL
        mac_address: 2c:f8:9b:1e:8f:d6
        flowctl:     PORTMGR_IPC_MSG_FLOWCTL_NONE
        role:        PORTMGR_IPC_MSG_PORT_ROLE_NPU
        admin_state: PORTMGR_IPC_MSG_PORT_STATE_ENABLED
        oper_state:  PORTMGR_IPC_MSG_PORT_STATE_UP
        admin_speed: PORTMGR_IPC_MSG_SPEED_AUTO
        oper_speed:  PORTMGR_IPC_MSG_SPEED_1GB
        admin_mtu:   9216
        admin_duplex: PORTMGR_IPC_MSG_PORT_DUPLEX_AUTO
        oper_duplex: PORTMGR_IPC_MSG_PORT_DUPLEX_FULL
        pc_if_index: 0x0
        pc_membership_status: PORTMGR_IPC_MSG_MMBR_NOT_MEMBER
        pc_protocol: PORTMGR_IPC_MSG_PORT_CHANNEL_PRTCL_NONE
        native_vlan: 101
        num_allowed_vlan: 1
                allowed_vlan[0]: 101
        PHY Data:
        PAGE IFC OFFSET VALUE  | PAGE IFC OFFSET VALUE
        ---- --- ------ -----  | ---- --- ------ -----
         0    0  0x0000 0x1140 |  0    0  0x0001 0x796d
         0    0  0x0002 0x0141 |  0    0  0x0003 0x0ee1
         0    0  0x0004 0x03e3 |  0    0  0x0005 0xc1e1
         0    0  0x0006 0x000f |  0    0  0x0007 0x2001
         0    0  0x0008 0x4f08 |  0    0  0x0009 0x0f00
         0    0  0x000a 0x3800 |  0    0  0x000f 0x3000
         0    0  0x0010 0x3070 |  0    0  0x0011 0xac08
         0    0  0x0012 0x0000 |  0    0  0x0013 0x1c40
         0    0  0x0014 0x8020 |  0    0  0x0015 0x0000
        18    0  0x001b 0x0000 |
```

Item	Description
Good Octets Received	Number of ethernet frames received that are not bad ethernet frames
Bad Octets Received	Sum of lengths (in bytes) of all bad ethernet frames received.
MAC Transmit Error	Number of frames not transmitted correctly or dropped due to internal MAC Tx error
Good Packets Received	The number of frames received that are not bad ethernet frames.
Bad Packets Received	The number of bad frames received
BRDC Packets Received	The number of good frames received that have a Broadcast destination MAC address
MC Packets Received	The number of good frames received that have a Multicast destination MAC address
Good Octets Sent	The sum of lengths of all Ethernet frames sent
Good Packets Sent	The number of good frames sent
Excessive Collision	The number of collision events seen by the MAC not including those counted in Single, Multiple, Excessive, or Late. This counter is applicable in half-duplex only
MC Packets Sent	The number of good frames send that have a Multicast destination MAC address
BRDC Packets Sent	The number of good frames send that have a Broadcast destination MAC address
Unrecognized MAC Received	Number of received MAC Control frames that are not Flow control frames.
FC sent	Number of Flow Control frames sent.
Good FC Received	Number of good IEEE 802.3x Flow Control packets received.
Drop Events	Number of packets dropped
Undersize Packets	Number of undersize packets received
Fragments Packets	Number of fragments received.
Oversize Packets	Number of oversize packets received
Jabber Packets	Number of jabber packets received

Item	Description
MAC RX Error Packets Received	Number of Rx Error events seen by the receive side of the MAC
Bad CRC	Number of packets received with bad CRC
Collisions	Number of late collisions seen by the MAC
Late collison	Total number of late collisions seen by the MAC
Bad FC Received	Number of bad IEEE 802.3x Flow Control packets received
Good UC Packets Received	Number of Ethernet Unicast frames received
Good UC Packets Sent	Number of Ethernet Unicast frames sent
Multiple Packets Sent	Valid Frame transmitted on half-duplex link that encountered more then one collision. Byte count and cast are valid.
Deferred Packets Sent	Valid frame transmitted on half-duplex link with no collisions, but where the frame transmission was delayed due to media being busy. Byte count and cast are valid.
Size 1024 to 15180	The number of received and transmitted, good and bad frames that are 1024 to 1518 bytes in size
Size 1519 to Max	The number of received and transmitted, good and bad frames that are more than 1519 bytes in size
txqFilterDisc	Number of IN packets that were filtered due to TxQ
linkChange	number of link up or link down changes for the port

```
FPR2100(local-mgmt)# show portmanager switch mac-filters
port ix          MAC                mask        action      packets       bytes

00   0ba  2C:F8:9B:1E:8F:D7  FF:FF:FF:FF:FF:FF  FORWARD
     0c9  01:80:C2:00:00:02  FF:FF:FF:FF:FF:FF  FORWARD
     0cc  2C:F8:9B:1E:8F:F7  FF:FF:FF:FF:FF:FF  FORWARD
     0cf  FF:FF:FF:FF:FF:FF  FF:FF:FF:FF:FF:FF  FORWARD
     b70  00:00:00:00:00:00  01:00:00:00:00:00  DROP         222201    14220864
     bb8  01:00:00:00:00:00  01:00:00:00:00:00  DROP        1153821    91334968

01   0bd  2C:F8:9B:1E:8F:D6  FF:FF:FF:FF:FF:FF  FORWARD
     0c0  01:80:C2:00:00:02  FF:FF:FF:FF:FF:FF  FORWARD
     0c3  2C:F8:9B:1E:8F:F6  FF:FF:FF:FF:FF:FF  FORWARD
     0c6  FF:FF:FF:FF:FF:FF  FF:FF:FF:FF:FF:FF  FORWARD         210       13440
     b73  00:00:00:00:00:00  01:00:00:00:00:00  DROP         222201    14220864
     bbb  01:00:00:00:00:00  01:00:00:00:00:00  DROP        1153795    91281055
<...>
```

```
FPR2100(local-mgmt)# show portmanager switch status
Dev/Port         Mode        Link   Speed  Duplex  Loopback Mode
---------  ----------------  -----  -----  ------  -------------

0/0             QSGMII        Up     1G     Full    None
0/1             QSGMII        Up     1G     Full    None
0/2             QSGMII       Down    1G     Half    None
0/3             QSGMII       Down    1G     Half    None
0/4             QSGMII       Down    1G     Half    None
0/5             QSGMII       Down    1G     Half    None
0/6             QSGMII        Up     1G     Full    None
0/7             QSGMII       Down    1G     Half    None
0/48            QSGMII       Down    1G     Half    None
0/49            QSGMII       Down    1G     Half    None
0/50            QSGMII       Down    1G     Half    None
0/51            QSGMII       Down    1G     Half    None
0/52              KR          Up     40G    Full    None
0/56            SR_LR        Down    10G    Full    None
0/57            SR_LR        Down    10G    Full    None
0/58            SR_LR        Down    10G    Full    None
0/59            SR_LR        Down    10G    Full    None
0/64            SR_LR        Down    10G    Full    None
0/65            SR_LR        Down    10G    Full    None
0/66            SR_LR        Down    10G    Full    None
0/67            SR_LR        Down    10G    Full    None
0/68            SR_LR        Down    10G    Full    None
0/69            SR_LR        Down    10G    Full    None
0/70            SR_LR        Down    10G    Full    None
0/71            SR_LR        Down    10G    Full    None
0/80              KR          Up     10G    Full    None
0/81              KR         Down    10G    Full    None
0/83              KR          Up     10G    Full    None
```

Connect Local-Mgmt Troubleshooting Commands for the Secure Firewall 3100

In addition to the existing debugging commands, CLIs specific to Secure Firewall 3100 are explained in this section below.

Use the following connect local-mgmt mode FXOS CLI commands to troubleshoot issues with your Secure Firewall 3100. To access connect local-mgmt mode, enter:

FPR3100# **connect local-mgmt**

show portmanager

Displays detailed information about switched, packets, SFP-FEC counters, digital optical monitoring, QOS functionality, CPSS AP, and Cyclic log dumps.
For example:
The following CLI displays the FXOS port manager switch hardware TCAM rules dump in vtcam-tti:

```
firepower-3140(local-mgmt)# show portmanager switch forward-rules hardware vtcam-tti
detail
 VTCAM_RULE_ID   VLAN   SRC_PORT  PORTCHANNEL_ID  FLAGS  MODE  REF_COUNT
1               21      0          2               0      2     5          3
2             3078      0          0               0      0     0          1
3             3077      0          0               0      0     0          1
```

```
4              3076       0          0                0       0      0          1
5              3075       0          0                0       0      0          1
6              3074       0          0                0       0      0          1
7              3073       0          0                0       0      0          1
8                 1       0          0                0       0      0          1
9                18     102          0                0      24      8          1
10                5     157          0                0      24      8          1
11               31       0         12                0       2      5          3
12               15     105          0                0      24      8          1
13                9     111          0                0      24      8          1
14               13     107          0                0      24      8          1
15               26       0          7                0       2      5          3
16               29       0         10                0       2      5          3
17               23       0          4                0       2      5          3
18               19     101          0                0      24      8          1
19               30       0         11                0       2      5          3
20               28       0          9                0       2      5          3
21                4     156          0                0      24      8          1
22               34       0         15                0       2      5          3
23                6     158          0                0      24      8          1
24                8     112          0                0      24      8          1
25               24       0          5                0       2      5          3
26               14     106          0                0      24      8          1
27               32       0         13                0       2      5          3
28               25       0          6                0       2      5          3
29               12       0          0                9       6      5          2
30               20       0          1                0       2      5          3
31               11     109          0                0      24      8          1
32               27       0          8                0       2      5          3
33               17     103          0                0      24      8          1
34               22       0          3                0       2      5          3
35               16     104          0                0      24      8          1
36                3       0         19                0      26      8          1
37               35       0         16                0       2      5          3
38               33       0         14                0       2      5          3
39                7     159          0                0      24      8          1
40                2       0         17                0      26      8          1
41               10     110          0                0      24      8          1
```

The following CLI displays the FXOS port manager switch VLANs output:

```
firepower-3140(local-mgmt)# show portmanager switch vlans
VLAN                          Ports                              Tag      MAC-Learning
  FDB-mode
-----  -------------------------------------------------  --------  --------------
 ---------
1                             0/17,19                         pop_outer_tag    Control
      FID
2                             0/1-16,18              outer_tag0_inner_tag1   Control
      FID
                                0/20                     pop_outer_tag

3                             0/1-16,18              outer_tag0_inner_tag1   Control
      FID
4                             0/1-16,18              outer_tag0_inner_tag1   Control
      FID
5                             0/1-16,18              outer_tag0_inner_tag1   Control
      FID
6                             0/1-16,18              outer_tag0_inner_tag1   Control
      FID
7                             0/1-16,18              outer_tag0_inner_tag1   Control
      FID
```

```
8                               0/1-16,18               outer_tag0_inner_tag1   Control
      FID
```

The following CLI helps you to to check port-channel interface summary:

```
firepower-3140(local-mgmt)# show por
portchannel  portmanager

firepower-3140(local-mgmt)# show portchannel summary
Flags:  D - Down        P - Up in port-channel (members)
I - Individual  H - Hot-standby (LACP only)
s - Suspended   r - Module-removed
S - Switched    R - Routed
U - Up (port-channel)
M - Not in use. Min-links not met
--------------------------------------------------------------------------------
Group Port-       Type     Protocol  Member Ports
      Channel
--------------------------------------------------------------------------------
3     Po3(U)      Eth      LACP      Eth1/3(P)
2     Po2(U)      Eth      LACP      Eth1/2(P)

LACP KeepAlive Timer:
--------------------------------------------------------------------------------
      Channel  PeerKeepAliveTimerFast
--------------------------------------------------------------------------------
3     Po3(U)      False
2     Po2(U)      False

Cluster LACP Status:
--------------------------------------------------------------------------------
      Channel  ClusterSpanned  ClusterDetach  ClusterUnitID  ClusterSysID
--------------------------------------------------------------------------------
3     Po3(U)      False          False          0
2     Po2(U)      False          False          0
</pre>
```

The following CLI displays the port-channel load-balancing method:

```
firepower-3140(local-mgmt)# show portchannel load-balance
PortChannel Load-Balancing Configuration:
   src-dst ip-l4port
PortChannel Load-Balancing Configuration Used Per-Protocol:
Non-IP: src-dst mac
   IP: src-dst ip-l4port
</pre>
```

The following CLI displays the status of FXOS system processes:

```
firepower-3140(local-mgmt)# show pmon state

SERVICE NAME             STATE     RETRY(MAX)    EXITCODE    SIGNAL    CORE
------------             -----     ----------    --------    ------    ----
svc_sam_dme            running           0(4)           0         0      no
svc_sam_dcosAG         running           0(4)           0         0      no
svc_sam_portAG         running           0(4)           0         0      no
svc_sam_statsAG        running           0(4)           0         0      no
httpd.sh               running           0(4)           0         0      no
svc_sam_sessionmgrAG   running           0(4)           0         0      no
sam_core_mon           running           0(4)           0         0      no
svc_sam_svcmonAG       running           0(4)           0         0      no
svc_sam_serviceOrchAG   running           0(4)           0         0      no
svc_sam_appAG          running           0(4)           0         0      no
svc_sam_envAG          running           0(4)           0         0      no
```

```
svc_sam_npuAG           running           0(4)           0         0      no
svc_sam_eventAG         running           0(4)           0         0      no
```

The following CLI displays switch hardware TCAM rules dump in vtcam-tti stage matching ethernet 1/1 port:

```
firepower-3140(local-mgmt)# show portmanager switch forward-rules hardware vtcam-tti
ethernet 1 1
RULE_ID   VLAN   SRC_PORT   PC_ID   SRC_ID   MODE   PAK_CNT
 1          20     0   1       0     101      0       151
```

The following CLI displays switch hardware TCAM rules dump in vtcam-tti stage matching vlan 0:

```
firepower-3140(local-mgmt)# show portmanager switch forward-rules hardware vtcam-tti
vlan 0
         RULE_ID   VLAN   SRC_PORT   PC_ID   SRC_ID   MODE   PAK_CNT
1           2      0         17       0       17      0       1709
2           3      0         19       0       19      0       1626
3           4      0         16       0        0      0          0
4           5      0         15       0        0      0          0
5           6      0         14       0        0      0          0
6           7      0         13       0        0      0          0
7           8      0         12       0        0      0          0
8           9      0         11       0        0      0          0
9          10      0         10       0        0      0          0
10         11      0          9       0        0      0          0
11         12      0          8       0        0      0          0
12         13      0          7       0        0      0          0
13         14      0          6       0        0      0          0
14         15      0          5       0        0      0          0
15         16      0          4       0        0      0          0
16         17      0          3       0        0      0          0
17         18      0          2       0        0      0          0
18         19      0          1       0        0      0          0
19         20      0          1       0      101      0       166
20         21      0          2       0      102      0       1597
21         22      0          3       0      103      0          0
22         23      0          4       0      104      0          0
23         24      0          5       0      105      0          0
24         25      0          6       0      106      0          0
25         26      0          7       0      107      0          0
26         27      0          8       0      108      0          0
27         28      0          9       0      109      0          0
28         29      0         10       0      110      0          0
29         30      0         11       0      111      0          0
30         31      0         12       0      112      0          0
31         32      0         13       0      159      0          0
32         33      0         14       0      158      0          0
33         34      0         15       0      157      0          0
34         35      0         16       0      156      0          0
35          1      0         17       0        0      0          0
```

The following CLI displays detailed information about hardware MAC-filter / EM stage rules:

```
firepower-3140(local-mgmt)# show portmanager switch forward-rules hardware mac-filter
detail
EM Entry-No  :     1


      VLAN            :    0
      SRC_PORT        :   17
      PC_ID           :    0
      SRC_ID          :   17
      DST_PORT        :   19
      HW_ID           :   3072
```

```
      ACT_CMD          :    0
      PCL_ID           :    1
      REDIRECT_CMD     :    1
      BYPASS_BRG       :    1
      CND_INDEX        : 3074
      PACKET_COUNT     :       1977
      DMAC             : 00:00:00:00:00:00


EM Entry-No  :     2


      VLAN             :    0
      SRC_PORT         :   19
      PC_ID            :    0
      SRC_ID           :   19
      DST_PORT         :   17
      HW_ID            :   3074
      ACT_CMD          :    0
      PCL_ID           :    1
      REDIRECT_CMD     :    1
      BYPASS_BRG       :    1
      CND_INDEX        : 3075
      PACKET_COUNT     :       1858
      DMAC             : 00:00:00:00:00:00
```

The following CLI displays switch hardware TCAM rules dump in mac-filter stage matching ethernet 1/9 port:

```
firepower-3140(local-mgmt)# show portmanager switch forward-rules hardware mac-filter
ethernet 1 9
VLAN   SRC_PORT   PC_ID   SRC_ID   DST_PORT     PKT_CNT      DMAC
1        0          9       0      109      1536           0  1:80:c2:0:0:2
```

The following CLI displays detailed information about software MAC-filter:

```
firepower-3140(local-mgmt)# show portmanager switch forward-rules software mac-filter
detail
 VLAN   SRC_PORT   PORTCHANNEL_ID   DST_PORT   FLAGS   MODE      DMAC
1         0         17                0         19      26      8   0:0:0:0:0:0
2         0          9                0       1536       2      5   1:80:c2:0:0:2
3       104          0                0          4      24      8   0:0:0:0:0:0
4         0          7                0       1536       2      5   1:80:c2:0:0:2
5       101          0                0          1      24      8   0:0:0:0:0:0
6         0          1                0       1536       2      5   1:80:c2:0:0:2
7         0          3                0       1536       2      5   1:80:c2:0:0:2
8       106          0                0          6      24      8   0:0:0:0:0:0
9       158          0                0         14      24      8   0:0:0:0:0:0
10        0         13                0       1536       2      5   1:80:c2:0:0:2
11        0         14                0       1536       2      5   1:80:c2:0:0:2
12        0          6                0       1536       2      5   1:80:c2:0:0:2
13        0          8                0       1536       2      5   1:80:c2:0:0:2
14      112          0                0         12      24      8   0:0:0:0:0:0
15      107          0                0          7      24      8   0:0:0:0:0:0
16        0         19                0         17      26      8   0:0:0:0:0:0
17        0         12                0       1536       2      5   1:80:c2:0:0:2
18        0          5                0       1536       2      5   1:80:c2:0:0:2
19      102          0                0          2      24      8   0:0:0:0:0:0
20      156          0                0         16      24      8   0:0:0:0:0:0
21      103          0                0          3      24      8   0:0:0:0:0:0
22        0         11                0       1536       2      5   1:80:c2:0:0:2
23      157          0                0         15      24      8   0:0:0:0:0:0
24      111          0                0         11      24      8   0:0:0:0:0:0
```

```
25        0         10                0       1536       2      5   1:80:c2:0:0:2
26      108          0                0          8      24      8   0:0:0:0:0:0
27      159          0                0         13      24      8   0:0:0:0:0:0
28      110          0                0         10      24      8   0:0:0:0:0:0
29      105          0                0          5      24      8   0:0:0:0:0:0
30        0          2                0       1536       2      5   1:80:c2:0:0:2
31        0          4                0       1536       2      5   1:80:c2:0:0:2
32        0         16                0       1536       2      5   1:80:c2:0:0:2
33      109          0                0          9      24      8   0:0:0:0:0:0
34        0         15                0       1536       2      5   1:80:c2:0:0:2
```

The following CLI displays switch software DB rules in mac-filter stage matching ethernet1/9 port:

```
firepower-3140(local-mgmt)# show portmanager switch forward-rules software mac-filter
ethernet 1 9
VLAN    SRC_PORT    PORTCHANNEL_ID    DST_PORT    FLAGS    MODE       DMAC
1          0           9                 0        1536       2      5   1:80:c2:0:0:2
```

The following CLI displays detailed information about switch bridge engine packet drops:

```
firepower-3140(local-mgmt)# show portmanager switch counters bridge
Bridge Ingress Drop Counter: 2148
No Bridge Ingress Drop
```

The following CLI displays details on hardware switch packet counters:

```
firepower-3140(local-mgmt)# show portmanager switch counters packet-trace

       Counter                              Description
---------------------- ------------------------------------------------------------
goodOctetsRcv          Number of ethernet frames received that are not bad
                       ethernet frames or MAC Control pkts
badOctetsRcv           Sum of lengths of all bad ethernet frames received
gtBrgInFrames          Number of packets received
gtBrgVlanIngFilterDisc Number of packets discarded due to VLAN Ingress Filtering
gtBrgSecFilterDisc     Number of packets discarded due to
                       Security Filtering measures
gtBrgLocalPropDisc     Number of packets discarded due to reasons other than
                       VLAN ingress and Security filtering
dropCounter            Ingress Drop Counter
outUcFrames            Number of unicast packets transmitted
outMcFrames            Number of multicast packets transmitted. This includes
                       registered multicasts, unregistered multicasts
                       and unknown unicast packets
outBcFrames            Number of broadcast packets transmitted
brgEgrFilterDisc       Number of IN packets that were Bridge Egress filtered
txqFilterDisc          Number of IN packets that were filtered
                       due to TxQ congestion
outCtrlFrames          Number of out control packets
                       (to cpu, from cpu and to  analyzer)
egrFrwDropFrames       Number of packets dropped due to egress
                       forwarding restrictions
goodOctetsSent         Sum of lengths of all good ethernet
                       frames sent from this MAC
        Counter            Source port- 0/0    Destination port- 0/0
----------------------  --------------------  ---------------------
goodOctetsRcv                    ---                   ---
badOctetsRcv                      ---                   ---
                                      Ingress counters
gtBrgInFrames                   6650                  6650
gtBrgVlanIngFilterDisc             0                     0
gtBrgSecFilterDisc                 0                     0
gtBrgLocalPropDisc                 0                     0
```

```
dropCounter                          2163           Only for source-port
                                                 Egress counters
outUcFrames                             0                        0
outMcFrames                          2524                     2524
outBcFrames                          1949                     1949
brgEgrFilterDisc                       14                       14
txqFilterDisc                           0                        0
outCtrlFrames                           0                        0
egrFrwDropFrames                        0                        0
goodOctetsSent                        ---                      ---          #
```

The following CLI displays detailed informatin about the switch traffic for CPU:

```
firepower-3140(local-mgmt)# show portmanager switch traffic cpu

Dev/RX queue  packets    bytes
------------  ---------- ----------

0/0           0          0
0/1           0          0
0/2           0          0
0/3           0          0
0/4           0          0
0/5           0          0
0/6           0          0
0/7           0          0          #
```

The following CLI displays details on hardware switch port traffic:

```
firepower-3140(local-mgmt)# show portmanager switch traffic port


max-rate - pps that the port allow with packet size=64
actual-tx-rate - pps that egress the port (+ % from 'max')
actual-rx-rate - pps that ingress the port(+ % from 'max')

Dev/Port   max-rate  actual-tx-rate    actual-rx-rate
---------  --------  ---------------   ---------------
0/1         1488095    (0%)---           (0%)---
0/2         1488095    (0%)---           (0%)---
0/3         14880      (0%)---           (0%)---
0/4         14880      (0%)---           (0%)---
0/5         14880      (0%)---           (0%)---
0/6         14880      (0%)---           (0%)---
0/7         14880      (0%)---           (0%)---
0/8         14880      (0%)---           (0%)---
0/9         14880952   (0%)---           (0%)---
0/10        14880952   (0%)---           (0%)---
0/11        14880952   (0%)---           (0%)---
0/12        14880952   (0%)---           (0%)---
0/13        14880952   (0%)---           (0%)---
0/14        14880952   (0%)---           (0%)---
0/15        1488095    (0%)---           (0%)---
0/16        1488095    (0%)---           (0%)---
0/17        14880952   (0%)---           (0%)---
0/18        74404761   (0%)---           (0%)---
0/19        37202380   (0%)---           (0%)---
0/20        37202380   (0%)---           (0%)---
```

The following CLI displays detailed information about SFP-FEC Counters matching ethernet 1/13 port:

```
firepower-3140(local-mgmt)# show portmanager counters ethernet 1 13
```

```
   Good Octets Received                              : 2153
   Bad Octets Received                               : 0
   MAC Transmit Error                                : 0
   Good Packets Received                             : 13
   Bad packets Received                              : 0
   BRDC Packets Received                             : 0
   MC Packets Received                               : 13
   .........
   .........
   txqFilterDisc                                     : 0
   linkchange                                        : 1
   FcFecRxBlocks                                     : 217038081
   FcFecRxBlocksNoError                              : 217038114
   FcFecRxBlocksCorrectedError                       : 0
   FcFecRxBlocksUnCorrectedError                     : 0
   FcFecRxBlocksCorrectedErrorBits                   : 0
   FcFecRxBlocksCorrectedError0                      : 0
   FcFecRxBlocksCorrectedError1                      : 0
   FcFecRxBlocksCorrectedError2                      : 0
   FcFecRxBlocksCorrectedError3                      : 0
   FcFecRxBlocksUnCorrectedError0                    : 0
   FcFecRxBlocksUnCorrectedError1                    : 0
   FcFecRxBlocksUnCorrectedError2                    : 0
   FcFecRxBlocksUnCorrectedError3                    : 0
```

The following CLI displays detailed information about SFP-FEC Counters matching ethernet 1/14 port:

```
firepower-3140(local-mgmt)# show portmanager counters ethernet 1 14
   Good Octets Received                              : 2153
   Bad Octets Received                               : 0
   MAC Transmit Error                                : 0
   Good Packets Received                             : 13
   Bad packets Received                              : 0
   BRDC Packets Received                             : 0
   MC Packets Received                               : 13
   .....
   .....
   txqFilterDisc                                     : 0
   linkchange                                        : 1
   RsFeccorrectedFecCodeword                         : 0
   RsFecuncorrectedFecCodeword                       : 10
   RsFecsymbolError0                                 : 5
   RsFecsymbolError1                                 : 0
   RsFecsymbolError2                                 : 0
   RsFecsymbolError3                                 : 0
```

The following CLI displays detailed information on the Digital Optical Monitoring information matching ethernet 1/5 port:

```
firepower-4245(local-mgmt)# show portmanager port-info ethernet 1 5
        ....
        ....
                DOM info:
                ========:

                Status/Control Register: 0800
                      RX_LOS State: 0
                      TX_FAULT State: 0
                Alarm Status: 0000
                No active alarms
                Warning Status: 0000
```

```
          No active warnings

THRESHOLDS
                        high alarm    high warning    low warning     low alarm

   Temperature     C    +075.000        +070.000        +000.000         -05.000

   Voltage         V    003.6300        003.4650        003.1350        002.9700

   Bias Current    mA   012.0000        011.5000        002.0000        001.0000

   Transmit power mW    034.6740        017.3780        002.5120        001.0000

   Receive power  mW    034.6740        017.3780        001.3490        000.5370


       Environmental Information - raw values
       Temperature: 38.84 C
       Supply voltage: 33703 in units of 100uVolt
       Tx bias: 3499 in units of 2uAmp
       Tx power:  0.1 dBm (10251 in units of 0.1 uW)
       Rx power: -0.9 dBm (8153 in units of 0.1 uW)
       DOM (256 bytes of raw data in hex)
          ====================================
          0x0000 : 4b 00 fb 00 46 00 00 00 8d cc 74 04 87 5a 7a 76
          0x0010 : 17 70 01 f4 16 76 03 e8 87 72 03 e8 43 e2 09 d0
          0x0020 : 87 72 02 19 43 e2 05 45 00 00 00 00 00 00 00 00
          0x0030 : 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
          0x0040 : 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
          0x0050 : 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 86
          0x0060 : 26 54 83 a7 0d ab 28 0b 1f d9 00 00 00 00 08 00
          0x0070 : 00 00 03 00 00 00 00 00 08 f3 00 00 00 00 00 01
          0x0080 : 49 4e 55 49 41 43 53 45 41 41 31 30 2d 33 33 38
          0x0090 : 38 2d 30 31 56 30 31 20 01 00 46 00 00 00 00 e3
          0x00a0 : 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
          0x00b0 : 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
          0x00c0 : 53 46 50 2d 31 30 2f 32 35 47 2d 43 53 52 2d 53
          0x00d0 : 20 20 20 20 30 38 00 00 00 00 00 00 00 00 00 d1
          0x00e0 : 1e 20 2a 2a 31 34 29 36 00 00 00 00 00 00 00 00
          0x00f0 : 00 00 00 00 00 56 00 00 ff ff ff ff 00 00 00 cf
          ====================================
        PHY Data:
        PAGE IFC OFFSET VALUE  | PAGE IFC OFFSET VALUE
        ---- --- ------ -----  | ---- --- ------ -----
```

The following CLI displays detailed information about the parameters set for the packet capture:

```
firepower-3140(local-mgmt)# show portmanager switch pktcap-rules software
Software DB rule:1
 Slot= 1
 Interface= 12
 Breakout-port= 0
 Protocol= 6
 Ethertype= 0x0000
 Filter_key= 0x00000040
 Session= 1
 Vlan= 0
 SrcPort= 0
 DstPort= 0
 SrcIp= 0.0.0.0
 DstIp= 0.0.0.0
 SrcIpv6= ::
 DestIpv6= ::
```

```
 SrcMacAddr= 00:00:00:00:00:00
 DestMacAddr= 00:00:00:00:00:00
```

The following CLI displays detailed information on the FXOS port manager switch hardware TCAM rules:

```
firepower-3140(local-mgmt)# show portmanager switch pktcap-rules hardware
Hardware DB rule:1
 Hw_index= 15372
 Rule_id= 10241
 Cnc_index= 1
 Packet_count= 0
 Slot= 1
 Interface= 12
 Protocol= 6
 Ethertype= 0x0000
 Vlan= 0
 SrcPort= 0
 DstPort= 0
 SrcIp= 0.0.0.0
 DstIp= 0.0.0.0
 SrcIpv6= ::
 DestIpv6= ::
 SrcMacAddr= 00:00:00:00:00:00
 DestMacAddr= 00:00:00:00:00:00
```

The following displays detailed information about the QOS functionality:

```
firepower(local-mgmt)# show portmanager switch qos-rule policer counters
Policer_type   green(pass_count)    yellow(pass_count)     red(drop_count)
-------------------------------------------------------------------------------
OSPF                  102025351                17832                 590
780
Policer_type   green(pass_count)    yellow(pass_count)     red(drop_count)
-------------------------------------------------------------------------------
CCL_CLU                  0                0                 0
Policer_type   green(pass_count)    yellow(pass_count)     red(drop_count)
-------------------------------------------------------------------------------
BFD                  61343307                0                 0
Policer_type   green(pass_count)    yellow(pass_count)     red(drop_count)
-------------------------------------------------------------------------------
HA                  0                0                 0
Policer_type   green(pass_count)    yellow(pass_count)     red(drop_count)
-------------------------------------------------------------------------------
CCL_CONTROL                  0                0                 0
```

The following CLI verifies if the high priority traffic is hitting the TCAM:

```
firepower(local-mgmt)# show portmanager switch qos-rule counters
Rule_no   Rule_id    Rule_type     pass_count
-----------------------------------------------
  1        9218     SW_QOS_BFD           0
Rule_no   Rule_id    Rule_type     pass_count
-----------------------------------------------
  2        9216     SW_QOS_OSPF      102633941
Rule_no   Rule_id    Rule_type     pass_count
-----------------------------------------------
  3        9217     SW_QOS_BFD      61343307
```

The following CLI displays the CPU statistics as per queue per device matching ethernet 1/10 port:

```
firepower(local-mgmt)# show queuing interface ethernet 1 10
Queue     Traffic-type    Scheduler-type  oper-bandwidth    Destination
------------------------------------------------------------------------
  3            Data           WRR             100           Application
  4         CCL-CLU            SP               0           Application
  5             BFD            SP               0           Application
  6            OSPF            SP               0           Application
  7  CCL-CONTROL/HA/LACP_Tx    SP               0           Application
  0  packet-capture           N/A               0                   CPU
  7            LACP_Rx        N/A               0                   CPU
Port 1/10 Queue Statistics:
Queue 0:
  Number of packets passed :                    0
  Number of packets dropped:                    0
Queue 1:
 Number of packets passed :                     0
 Number of packets dropped:                     0
Queue 2:
  Number of packets passed :                    0
  Number of packets dropped:                    0
Queue 3:
  Number of packets passed :            466420167
  Number of packets dropped:                    0
Queue 4:
  Number of packets passed :                    0
  Number of packets dropped:                    0
Queue 5:
  Number of packets passed :                    0
  Number of packets dropped:                    0
Queue 6:
  Number of packets passed :             41536261
  Number of packets dropped:                    0
Queue 7:
  Number of packets passed :                  912
  Number of packets dropped:                    0
CPU Statistics:
Queue 2:
  Number of packets passed :                180223
  Number of packets dropped:                     0
Queue 7:
  Number of packets passed :                  1572
  Number of packets dropped:                     0
```

The following CLI displays the CPU statistics as per queue per device matching internal 1/1 port:

```
firepower(local-mgmt)# show queuing interface internal 1 1
Queue     Traffic-type    Scheduler-type  oper-bandwidth    Destination
------------------------------------------------------------------------
  3            Data           WRR             100           Application
  4         CCL-CLU            SP               0           Application
  5             BFD            SP               0           Application
  6            OSPF            SP               0           Application
  7  CCL-CONTROL/HA/LACP_Tx    SP               0           Application
  0  packet-capture           N/A               0                   CPU
  7            LACP_Rx        N/A               0                   CPU
Port 1/18 Queue Statistics:
Queue 0:
  Number of packets passed :                    0
  Number of packets dropped:                    0
Queue 1:
 Number of packets passed :                     0
```

```
 Number of packets dropped:                      0
Queue 2:
  Number of packets passed :                     0
  Number of packets dropped:                     0
Queue 3:
  Number of packets passed :                    17
  Number of packets dropped:                     0
Queue 4:
  Number of packets passed :                     0
  Number of packets dropped:                     0
Queue 5:
  Number of packets passed :                     0
  Number of packets dropped:                     0
Queue 6:
  Number of packets passed :                  5151
  Number of packets dropped:                     0
Queue 7:
  Number of packets passed :                 17345
  Number of packets dropped:                     0
CPU Statistics:
Queue 2:
  Number of packets passed :                180223
  Number of packets dropped:                     0
Queue 7:
  Number of packets passed :                  1572
  Number of packets dropped:                     0
Note:The CPU statistics are per Queue per Device
```

The following CLI displays detailed information about dump AP log option :

```
firepower-3110(local-mgmt)# dump portmanager switch ap-log
requested log has been dumped to /opt/cisco/platform/logs/portmgr.out*

firepower-3110(local-mgmt)# dump portmanager switch cyclic-log
requested log has been dumped to /opt/cisco/platform/logs/portmgr.out*
```

The following CLI displays detailed information on enabling or disabling verbose logging for port manager:

```
firepower-3110(local-mgmt)# debug portmanager switch
all  Enable or Disable verbose logging for switch

firepower-3110(local-mgmt)# debug portmanager switch all
firepower-3110(local-mgmt)#

firepower-3110(local-mgmt)# no debug portmanager switch all
firepower-3110(local-mgmt)#
```

The following CLI displays detailed information on port-based packet drops for eight traffic classes/queues:

```
firepower-3110(local-mgmt)# show portmanager switch tail-drop-allocated buffers all
-----------------------------------------------------------------------------------------------

     |          |                          Per Port and Traffic Class
          |
Port | Per port | TC0     | TC1     | TC2     | TC3     | TC4     | TC5     | TC6
| TC7     |
-----|----------|---------|---------|---------|---------|---------|---------|---------|---------|
0/1  |10        |10       |0        |0        |0        |0        |0        |0
```

```
|0        |
0/2  |15        |5         |5         |5         |0         |0         |0         |0
|0        |
0/3  |0         |0         |0         |0         |0         |0         |0         |0
|0        |
0/4  |80        |0         |0         |0         |0         |0         |0         |0
|80       |
0/5  |0         |0         |0         |0         |0         |0         |0         |0
|0        |
0/6  |0         |0         |0         |0         |0         |0         |0         |0
|0        |
0/7  |200       |25        |25        |50        |0         |0         |25        |50
|25       |
0/8  |0         |0         |0         |0         |0         |0         |0         |0
|0        |
-------------------------------------------------------------------------------------------
```

The following CLI displays dropped packet counts due to tti-lookup0:

```
firepower-3110(local-mgmt)# show portmanager switch default-rule-drop-counter tti-lookup0

Rule_id    cnc_index     packet_count
--------------------------------------
  1           1                4
```

The following CLI displays dropped packet counts due to ipcl-lookup0:

```
firepower-3110(local-mgmt)# show portmanager switch default-rule-drop-counter ipcl-lookup0

Rule_id    cnc_index     packet_count
--------------------------------------
4096           0              114
```

Connect Local-Mgmt Troubleshooting Commands for the Secure Firewall 4200 in Appliance Mode

In addition to the existing debugging commands, CLIs specific to Secure Firewall 3100 are explained in this section below.

Use the following connect local-mgmt mode FXOS CLI commands to troubleshoot issues with your Secure Firewall 3100 in Appliance mode. To access connect local-mgmt mode, enter:

FPR 4200# **connect local-mgmt**

show portmanager

Displays detailed information about switched, packets, SFP-FEC counters, digital optical monitoring, QOS functionality, CPSS AP, and Cyclic log dumps.

For example:

The following CLI displays the FXOS port manager switch hardware TCAM rules dump in vtcam-tti:

```
firepower(local-mgmt)# show portmanager switch forward-rules hardware vtcam-tti
      RULE_ID   VLAN   NUM_MPLS_LABELS  SRC_PORT   PC_ID   SRC_ID   MODE   PAK_CNT
1           2      0       0               10       0       10      0         1951
2           3      0       0               14       0       14      0           19
3           4      0       0                9       0        9      0       227505
```

```
4            5       0       0              13       0       13       0        103587
5            6       0       0               8       0        0       0             0
6            7       0       0               7       0        0       0             0
7            8       0       0               6       0        0       0             0
8            9       0       0               5       0        0       0             0
9           10       0       0               4       0        0       0             0
10          11       0       0               3       0        0       0             0
11          12       0       0               2       0        0       0             0
12          13       0       0               1       0        0       0           607
13          14       0       0              44       0        0       0             0
14          15       0       0              40       0        0       0             0
15          16       0       0              36       0        0       0             0
16          17       0       0              32       0        0       0             0
17          30       0       0               1       0      101       1          2120
18          18       0       0               1       0      101       0           306
19          19       0       0               2       0      102       0          2429
20          20       0       0               3       0      103       0             0
21          21       0       0               4       0      104       0             0
22          22       0       0               5       0      105       0             0
23          23       0       0               6       0      106       0             0
24          24       0       0               7       0      107       0             0
25          25       0       0               8       0      108       0             0
26          26       0       0              32       0      117       0             0
27          27       0       0              36       0      121       0             0
28          28       0       0              40       0      125       0             0
29          29       0       0              44       0      129       0             0
30           1       0       0               9       0        0       0          1875
31        8193       0       1               0       0        0       0             0
32        8194       0       2               0       0        0       0             0
33        8195       0       3               0       0        0       0             0
34        8196       0       4               0       0        0       0             0
35        8197       0       5               0       0        0       0             0
36        8198       0       6               0       0        0       0             0
```

The following CLI displays switch hardware TCAM rules dump in vtcam-tti stage matching vlan 0:

```
firepower(local-mgmt)# show portmanager switch forward-rules hardware vtcam-tti
      RULE_ID   VLAN   NUM_MPLS_LABELS  SRC_PORT   PC_ID   SRC_ID   MODE  PAK_CNT
1           2      0       0               10       0       10       0     1961
2           3      0       0               14       0       14       0     19
3           4      0       0                9       0        9       0     227517
4           5      0       0               13       0       13       0     103683
5           6      0       0                8       0        0       0          0
6           7      0       0                7       0        0       0          0
7           8      0       0                6       0        0       0          0
8           9      0       0                5       0        0       0          0
9          10      0       0                4       0        0       0          0
10         11      0       0                3       0        0       0          0
11         12      0       0                2       0        0       0          0
12         13      0       0                1       0        0       0        617
13         14      0       0               44       0        0       0          0
14         15      0       0               40       0        0       0          0
15         16      0       0               36       0        0       0          0
16         17      0       0               32       0        0       0          0
17         30      0       0                1       0      101       1       2156
18         18      0       0                1       0      101       0        306
19         19      0       0                2       0      102       0       2466
20         20      0       0                3       0      103       0          0
21         21      0       0                4       0      104       0          0
22         22      0       0                5       0      105       0          0
23         23      0       0                6       0      106       0          0
24         24      0       0                7       0      107       0          0
25         25      0       0                8       0      108       0          0
```

```
26          26      0       0               32      0       117     0          0
27          27      0       0               36      0       121     0          0
28          28      0       0               40      0       125     0          0
29          29      0       0               44      0       129     0          0
30           1      0       0                9      0         0     0       1875
31        8193      0       1                0      0         0     0          0
32        8194      0       2                0      0         0     0          0
33        8195      0       3                0      0         0     0          0
34        8196      0       4                0      0         0     0          0
35        8197      0       5                0      0         0     0          0
36        8198      0       6                0      0         0     0          0
```

The following CLI displays switch hardware TCAM rules dump in mac-filter stage matching ethernet 1/9 port:

```
firepower(local-mgmt)# show portmanager switch forward-rules hardware mac-filter
      VLAN    SRC_PORT    PC_ID    SRC_ID    DST_PORT      PKT_CNT       DMAC
1        0          44        0       129        1536            0  1:80:c2:0:0:2
2        0          44        0       129        1536            0  ff:ff:ff:ff:ff:ff
3        0           2        0       102        1536            0  ba:db:ad:f0:2:8f
4        0           4        0       104        1536            0  ff:ff:ff:ff:ff:ff
5        0           4        0       104        1536            0  1:80:c2:0:0:2
6        0           5        0       105        1536            0  1:80:c2:0:0:2
7        0           5        0       105        1536            0  ff:ff:ff:ff:ff:ff
8        0          13        0        13           9       103735  0:0:0:0:0:0
9        0          32        0       117        1536            0  ba:db:ad:f0:2:9e
10       0           7        0       107        1536            0  ff:ff:ff:ff:ff:ff
11       0           7        0       107        1536            0  1:80:c2:0:0:2
12       0           6        0       106        1536            0  1:80:c2:0:0:2
13       0           6        0       106        1536            0  ff:ff:ff:ff:ff:ff
14       0          14        0        14          10           19  0:0:0:0:0:0
15       0          10        0        10          14         1979  0:0:0:0:0:0
16       0          44        0       129        1536            0  ba:db:ad:f0:2:a1
17       0           9        0         9          13      1227537  0:0:0:0:0:0
18       0           8        0       108        1536            0  1:80:c2:0:0:2
19       0           8        0       108        1536            0  ff:ff:ff:ff:ff:ff
20       0           1        0       101        1536            0  ff:ff:ff:ff:ff:ff
21       0           1        0       101        1536            0  1:80:c2:0:0:2
22       0           3        0       103        1536            0  1:80:c2:0:0:2
23       0           1        0       101        1536         2183  1:0:0:0:0:0
24       0           3        0       103        1536            0  ff:ff:ff:ff:ff:ff
25       0           2        0       102        1536           23  ff:ff:ff:ff:ff:ff
26       0           2        0       102        1536            0  1:80:c2:0:0:2
27       0          32        0       117        1536            0  ff:ff:ff:ff:ff:ff
28       0          32        0       117        1536            0  1:80:c2:0:0:2
29       0          40        0       125        1536            0  ff:ff:ff:ff:ff:ff
30       0          40        0       125        1536            0  1:80:c2:0:0:2
31       0           7        0       107        1536            0  ba:db:ad:f0:2:94
32       0           5        0       105        1536            0  ba:db:ad:f0:2:92
33       0          36        0       121        1536            0  1:80:c2:0:0:2
34       0           4        0       104        1536            0  ba:db:ad:f0:2:91
35       0          36        0       121        1536            0  ff:ff:ff:ff:ff:ff
36       0           8        0       108        1536            0  ba:db:ad:f0:2:95
37       0           6        0       106        1536            0  ba:db:ad:f0:2:93
38       0           3        0       103        1536            0  ba:db:ad:f0:2:90
39       0          36        0       121        1536            0  ba:db:ad:f0:2:9f
40       0           1        0       101        1536           32  ba:db:ad:f0:2:8e
41       0          40        0       125        1536            0  ba:db:ad:f0:2:a0
```

The following CLI displays detailed information about software MAC-filter:

```
firepower-4225(local-mgmt)# show portmanager switch forward-rules software mac-filter
```

	NATIVE_VLAN	VLAN	SRC_PORT	PORTCHANNEL_ID	DST_PORT	FLAGS	MODE	DMAC
1	0	106	6	0	1536	2	5	1:80:c2:0:0:2
2	0	105	5	0	1536	2	5	ff:ff:ff:ff:ff:ff
3	0	105	5	0	1536	2	5	1:80:c2:0:0:2
4	0	121	0	0	36	24	8	0:0:0:0:0:0
5	0	106	6	0	1536	2	5	ff:ff:ff:ff:ff:ff
6	0	121	36	0	1536	2	5	1:80:c2:0:0:2
7	0	117	32	0	1536	2	5	1:80:c2:0:0:2
8	0	125	40	0	1536	2	5	ff:ff:ff:ff:ff:ff
9	0	129	0	0	44	24	8	0:0:0:0:0:0
10	0	117	32	0	1536	2	5	ff:ff:ff:ff:ff:ff
11	0	103	3	0	1536	2	5	1:80:c2:0:0:2
12	0	102	2	0	1536	2	5	ff:ff:ff:ff:ff:ff
13	0	117	0	0	32	24	8	0:0:0:0:0:0
14	0	107	0	0	7	24	8	0:0:0:0:0:0
15	0	101	1	0	1536	2	5	ba:db:ad:f0:2:8e
16	0	107	7	0	1536	2	5	ff:ff:ff:ff:ff:ff
17	0	106	6	0	1536	2	5	ba:db:ad:f0:2:93
18	0	105	0	0	5	24	8	0:0:0:0:0:0
19	0	102	0	0	2	24	8	0:0:0:0:0:0
20	0	104	4	0	1536	2	5	ba:db:ad:f0:2:91
21	0	107	7	0	1536	2	5	ba:db:ad:f0:2:94
22	0	129	44	0	1536	2	5	1:80:c2:0:0:2
23	0	102	2	0	1536	2	5	1:80:c2:0:0:2
24	0	121	36	0	1536	2	5	ff:ff:ff:ff:ff:ff
25	0	1	13	0	9	26	8	0:0:0:0:0:0
26	0	108	8	0	1536	2	5	1:80:c2:0:0:2
27	0	101	1	0	1536	2	5	ff:ff:ff:ff:ff:ff
28	0	2	10	0	14	26	8	0:0:0:0:0:0
29	0	101	1	0	1536	2	5	1:80:c2:0:0:2
30	0	1	9	0	13	26	8	0:0:0:0:0:0
31	0	129	44	0	1536	2	5	ff:ff:ff:ff:ff:ff
32	0	125	0	0	40	24	8	

```
0:0:0:0:0:0
33              0      108           8                0       1536        2       5
ba:db:ad:f0:2:95
34              0        2          14                0         10       26       8
0:0:0:0:0:0
35              0      129          44                0       1536        2       5
ba:db:ad:f0:2:a1
36              0      103           0                0          3       24       8
0:0:0:0:0:0
37              0      104           0                0          4       24       8
0:0:0:0:0:0
38              0      104           4                0       1536        2       5
ff:ff:ff:ff:ff:ff
39              0      107           7                0       1536        2       5
1:80:c2:0:0:2
40              0      104           4                0       1536        2       5
1:80:c2:0:0:2
41              0      101           1                0       1536       18       8
0:0:0:0:0:0
42              0      101           0                0          1       24       8
0:0:0:0:0:0
43              0      108           8                0       1536        2       5
ff:ff:ff:ff:ff:ff
44              0      121          36                0       1536        2       5
ba:db:ad:f0:2:9f
45              0      117          32                0       1536        2       5
ba:db:ad:f0:2:9e
46              0      105           5                0       1536        2       5
ba:db:ad:f0:2:92
47              0      125          40                0       1536        2       5
ba:db:ad:f0:2:a0
48              0      125          40                0       1536        2       5
1:80:c2:0:0:2
49              0      108           0                0          8       24       8
0:0:0:0:0:0
50              0      106           0                0          6       24       8
0:0:0:0:0:0
51              0      103           3                0       1536        2       5
ba:db:ad:f0:2:90
52              0      102           2                0       1536        2       5
ba:db:ad:f0:2:8f
53              0      103           3                0       1536        2       5
ff:ff:ff:ff:ff:ff
```

The following CLI displays detailed information about switch bridge engine packet drops:

```
firepower-4225(local-mgmt)# show portmanager switch counters bridge
Bridge Ingress Drop Counter: 4688
No Bridge Ingress Drop
```

The following CLI displays details on hardware switch packet counters:

```
how portmanager switch counters packet-trace

firepower-4225(local-mgmt)# show portmanager switch counters packet-trace

       Counter                              Description
---------------------- ------------------------------------------------------------
goodOctetsRcv          Number of ethernet frames received that are not bad
                       ethernet frames or MAC Control pkts
badOctetsRcv           Sum of lengths of all bad ethernet frames received
gtBrgInFrames          Number of packets received
gtBrgVlanIngFilterDisc Number of packets discarded due to VLAN Ingress Filtering
```

```
gtBrgSecFilterDisc     Number of packets discarded due to
                       Security Filtering measures
gtBrgLocalPropDisc     Number of packets discarded due to reasons other than
                       VLAN ingress and Security filtering
dropCounter            Ingress Drop Counter
outUcFrames            Number of unicast packets transmitted
outMcFrames            Number of multicast packets transmitted. This includes
                       registered multicasts, unregistered multicasts
                       and unknown unicast packets
outBcFrames            Number of broadcast packets transmitted
brgEgrFilterDisc       Number of IN packets that were Bridge Egress filtered
txqFilterDisc          Number of IN packets that were filtered
                       due to TxQ congestion
outCtrlFrames          Number of out control packets
                       (to cpu, from cpu and to  analyzer)
egrFrwDropFrames       Number of packets dropped due to egress
                       forwarding restrictions
goodOctetsSent         Sum of lengths of all good ethernet
                       frames sent from this MAC


        Counter            Source port- 0/0    Destination port- 0/0
-----------------------  --------------------  ---------------------
goodOctetsRcv                    ---                    ---
badOctetsRcv                      ---                    ---

                                       Ingress counters
gtBrgInFrames                   1341132                1341132
gtBrgVlanIngFilterDisc             0                      0
gtBrgSecFilterDisc                 0                      0
gtBrgLocalPropDisc                 0                      0
dropCounter                     4699           Only for source-port

                                       Egress counters
outUcFrames                     1329593                1329593
outMcFrames                      4594                   4594
outBcFrames                      2237                   2237
brgEgrFilterDisc                   9                      9
txqFilterDisc                      0                      0
outCtrlFrames                      0                      0
egrFrwDropFrames                   0                      0
mcFifoDropPkts                     0                      0
mcFilterDropPkts                   0                      0

goodOctetsSent                    ---                    ---
```

The following CLI displays detailed informatin about the switch traffic for CPU:

```
firepower-4225(local-mgmt)# show portmanager switch traffic cpu

Dev/RX queue  packets    bytes
------------  ---------- ----------

Dev/RX queue  packets    bytes
------------  ---------- ----------

0/0           0          0
0/1           0          0
0/2           0          0
0/3           0          0
0/4           0          0
0/5           0          0
0/6           0          0
0/7           0          0
```

The following CLI displays details on hardware switch port traffic:

```
firepower-4225(local-mgmt)# show portmanager switch traffic port


max-rate - pps that the port allow with packet size=64
actual-tx-rate - pps that egress the port (+ % from 'max')
actual-rx-rate - pps that ingress the port(+ % from 'max')

Dev/Port   max-rate  actual-tx-rate    actual-rx-rate
---------  --------  ---------------   ---------------
0/1         1488095    (0%)---           (0%)---
0/2         1488095    (0%)---           (0%)---
0/3         14880      (0%)---           (0%)---
0/4         14880      (0%)---           (0%)---
0/5         14880      (0%)---           (0%)---
0/6         14880      (0%)---           (0%)---
0/7         14880      (0%)---           (0%)---
0/8         14880      (0%)---           (0%)---
0/9         14880952   (0%)---           (0%)---
0/10        14880952   (0%)---           (0%)---
0/11        14880952   (0%)---           (0%)---
0/12        14880952   (0%)---           (0%)---
0/13        14880952   (0%)---           (0%)---
0/14        14880952   (0%)---           (0%)---
0/15        1488095    (0%)---           (0%)---
0/16        1488095    (0%)---           (0%)---
0/17        14880952   (0%)---           (0%)---
0/18        74404761   (0%)---           (0%)---
0/19        37202380   (0%)---           (0%)---
0/20        37202380   (0%)---           (0%)---
```

The following CLI displays detailed information about SFP-FEC Counters matching ethernet 1/13 port:

```
firepower-4225(local-mgmt)# show portmanager counters ethernet 1 13
   Good Octets Received                              : 2153
   Bad Octets Received                               : 0
   MAC Transmit Error                                : 0
   Good Packets Received                             : 13
   Bad packets Received                              : 0
   BRDC Packets Received                             : 0
   MC Packets Received                               : 13
   .........
   .........
   txqFilterDisc                                     : 0
   linkchange                                        : 1
   FcFecRxBlocks                                     : 217038081
   FcFecRxBlocksNoError                              : 217038114
   FcFecRxBlocksCorrectedError                       : 0
   FcFecRxBlocksUnCorrectedError                     : 0
   FcFecRxBlocksCorrectedErrorBits                   : 0
   FcFecRxBlocksCorrectedError0                      : 0
   FcFecRxBlocksCorrectedError1                      : 0
   FcFecRxBlocksCorrectedError2                      : 0
   FcFecRxBlocksCorrectedError3                      : 0
   FcFecRxBlocksUnCorrectedError0                    : 0
   FcFecRxBlocksUnCorrectedError1                    : 0
   FcFecRxBlocksUnCorrectedError2                    : 0
   FcFecRxBlocksUnCorrectedError3                    : 0
```

The following CLI displays detailed information about SFP-FEC Counters matching ethernet 1/14 port:

```
firepower-4225(local-mgmt)# show portmanager counters ethernet 1 14
   Good Octets Received                              : 2153
   Bad Octets Received                               : 0
   MAC Transmit Error                                : 0
   Good Packets Received                             : 13
   Bad packets Received                              : 0
   BRDC Packets Received                             : 0
   MC Packets Received                               : 13
   .....
   .....
   txqFilterDisc                                     : 0
   linkchange                                        : 1
   RsFeccorrectedFecCodeword                         : 0
   RsFecuncorrectedFecCodeword                       : 10
   RsFecsymbolError0                                 : 5
   RsFecsymbolError1                                 : 0
   RsFecsymbolError2                                 : 0
   RsFecsymbolError3                                 : 0
```

The following CLI displays detailed information on the Digital Optical Monitoring information matching ethernet 1/5 port:

```
firepower-4245(local-mgmt)# show portmanager port-info ethernet 1 5
        ....
        ....
                DOM info:
                ========:

                Status/Control Register: 0800
                      RX_LOS State: 0
                      TX_FAULT State: 0
                Alarm Status: 0000
                No active alarms
                Warning Status: 0000
                No active warnings

       THRESHOLDS
                                high alarm    high warning    low warning     low alarm

          Temperature     C    +075.000        +070.000        +000.000         -05.000

          Voltage         V    003.6300        003.4650        003.1350        002.9700

          Bias Current   mA    012.0000        011.5000        002.0000        001.0000

          Transmit power mW    034.6740        017.3780        002.5120        001.0000

          Receive power  mW    034.6740        017.3780        001.3490        000.5370


                Environmental Information - raw values
                Temperature: 38.84 C
                Supply voltage: 33703 in units of 100uVolt
                Tx bias: 3499 in units of 2uAmp
                Tx power:  0.1 dBm (10251 in units of 0.1 uW)
                Rx power: -0.9 dBm (8153 in units of 0.1 uW)
                DOM (256 bytes of raw data in hex)
                   =====================================
                   0x0000 : 4b 00 fb 00 46 00 00 00 8d cc 74 04 87 5a 7a 76
                   0x0010 : 17 70 01 f4 16 76 03 e8 87 72 03 e8 43 e2 09 d0
                   0x0020 : 87 72 02 19 43 e2 05 45 00 00 00 00 00 00 00 00
                   0x0030 : 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
                   0x0040 : 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
```

```
  0x0050 : 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 86
  0x0060 : 26 54 83 a7 0d ab 28 0b 1f d9 00 00 00 00 08 00
  0x0070 : 00 00 03 00 00 00 00 00 08 f3 00 00 00 00 00 01
  0x0080 : 49 4e 55 49 41 43 53 45 41 41 31 30 2d 33 33 38
  0x0090 : 38 2d 30 31 56 30 31 20 01 00 46 00 00 00 00 e3
  0x00a0 : 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  0x00b0 : 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  0x00c0 : 53 46 50 2d 31 30 2f 32 35 47 2d 43 53 52 2d 53
  0x00d0 : 20 20 20 20 30 38 00 00 00 00 00 00 00 00 00 d1
  0x00e0 : 1e 20 2a 2a 31 34 29 36 00 00 00 00 00 00 00 00
  0x00f0 : 00 00 00 00 00 56 00 00 ff ff ff ff 00 00 00 cf
  ====================================
PHY Data:
PAGE IFC OFFSET VALUE   | PAGE IFC OFFSET VALUE
---- --- ------ -----   | ---- --- ------ -----
```

The following CLI displays detailed information about the parameters set for the packet capture:

```
firepower-4225(local-mgmt)# show portmanager switch pktcap-rules software
Software DB rule:1
 Slot= 1
 Interface= 12
 Breakout-port= 0
 Protocol= 6
 Ethertype= 0x0000
 Filter_key= 0x00000040
 Session= 1
 Vlan= 0
 SrcPort= 0
 DstPort= 0
 SrcIp= 0.0.0.0
 DstIp= 0.0.0.0
 SrcIpv6= ::
 DestIpv6= ::
 SrcMacAddr= 00:00:00:00:00:00
 DestMacAddr= 00:00:00:00:00:00
```

The following CLI displays detailed information on the FXOS port manager switch hardware TCAM rules:

```
firepower-4225(local-mgmt)# show portmanager switch pktcap-rules hardware
Hardware DB rule:1
 Hw_index= 15372
 Rule_id= 10241
 Cnc_index= 1
 Packet_count= 0
 Slot= 1
 Interface= 12
 Protocol= 6
 Ethertype= 0x0000
 Vlan= 0
 SrcPort= 0
 DstPort= 0
 SrcIp= 0.0.0.0
 DstIp= 0.0.0.0
 SrcIpv6= ::
 DestIpv6= ::
 SrcMacAddr= 00:00:00:00:00:00
 DestMacAddr= 00:00:00:00:00:00
```

The following CLI displays detailed information on port-based packet drops for eight traffic classes/queues:

```
firepower-4225(local-mgmt)# show portmanager switch tail-drop-allocated buffers all
```

```
-------------------------------------------------------------------------------------------------

     |          |                          Per Port and Traffic Class
          |
Port | Per port | TC0     | TC1     | TC2     | TC3     | TC4     | TC5     | TC6
| TC7     |
-----|----------|---------|---------|---------|---------|---------|---------|---------|
0/1  |10        |10       |0        |0        |0        |0        |0        |0
|0        |
0/2  |15        |5        |5        |5        |0        |0        |0        |0
|0        |
0/3  |0         |0        |0        |0        |0        |0        |0        |0
|0        |
0/4  |80        |0        |0        |0        |0        |0        |0        |0
|80       |
0/5  |0         |0        |0        |0        |0        |0        |0        |0
|0        |
0/6  |0         |0        |0        |0        |0        |0        |0        |0
|0        |
0/7  |200       |25       |25       |50       |0        |0        |25       |50
|25       |
0/8  |0         |0        |0        |0        |0        |0        |0        |0
|0        |
-------------------------------------------------------------------------------------------------
```

The following CLI displays dropped packet counts due to tti-lookup0:

```
firepower-4225(local-mgmt)# show portmanager switch default-rule-drop-counter tti-lookup0

Rule_id    cnc_index     packet_count
-------------------------------------
  1           1               4
```

Security Services Mode Troubleshooting Commands

Use the following security services (ssa) mode FXOS CLI commands to troubleshoot issues with your system.

show app

Displays information about the applications attached to you Firpower device.
For example:

```
firepower /ssa # show app
    Application:
        Name       Version    Description Author     Deploy Type CSP Type    Is Default
 App
        ---------- ---------- ----------- ---------- ----------- -----------
--------------
        asa        9.10.1     N/A         cisco      Native      Application Yes
        asa        9.9.2      N/A         cisco      Native      Application No
```

showapp-instance

Displays information about the verified app-instance status

```
    firepower-2120 /ssa # show app-instance
Application Name     Slot ID    Admin State     Operational State    Running Version Startup
 Version Cluster Oper State
```

```
------------------- ---------- --------------- -------------------- ---------------
--------------- ------------------
asa                 1          Enabled         Online               9.14.2          9.14.2
          Not Applicable
```

showfault

Displays information about the fault message

```
firepower-2120 /ssa # show fault
Severity  Code     Last Transition Time     ID       Description
--------- -------- ----------------------- -------- -----------
Cleared   F16589   2021-10-11T21:58:53.200    25140 [FSM:STAGE:RETRY:]: Waiting for chassis
 object ready(FSM-STAGE:sam:dme:SmSecSvcAutoDeployCSP:WaitForChassisM
oReady)
```

show failsafe-params

The fail-safe mode for an threat defense application on Firepower 1000/2100 or Secure Firewall 3100 is activated due to continuous boot loop, traceback, etc. The following parameters control the activation of the fail-safe mode:

- Max Restart—maximum number of times that an application should restart in order to activate the fail-safe mode.
- Current Reboot Count—number of times the application continuously restarted.
- Restart Time Interval (secs)—the amount of time in seconds, during which the Max Restart counter should be reached in order to trigger the fail-safe mode. If the application restarts 'Max Restart' or more times within this interval, the fail-safe mode is enabled.

For example:

```
firepower-2120-failed(local-mgmt)# show failsafe-params
Max Restart: 8
Current Reboot Count: 0
Restart Time Interval(secs): 3600
```

When the system is in the fail-safe mode:

- The system name is appended with the "-failed" string:

  ```
  firepower-2120-failed /ssa #
  ```

- The output of the "show failsafe-params" command in the local-mgmt command shell contains a warning message:

  ```
  firepower-2120-failed(local-mgmt)# show failsafe-params
  Max Restart: 1
  Current Reboot Count: 1
  Restart Time Interval(secs): 3600
  WARNING: System in Failsafe mode. Applications are not running!
  ```

- Operation State of the application is Offline:

  ```
  firepower-2120-failed /ssa # show app-instance
  Application Name     Slot ID    Admin State     Operational State    Running Version
  Startup Version Cluster Oper State   Cluster Role
  -------------------- ---------- --------------- -------------------- ---------------
  --------------- -------------------- ------------
  asa                  1          Enabled         Offline <=====       9.16.2.3
  9.16.2.3        Not Applicable       None
  ```

Packet Capture for Secure Firewall 3100/4200

The Packet Capture tool is a valuable asset for use in debugging connectivity and configuration issues and for understanding traffic flows through your devices. You can now use the Packet Capture CLIs to log traffic that is going through specific interfaces on your Secure Firewall 3100/4200 devices.

You can create multiple packet capture sessions, and each session can capture traffic on multiple interfaces. For each interface included in a packet capture session, a separate packet capture (PCAP) file will be created.

Guidelines and Limitations for Packet Capture

The Packet Capture tool has the following limitations:

- Packet Capture on Secure Firewall 3100/4200 series devices can capture up to 300 Mbps.
- Packet capture sessions can be created even when there is not enough storage space available to run the packet capture session. You should verify that you have enough storage space available before you start a packet capture session.
- For packet capture sessions on a single-wide 4x100Gbps or 2x100Gbps network module (part numbers FPR-NM-4X100G and FPR-NM-2X100G respectively), if the module `adminstate` is set to `off`, the capture session is automatically disabled with an "Oper State Reason: Unknown Error." You will have to restart the capture session after the module `adminstate` is set to `on` again.

  With all other network modules, packet capture sessions continue across module `adminstate` changes.
- Does not support multiple active packet capturing sessions.
- There is no option to filter based on source or destination IPv6 address.
- Filters are not effective on packets that cannot be understood by the internal switch (for example Security Group Tag and Network Service Header packets).
- You cannot capture packets for an EtherChannel as a whole. However, for an EtherChannel allocated to a logical device, you can capture packets on each member interface of the EtherChannel.
- You cannot copy or export a PCAP file while the capture session is still active.
- When you delete a packet capture session, all packet capture files associated with that session are also deleted.

Creating or Editing a Packet Capture Session

Procedure

Step 1 Enter packet capture mode:

firepower-4215 # **scope packet-capture**

Step 2 Create a filter.

firepower-4215 /packet-capture/filter* # **set** <*filterprop filterprop_value*

Table 1: Supported Filter Properties

ivlan	Inner VLAN ID (vlan of packet while ingressing port)
ovlan	Outer VLAN ID
srcip	Source IP Address (IPv4)
destip	Destination IP Address (IPv4)
srcport	Source Port Number
destport	Destination Port Number
protocol	IP Protocol [IANA defined Protocol values in decimal format]
ethertype	Ethernet Protocol type [IANA defined Ethernet Protocol type value in decimal format. For eg: IPv4 = 2048, IPv6 = 34525, ARP = 2054, SGT = 35081]
srcmac	Source Mac Address
destmac	Destination Mac Address

You can apply filters to any of the interfaces included in a packet capture session.

Step 3 To create or edit a packet capture session:

firepower-4215 /packet-capture # **enter session** *session_name*

Step 4 Specify the length of the packet that you want to capture for this packet capture session:

firepower-4215 /packet-capture/session* # **set session-pcap-snaplength** *session_snap_length_in_bytes*

The specified snap length must be between 64 and 9006 bytes. If you do not configure the session snap length, the default capture length is 1518 bytes.

Step 5 Specify the physical source ports that should be included in this packet capture session.

You can capture from multiple ports and can capture from both physical ports and application ports during the same packet capture session. A separate packet capture file is created for each port included in the session. You cannot capture packets for an EtherChannel as a whole. However, for an EtherChannel allocated to a logical device, you can capture packets on each member interface of the EtherChannel.

Note
To remove a port from the packet capture session, use **delete** instead of **create** in the commands listed below.

a) Specify the physical port.

firepower-4215 /packet-capture/session* # **create** {**phy-port | phy-aggr-port**} *port_id*

Example:

Example:

```
firepower-4215 /packet-capture/session* # create phy-port Ethernet1/1
firepower-4215 /packet-capture/session/phy-port* #
```

b) Capture packets on a subinterface.

firepower-4215 /packet-capture/session/phy-port* # **set subinterface** *id*

You can only capture packets for one subinterface per capture session, even if you have multiple subinterfaces on one or more parents. Subinterfaces for EtherChannels are not supported. If the parent interface is also allocated to the instance, you can either choose the parent interface or a subinterface; you cannot choose both.

Example:

```
firepower-4215 /packet-capture/session/phy-port* # set subinterface 100
firepower-4215 /packet-capture/session/phy-port* #
```

c) For container instances, specify the container instance name.

firepower-4215 /packet-capture/session/phy-port* # **set app-identifier** *instance_name*

Example:

```
firepower-4215 /packet-capture/session/phy-port* # set app-identifier asa-instance1
firepower-4215 /packet-capture/session/phy-port* #
```

d) (Optional) For capturing the mac-filter dropped packets from switch, specify the mac-filter drop.

firepower-4215 /packet-capture/session/phy-port* # **set drop** {**mac-filter | disable**}

- **disable**—To disable capture of packets dropped from switch.
- **mac-filter**—To capture switch mac-filter drop

Note
The mac-filter option is supported only for the ingress packet capture direction and the default option is always **disable**.

e) (Optional) Apply the desired filter.

firepower-4215 /packet-capture/session/phy-port* # **set** {**source-filter**} *filtername*

Note
To remove a filter from a port, use **set source-filter ""**.

f) Repeat the steps above as needed to add all desired ports.

Step 6 Specify the application source ports that should be included in this packet capture session.

You can capture from multiple ports and can capture from both physical ports and application ports during the same packet capture session. A separate packet capture file is created for each port included in the session.

Note
To remove a port from the packet capture session, use **delete** instead of **create** in the commands listed below.

a) Specify the application port.

firepower-4215 /packet-capture/session* # **create app_port** *module_slot link_name interface_name app_name*

Syntax Description

module_slot	Security module in which the application is installed.

link_name	Any user descriptive name referring to the interface, for example, link1, inside_port1, etc.
interface_name	Interface attached to the application where packets need to be captured from, for example, Ethernet1/1, Ethernet2/2
app_name	Application installed on the module - asa

b) (Optional) Apply the desired filter.

firepower-4215 /packet-capture/session/phy-port* # **set** {**source-filter**} *filtername*

Syntax Description

filtername	The filter name from the 'create filter' command under packet-capture scope

Note
To remove a filter from a port, use **set source-filter ""**.

c) Repeat the steps above as needed to add all desired application ports.

Step 7 If you want to start the packet capture session now:

firepower-4215 /packet-capture/session* # **enable**

Newly created packet-capture sessions are disabled by default. Explicit enabling of a session activates the packet capture session when the changes are committed. If another session is already active, enabling a session will generate an error. You must disable the already active packet-capture session before you can enable this session.

Step 8 Commit the transaction to the system configuration:

firepower-4215 /packet-capture/session* # **commit-buffer**

If you enabled the packet capture session, the system will begin capturing packets. You will need to stop capturing before you can download the PCAP files from your session.

Example

```
firepower-4215 # scope packet-capture
firepower-4215 /packet-capture # create session asa1inside
firepower-4215 /packet-capture* # create filter interface1vlan100
firepower-4215 /packet-capture/filter* # set ivlan 100
firepower-4215 /packet-capture/filter* # set srcIP 6.6.6.6
firepower-4215 /packet-capture/filter* # set destIP 10.10.10.10
firepower-4215 /packet-capture/filter* # exit
firepower-4215 /packet-capture/session* # create phy-port Ethernet1/1
firepower-4215 /packet-capture/session/phy-port* # set drop mac-filter
firepower-4215 /packet-capture/session/phy-port* # set src-filter interface1vlan100
firepower-4215 /packet-capture/session/phy-port* # exit
firepower-4215 /packet-capture/session* # enable
firepower-4215 /packet-capture/session* # commit-buffer
firepower-4215 /packet-capture/session #
```

Deleting Packet Capture Sessions

You can delete an individual packet capture session if it is not currently running or you can delete all inactive packet capture sessions.

Procedure

Step 1 Enter packet capture mode:

firepower-4215 # **scope packet-capture**

Step 2 To delete a specific packet capture session:

firepower-4215 /packet-capture # **delete session** *session_name*

Step 3 To delete all inactive packet capture sessions:

firepower-4215/packet-capture # **delete-all-sessions**

Step 4 Commit the transaction to the system configuration:

firepower-4215 /packet-capture* # **commit-buffer**

Example

```
firepower-4215 # scope packet-capture
firepower-4215 packet-capture # delete session asa1inside
firepower-4215 packet-capture* # commit-buffer
firepower-4215 packet-capture #
```