



## **Cisco FXOS Troubleshooting for the Firepower 1000/2100 and Secure Firewall 1200/3100/4200 with ASA**

**First Published:** 2017-05-15

**Last Modified:** 2024-10-13

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## CHAPTER 1

# About the FXOS CLI

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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](#)
- [Access the ASA and FXOS CLI for Appliance Mode, on page 2](#)
- [Access the ASA and FXOS CLI in Platform Mode, on page 3](#)
- [Save and Filter Show Command Output, on page 5](#)

## 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](#)
- [Perform a Secure Erase, on page 20](#)
- [Perform a Complete Reimage, on page 21](#)
- [History for System Recovery, on page 26](#)

## 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.

**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:**

**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.

**boot usb:***/path/filename*

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 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*

**filepath***/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 > file 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:

- **ftp://username@server/[path/]image\_name**
- **scp://username@server/[path/]image\_name**
- **sftp://username@server/[path/]image\_name**
- **tftp://server[: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
Formatting 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 decommissioning 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:**

**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.

**boot usb:** */path/filename*

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

**Example:**

```

rommon 1 > dir usb:
rommon 2 > boot 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*

**filepath** *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 > file 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:

- **ftp://username@server/[path/]image\_name**
- **scp://username@server/[path/]image\_name**
- **sftp://username@server/[path/]image\_name**
- **tftp://server[: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
-----
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 decommissioning the device.<br>New/Modified commands: <b>erase secure</b> (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 statistics.

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-channell | 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:
```

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

| LACP Partner Port Priority | Partner Oper Key | Partner 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
Port      System ID      Partner      Age      Partner
Eth1/2    32768,286f.7fec.5980  0x10f      5 s     Flags
  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
```

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

```
firepower-3140(local-mgmt)# show portmanager switch forward-rules hardware vcam-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 information 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 00 08
0x0070 : 00 00 03 00 00 00 00 00 00 08 f3 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
780
Policer_type  green(pass_count)  yellow(pass_count)  red(drop_count)
-----
CCL_CLU
Policer_type  green(pass_count)  yellow(pass_count)  red(drop_count)
-----
BFD
Policer_type  green(pass_count)  yellow(pass_count)  red(drop_count)
-----
HA
Policer_type  green(pass_count)  yellow(pass_count)  red(drop_count)
-----
CCL_CONTROL
Policer_type  green(pass_count)  yellow(pass_count)  red(drop_count)
```

| Protocol    | Green (pass_count) | Yellow (pass_count) | Red (drop_count) |
|-------------|--------------------|---------------------|------------------|
| OSPF        | 102025351          | 17832               | 590              |
| CCL_CLU     | 0                  | 0                   | 0                |
| BFD         | 61343307           | 0                   | 0                |
| HA          | 0                  | 0                   | 0                |
| 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
    
```

```

10      |
0/2  |15      | 15      | 15      | 15      | 10      | 10      | 10      | 10
10      |
0/3  |10      | 10      | 10      | 10      | 10      | 10      | 10      | 10
10      |
0/4  |180     | 10      | 10      | 10      | 10      | 10      | 10      | 10
180     |
0/5  |10      | 10      | 10      | 10      | 10      | 10      | 10      | 10
10      |
0/6  |10      | 10      | 10      | 10      | 10      | 10      | 10      | 10
10      |
0/7  |200     | 125     | 125     | 150     | 10      | 10      | 125     | 150
125     |
0/8  |10      | 10      | 10      | 10      | 10      | 10      | 10      | 10
10

```

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    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  | 10  | 10  | 10  | 10  | 10  | 10  | 10  |
| 0/2                        | 15       | 15  | 15  | 15  | 10  | 10  | 10  | 10  | 10  |
| 0/3                        | 10       | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  |
| 0/4                        | 180      | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  |
| 0/5                        | 10       | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  |
| 0/6                        | 10       | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  |
| 0/7                        | 1200     | 125 | 125 | 150 | 10  | 10  | 125 | 150 | 10  |
| 0/8                        | 10       | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  |

```
-----
```

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 your Firepower 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 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

- 
- |               |                                                                                                      |
|---------------|------------------------------------------------------------------------------------------------------|
| <b>Step 1</b> | Enter packet capture mode:<br>firepower-4215 # <b>scope packet-capture</b>                           |
| <b>Step 2</b> | Create a filter.<br>firepower-4215 /packet-capture/filter* # <b>set</b> <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**

|                    |                                                                                              |
|--------------------|----------------------------------------------------------------------------------------------|
| <b>module_slot</b> | Security module in which the application is installed.                                       |
| <b>link_name</b>   | Any user descriptive name referring to the interface, for example, link1, inside_port1, etc. |

|                       |                                                                                                                     |
|-----------------------|---------------------------------------------------------------------------------------------------------------------|
| <b>interface_name</b> | Interface attached to the application where packets need to be captured from, for example, Ethernet1/1, Ethernet2/2 |
| <b>app_name</b>       | Application installed on the module - asa                                                                           |

b) (Optional) Apply the desired filter.

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

### Syntax Description

|                 |                                                                             |
|-----------------|-----------------------------------------------------------------------------|
| <b>filename</b> | 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 asalinside
firepower-4215 /packet-capture* # create filter interfacelvlan100
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 interfacelvlan100
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 asalinside
firepower-4215 packet-capture* # commit-buffer
firepower-4215 packet-capture #
```

