Cisco FXOS Troubleshooting Guide for the Firepower 1000/2100 and Secure Firewall 3100/4200 with Threat Defense

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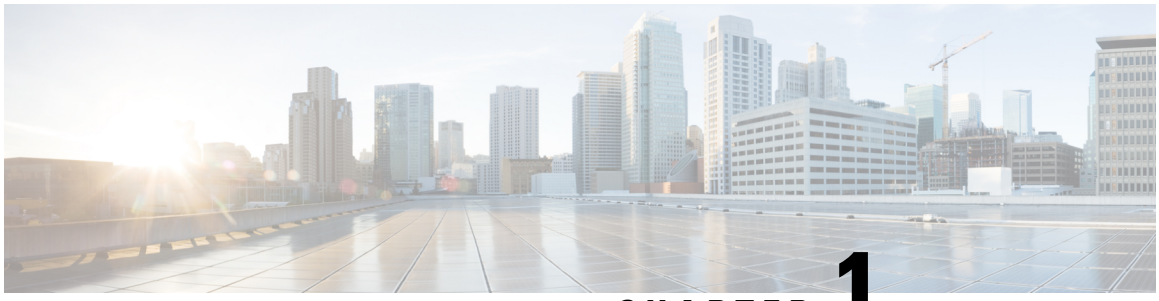


CHAPTER 1

About the Firepower 1000/2100, Secure Firewall 3100 and 4200 Security Appliance CLI

This troubleshooting guide explains the Firepower eXstensible Operating System (FXOS) command line interface (CLI) for the Firepower 1000 , Firepower 2100, Secure Firewall 3100, and Secure Firewall 4200 security appliance series.

Note The CLI on the SSH client management port defaults to Secure Firewall Threat Defense. You can get to the FXOS CLI using the **connect fxos** command.

The CLI on the Firepower 1000/2100, Secure Firewall 3100, Secure Firewall 4200 console port defaults to the FXOS CLI prompt. You can get to the threat defense CLI using the **connect ftd** command.

Once logged into the FXOS CLI, you can use the commands described below to view and troubleshoot the FXOS platform for your Firepower 1000, Firepower 2100, Secure Firewall 3100, or Secure Firewall 4200 series device.

If threat defense is installed on your Firepower 1000/2100, Secure Firewall 3100 device, or Secure Firewall 4200, the FXOS CLI does not allow you to modify the configuration. If you attempt to perform any configuration changes with the FXOS CLI, the **commit-buffer** command returns an error.

For more information about the threat defense CLI, see the Command Reference for threat defense.

FXOS CLI Hierarchy

The FXOS CLI is organized into a hierarchy of command modes, with the EXEC mode being the highest-level mode of the hierarchy. Higher-level modes branch into lower-level modes. You use **create**, **enter**, and **scope** commands to move from higher-level modes to modes in the next lower level , and you use the **exit** command to move up one level in the mode hierarchy. You can also use the **top** command to move to the top level in the mode hierarchy.

Each mode contains a set of commands that can be entered in that mode. Most of the commands available in each mode pertain to the associated managed object.

The CLI prompt for each mode shows the full path down the mode hierarchy to the current mode. This helps you to determine where you are in the command mode hierarchy, and it can be an invaluable tool when you need to navigate through the hierarchy.

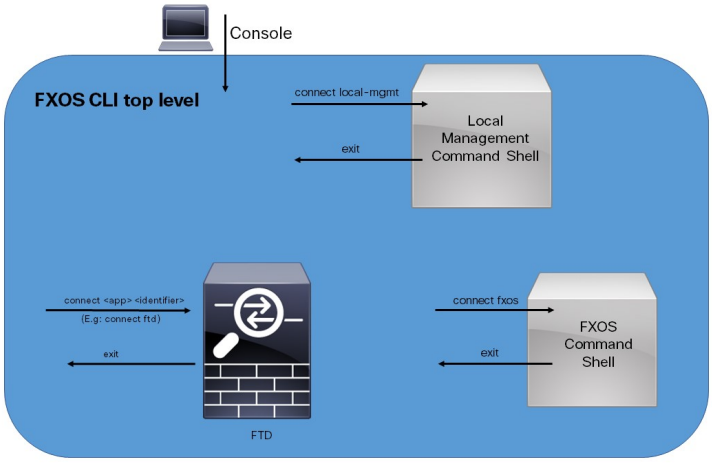
The following table lists the main command modes, the commands used to access each mode, and the CLI prompt associated with each mode.

Table 1: Main Command Modes and Prompts

Mode Name	Commands Used to Access	Mode Prompt
EXEC	**top** command from any mode	#
chassis	**scope chassis** command from EXEC mode	/chassis #
Ethernet uplink	**scope eth-uplink** command from EXEC mode	/eth-uplink #
fabric-interconnect	**scope fabric-interconnect** command from EXEC mode	/fabric-interconnect #
firmware	**scope firmware** command from EXEC mode	/firmware #
monitoring	**scope monitoring** command from EXEC mode	/monitoring #
organization	**scope org** command from EXEC mode	/org #
security	**scope security** command from EXEC mode	/security #
server	**scope server** command from EXEC mode	/server #
ssa	**scope ssa** command from EXEC mode	/ssa #
system	**scope system** command from EXEC mode	/system #

The following diagram outlines the commands that can be executed from the FXOS CLI top level to access the FXOS command shell, local management command shell, and Firepower Threat Defense CLI. Note that console access is required.

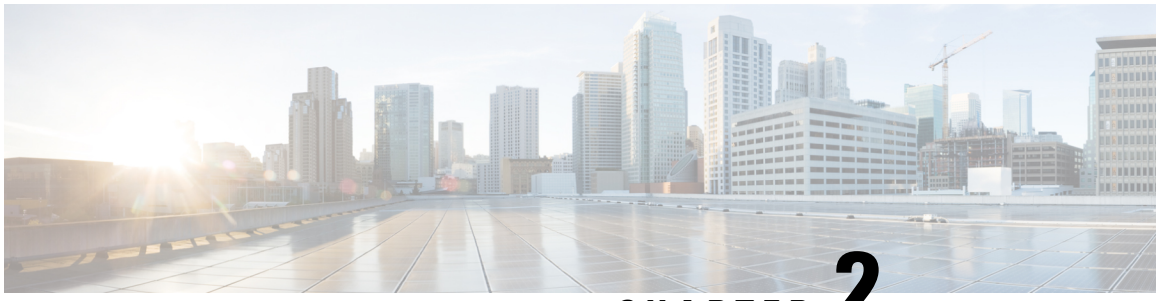
Figure 1: Firepower 1000/2100 and Secure Firewall 3100 FXOS CLI Connect Diagram



Online Help for the CLI

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

If you have not typed anything at the prompt, typing **?** lists all available commands for the mode you are in. If you have partially typed a command, typing **?** lists all available keywords and arguments available at your current position in the command syntax.



CHAPTER 2

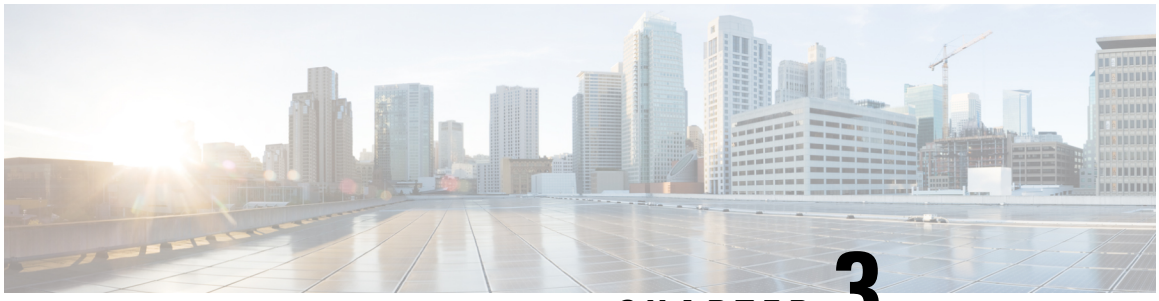
Global FXOS CLI Commands

Global FXOS CLI Commands

The following commands are global for all modes in the FXOS CLI.

Command	Description
acknowledge fault	Acknowledges a fault. Command syntax: For example: `acknowledge fault 1` Where *id* is the fault identification number. The range of valid values is 0 to 9223372036854775807.
clear	Clears managed objects.
commit-buffer	Commits transaction buffer.
connect	Connect to another CLI. For example: `connect ftd`

Command	Description
connect fxos [admin]	The [admin] keyword allows connecting to the FXOS in privileged mode, where users can run additional commands. For example, to generate the Firepower eXtensible Operating System (FXOS) show-tech file: `firewall# connect fxos admin` `Configuring session.` `.` `Connecting to FXOS.` `....    l` `firepower-3140# connect local-mgmt` `Warning: network service is not available when entering 'connect local-mgmt'` `firepower-3140(local-mgmt)# show tech-support fprm` `  <CR>` `>       Redirect it to a file` `>>      Redirect it to a file in append mode` `  brief   Brief` `  detail  Detail` `	Pipe command output to filter`  `</pre>`
discard-buffer	Discard transaction buffer.
end	Go to exec mode.
exit	Exit from command interpreter.
scope	Enters a new mode.
set	Sets property values.
show	Shows system information.
terminal	Terminal.
top	Goes to the top of the mode.
ucspe-copy	Copies a file in UCSPE.
up	Goes up one mode.
where	Shows information about the current mode.
backup	Backup.



CHAPTER 3

FXOS CLI Troubleshooting Commands

FXOS CLI 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
```

Note When you remove dual fan module for Secure Firewall 3100 devices, to view the actual status of the fan, use the **show environment basic** and **show environment expand** commands.

show environmentbasic

Displays chassis and CPU temperature data.
For example:

```
FPR2100 /chassis # show environment basic
     ***************  Chassis Temps  ***************
     Inlet temperature is 75 degrees Celsius

     ***************  CPU Data  ***************
     Core Temperature 0 is 93 degrees Celsius
     Core Temperature 1 is 93 degrees Celsius
     Core Temperature 2 is 94 degrees Celsius
     Core Temperature 3 is 92 degrees Celsius
```

scope fan

Enters the fan mode on Firepower 2110, 2120, Secure Firewall 3100, and Secure Firewall 4200 devices.

scope fan-module

Enters the fan mode on Firepower 2130, 2140, Secure Firewall 3100, and Secure Firewall 4200 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, Secure Firewall 3100, and 4200 devices.
For example:

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

show inventory expand

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

```
    FPR2100 /chassis #   show inventory expand detail
    Chassis 1:
        Product Name: Cisco Firepower 2000 Appliance
        PID: FPR-2130
        VID: V01
        Vendor: Cisco Systems, Inc
        Model: FPR-2130
        Serial (SN): JAD2012091X
        HW Revision: 0.1
        PSU 1:
            Presence: Equipped
            Product Name: Cisco Firepower 2000 Series AC 400W Power Supply
            PID: FPR2K-PWR-AC-400
            VID: V01
            Vendor: Cisco Systems, Inc
            Serial (SN): LIT2010CAFE
            HW Revision: 0
        PSU 2:
            Presence: Equipped
            Product Name: Cisco Firepower 2000 Series AC 400W Power Supply
            PID: FPR2K-PWR-AC-400
            VID: V01
            Vendor: Cisco Systems, Inc
            Serial (SN): LIT2010CAFE
            HW Revision: 0
        Fan Modules:
            Tray 1 Module 1:
                Presence: Equipped
                Product Name: Cisco Firepower 2000 Series Fan Tray
```

```
            PID: FPR2K-FAN
            Vendor: Cisco Systems, Inc
    Fans:
        ID Presence
        -- --------
         1 Equipped
         2 Equipped
         3 Equipped
         4 Equipped
Fabric Card 1:
    Description: Cisco SSP FPR 2130 Base Module
    Number of Ports: 16
    State: Online
    Vendor: Cisco Systems, Inc.
    Model: FPR-2130
    HW Revision: 0
    Serial (SN): JAD2012091X
    Perf: N/A
    Operability: Operable
    Overall Status: Operable
    Power State: Online
    Presence: Equipped
    Thermal Status: N/A
    Voltage Status: N/A
Fabric Card 2:
    Description: 8-port 10 Gigabit Ethernet Expansion Module
    Number of Ports: 8
    State: Online
    Vendor: Cisco Systems, Inc.
    Model: FPR-NM-8X10G
    HW Revision: 0
    Serial (SN): JAD19510AKD
    Perf: N/A
    Operability: Operable
    Overall Status: Operable
    Power State: Online
    Presence: Equipped
    Thermal Status: N/A
    Voltage Status: N/A
```

scope psu

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

For example:

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

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

scope stats

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

```
FPR2100 /chassis # show stats
Chassis Stats:
    Time Collected: 2016-11-14T21:19:46.317
    Monitored Object: sys/chassis-1/stats
    Suspect: No
    Outlet Temp1 (C): 43.000000
    Outlet Temp2 (C): 41.000000
    Inlet Temp (C): 30.000000
    Internal Temp (C): 34.000000
    Thresholded: 0
Fan Stats:
    Time Collected: 2016-11-14T21:19:46.317
    Monitored Object: sys/chassis-1/fan-module-1-1/fan-1/stats
    Suspect: No
    Speed (RPM): 17280
    Thresholded: 0
    Time Collected: 2016-11-14T21:19:46.317
    Monitored Object: sys/chassis-1/fan-module-1-1/fan-2/stats
    Suspect: No
    Speed (RPM): 17340
    Thresholded: 0
    Time Collected: 2016-11-14T21:19:46.317
    Monitored Object: sys/chassis-1/fan-module-1-1/fan-3/stats
    Suspect: No
    Speed (RPM): 17280
    Thresholded: 0
    Time Collected: 2016-11-14T21:19:46.317
    Monitored Object: sys/chassis-1/fan-module-1-1/fan-4/stats
    Suspect: No
    Speed (RPM): 17280
    Thresholded: 0
Psu Stats:
    Time Collected: 2016-11-14T21:19:46.318
    Monitored Object: sys/chassis-1/psu-1/stats
    Suspect: No
    Input Current (A): 0.000000
    Input Power (W): 8.000000
    Input Voltage (V): 0.000000
    Psu Temp1 (C): 32.000000
    Psu Temp2 (C): 36.000000
    Psu Temp3 (C): 32.000000
    Fan Speed (RPM): 0
    Thresholded: 0
    Time Collected: 2016-11-14T21:19:46.318
    Monitored Object: sys/chassis-1/psu-2/stats
    Suspect: No
    Input Current (A): 0.374000
    Input Power (W): 112.000000
    Input Voltage (V): 238.503006
    Psu Temp1 (C): 36.000000
```

```
        Psu Temp2 (C): 47.000000
        Psu Temp3 (C): 47.000000
        Fan Speed (RPM): 2240
        Thresholded: 0
    CPU Env Stats:
        Time Collected: 2016-11-14T21:19:46.317
        Monitored Object: sys/chassis-1/blade-1/board/cpu-1/env-stats
        Suspect: No
        Temperature (C): 46.000000
        Thresholded: 0
        Time Collected: 2016-11-14T21:19:46.317
        Monitored Object: sys/chassis-1/blade-1/npu/cpu-1/env-stats
        Suspect: No
        Temperature (C): 38.000000
        Thresholded: 0
```

FXOS CLI 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 Firepower 1000/2100, Secure Firewall 3100, or Secure Firewall 4200 device's Ethernet uplink.

For example:

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

scope fabric a

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

For example:

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

```
   Ethernet2/4    Data               Disabled    Link Down        Down
   Ethernet2/5    Data               Disabled    Link Down        Down
   Ethernet2/6    Data               Disabled    Link Down        Down
   Ethernet2/7    Data               Disabled    Link Down        Down
   Ethernet2/8    Data               Disabled    Link Down        Down

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

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

```
    Suspect: No
    Total Packets (packets): 0
    Unicast Packets (packets): 0
    Multicast Packets (packets): 0
    Broadcast Packets (packets): 0
    Total Bytes (bytes): 0
    Jumbo Packets (packets): 0
FPR2100 /eth-uplink/fabric/interface # show stats
Ether Error Stats:
    Time Collected: 2016-11-14T21:27:46.395
    Monitored Object: sys/switch-A/slot-1/switch-ether/port-1/err-stats
    Suspect: No
    Rcv (errors): 0
    Align (errors): 0
    Fcs (errors): 0
    Xmit (errors): 0
    Under Size (errors): 0
    Out Discard (errors): 0
    Deferred Tx (errors): 0
    Int Mac Tx (errors): 0
    Int Mac Rx (errors): 0
    Thresholded: Xmit Delta Min
Ether Loss Stats:
    Time Collected: 2016-11-14T21:27:46.395
    Monitored Object: sys/switch-A/slot-1/switch-ether/port-1/loss-stats
    Suspect: No
    Single Collision (errors): 0
    Multi Collision (errors): 0
    Late Collision (errors): 0
    Excess Collision (errors): 0
    Carrier Sense (errors): 0
    Giants (errors): 7180
    Symbol (errors): 0
    SQE Test (errors): 0
    Thresholded: 0
Ether Pause Stats:
    Time Collected: 2016-11-14T21:27:46.395
    Monitored Object: sys/switch-A/slot-1/switch-ether/port-1/pause-stats
    Suspect: No
    Recv Pause (pause): 0
    Xmit Pause (pause): 0
    Resets (resets): 0
    Thresholded: 0
Ether Rx Stats:
    Time Collected: 2016-11-14T21:27:46.395
    Monitored Object: sys/switch-A/slot-1/switch-ether/port-1/rx-stats
    Suspect: No
    Total Packets (packets): 604527
    Unicast Packets (packets): 142906
    Multicast Packets (packets): 339031
    Broadcast Packets (packets): 122590
    Total Bytes (bytes): 59805045
    Jumbo Packets (packets): 0
    Thresholded: 0
Ether Tx Stats:
    Time Collected: 2016-11-14T21:27:46.395
    Monitored Object: sys/switch-A/slot-1/switch-ether/port-1/tx-stats
    Suspect: No
    Total Packets (packets): 145018
    Unicast Packets (packets): 145005
    Multicast Packets (packets): 0
    Broadcast Packets (packets): 13
    Total Bytes (bytes): 13442404
```

```
Jumbo Packets (packets): 0
Thresholded: 0
```

FXOS CLI 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 card

Displays information on a fabric card details. This command can be used to display the network module details.
For example:

```
# firepower-4225 /fabric-interconnect # show card detail expand

Fabric Card:
    Id: 2
    Description: 2-port 100 Gigabit Ethernet Expansion Module
    Number of Ports: 2
    Admin State: Enabled
    State: Online
    Vendor: Cisco Systems, Inc.
    Model: FPR-X-NM-2X100G
    Serial (SN): FJZ26390V7D
    Perf: N/A
    Operability: Operable
    Overall Status: Online
    Power State: Online
    Presence: Equipped
    Thermal Status: N/A
    Voltage Status: N/A
    Current Task:
```

show image

Displays all available images.

```
firepower /firmware # show image
Name                                       Type                Version
------------------------------------------ ------------------- -------
```

```
cisco-ftd.6.2.0.131.csp                       Firepower Cspapp     6.2.0.131
cisco-ftd.6.2.0.140.csp                       Firepower Cspapp     6.2.0.140
cisco-ftd.6.2.0.175.csp                       Firepower Cspapp     6.2.0.175
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 inventory expand

Displays all fabric card details. This command can be used to display the network module details.

```
firepower-4225 /fabric-interconnect # show inventory expand
A:

    Fabric Card:

    Slot  Description          Num Ports  State      PID              Serial (SN)
    ----- -------------------- ---------- ---------- ---------------- -----------
        0 Logical Slot for Management Interface
                                       2 N/A        FPR-4225         FJZ26345ZGZ
        1 Cisco FPR 4225 Base Module
                                       8 On         FPR-4225         FJZ26345ZGZ
        3 4-port 200 Gigabit Ethernet Expansion Module
                                       4 Online     FPR-X-NM-4X200G FJZ25430132
```

show package

Displays all available packages.

```
firepower /firmware # show package
Name                                           Package-Vers
---------------------------------------------- ------------
cisco-ftd-fp2k.6.2.0.131-303i.SSA              6.2(0.131-303i)
cisco-ftd-fp2k.6.2.0.140-307i.SSA              6.2(0.140-307i)
cisco-ftd-fp2k.6.2.0.140-308i.SSA              6.2(0.140-308i)
cisco-ftd-fp2k.6.2.0.175-311i.SSA              6.2(0.175-311i)
cisco-ftd-fp2k.6.2.0.175-314i.SSA              6.2(0.175-314i)
cisco-ftd-fp2k.6.2.0.175-318i.SSA              6.2(0.175-318i)
cisco-ftd-fp2k.6.2.0.175-319i.SSA              6.2(0.175-319i)
```

show package *package name* expand

Displays the package details.

```
firepower /firmware # show package  cisco-ftd-fp2k.6.2.0.131-303i.SSA expand
Package cisco-ftd-fp2k.6.2.0.131-303i.SSA:
    Images:
        cisco-ftd.6.2.0.131.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
    ------------ ----------------------------- -------------
    6.2(0.175-319i)            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.6.2.0.175-314i.SSA             Scp      172.29.191.78
   0 danp            Downloaded
       cisco-ftd-fp2k.6.2.0.175-318i.SSA              Scp      172.29.191.78
   0 danp            Downloaded
        cisco-ftd-fp2k.6.2.0.175-319i.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 Secure Firewall 3100

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

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

FPR3100# **connect local-mgmt**

show portmanager

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

```
firepower-3140(local-mgmt)# show portmanager switch forward-rules hardware vtcam-tti
detail
 VTCAM_RULE_ID   VLAN   SRC_PORT  PORTCHANNEL_ID  FLAGS  MODE  REF_COUNT
1               21      0          2               0      2     5          3
2             3078      0          0               0      0     0          1
3             3077      0          0               0      0     0          1
4             3076      0          0               0      0     0          1
5             3075      0          0               0      0     0          1
6             3074      0          0               0      0     0          1
7             3073      0          0               0      0     0          1
8                1      0          0               0      0     0          1
9               18    102          0               0     24     8          1
10               5    157          0               0     24     8          1
11              31      0         12               0      2     5          3
12              15    105          0               0     24     8          1
13               9    111          0               0     24     8          1
14              13    107          0               0     24     8          1
15              26      0          7               0      2     5          3
16              29      0         10               0      2     5          3
17              23      0          4               0      2     5          3
18              19    101          0               0     24     8          1
19              30      0         11               0      2     5          3
```

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

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

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

3                              0/1-16,18              outer_tag0_inner_tag1   Control
      FID
4                              0/1-16,18              outer_tag0_inner_tag1   Control
      FID
5                              0/1-16,18              outer_tag0_inner_tag1   Control
      FID
6                              0/1-16,18              outer_tag0_inner_tag1   Control
      FID
7                              0/1-16,18              outer_tag0_inner_tag1   Control
      FID
8                              0/1-16,18              outer_tag0_inner_tag1   Control
      FID
```

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

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

firepower-3140(local-mgmt)# show portchannel summary
Flags:  D - Down        P - Up in port-channel (members)
I - Individual  H - Hot-standby (LACP only)
s - Suspended   r - Module-removed
S - Switched    R - Routed
U - Up (port-channel)
M - Not in use. Min-links not met
--------------------------------------------------------------------------------
```

```
Group Port-       Type     Protocol  Member Ports
      Channel
------------------------------------------------------------------------------
3     Po3(U)      Eth      LACP      Eth1/3(P)
2     Po2(U)      Eth      LACP      Eth1/2(P)

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

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

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

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

The following CLI displays the status of FXOS system processes:

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

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

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

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

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

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

```
1           2       0         17        0        17       0        1709
2           3       0         19        0        19       0        1626
3           4       0         16        0         0       0           0
4           5       0         15        0         0       0           0
5           6       0         14        0         0       0           0
6           7       0         13        0         0       0           0
7           8       0         12        0         0       0           0
8           9       0         11        0         0       0           0
9          10       0         10        0         0       0           0
10         11       0          9        0         0       0           0
11         12       0          8        0         0       0           0
12         13       0          7        0         0       0           0
13         14       0          6        0         0       0           0
14         15       0          5        0         0       0           0
15         16       0          4        0         0       0           0
16         17       0          3        0         0       0           0
17         18       0          2        0         0       0           0
18         19       0          1        0         0       0           0
19         20       0          1        0       101       0         166
20         21       0          2        0       102       0        1597
21         22       0          3        0       103       0           0
22         23       0          4        0       104       0           0
23         24       0          5        0       105       0           0
24         25       0          6        0       106       0           0
25         26       0          7        0       107       0           0
26         27       0          8        0       108       0           0
27         28       0          9        0       109       0           0
28         29       0         10        0       110       0           0
29         30       0         11        0       111       0           0
30         31       0         12        0       112       0           0
31         32       0         13        0       159       0           0
32         33       0         14        0       158       0           0
33         34       0         15        0       157       0           0
34         35       0         16        0       156       0           0
35          1       0         17        0         0       0           0
```

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

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


      VLAN            :    0
      SRC_PORT        :   17
      PC_ID           :    0
      SRC_ID          :   17
      DST_PORT        :   19
      HW_ID           :   3072
      ACT_CMD         :    0
      PCL_ID          :    1
      REDIRECT_CMD    :    1
      BYPASS_BRG      :    1
      CND_INDEX       : 3074
      PACKET_COUNT    :       1977
      DMAC            : 00:00:00:00:00:00


EM Entry-No  :     2


      VLAN            :    0
      SRC_PORT        :   19
      PC_ID           :    0
      SRC_ID          :   19
```

```
DST_PORT        :   17
HW_ID           :   3074
ACT_CMD         :    0
PCL_ID          :    1
REDIRECT_CMD    :    1
BYPASS_BRG      :    1
CND_INDEX       : 3075
PACKET_COUNT    :       1858
DMAC            : 00:00:00:00:00:00
```

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

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

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

```
firepower-3140(local-mgmt)# show portmanager switch forward-rules software mac-filter
detail
 VLAN   SRC_PORT   PORTCHANNEL_ID   DST_PORT   FLAGS   MODE      DMAC
1         0         17                0         19      26      8   0:0:0:0:0:0
2         0          9                0       1536       2      5   1:80:c2:0:0:2
3       104          0                0          4      24      8   0:0:0:0:0:0
4         0          7                0       1536       2      5   1:80:c2:0:0:2
5       101          0                0          1      24      8   0:0:0:0:0:0
6         0          1                0       1536       2      5   1:80:c2:0:0:2
7         0          3                0       1536       2      5   1:80:c2:0:0:2
8       106          0                0          6      24      8   0:0:0:0:0:0
9       158          0                0         14      24      8   0:0:0:0:0:0
10        0         13                0       1536       2      5   1:80:c2:0:0:2
11        0         14                0       1536       2      5   1:80:c2:0:0:2
12        0          6                0       1536       2      5   1:80:c2:0:0:2
13        0          8                0       1536       2      5   1:80:c2:0:0:2
14      112          0                0         12      24      8   0:0:0:0:0:0
15      107          0                0          7      24      8   0:0:0:0:0:0
16        0         19                0         17      26      8   0:0:0:0:0:0
17        0         12                0       1536       2      5   1:80:c2:0:0:2
18        0          5                0       1536       2      5   1:80:c2:0:0:2
19      102          0                0          2      24      8   0:0:0:0:0:0
20      156          0                0         16      24      8   0:0:0:0:0:0
21      103          0                0          3      24      8   0:0:0:0:0:0
22        0         11                0       1536       2      5   1:80:c2:0:0:2
23      157          0                0         15      24      8   0:0:0:0:0:0
24      111          0                0         11      24      8   0:0:0:0:0:0
25        0         10                0       1536       2      5   1:80:c2:0:0:2
26      108          0                0          8      24      8   0:0:0:0:0:0
27      159          0                0         13      24      8   0:0:0:0:0:0
28      110          0                0         10      24      8   0:0:0:0:0:0
29      105          0                0          5      24      8   0:0:0:0:0:0
30        0          2                0       1536       2      5   1:80:c2:0:0:2
31        0          4                0       1536       2      5   1:80:c2:0:0:2
32        0         16                0       1536       2      5   1:80:c2:0:0:2
33      109          0                0          9      24      8   0:0:0:0:0:0
34        0         15                0       1536       2      5   1:80:c2:0:0:2
```

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

```
firepower-3140(local-mgmt)# show portmanager switch forward-rules software mac-filter
ethernet 1 9
```

```
VLAN    SRC_PORT    PORTCHANNEL_ID    DST_PORT    FLAGS    MODE       DMAC
1          0           9                 0        1536        2       5   1:80:c2:0:0:2
```

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

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

The following CLI displays details on hardware switch packet counters:

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

       Counter                              Description
---------------------- ------------------------------------------------------------
goodOctetsRcv          Number of ethernet frames received that are not bad
                       ethernet frames or MAC Control pkts
badOctetsRcv           Sum of lengths of all bad ethernet frames received
gtBrgInFrames          Number of packets received
gtBrgVlanIngFilterDisc Number of packets discarded due to VLAN Ingress Filtering
gtBrgSecFilterDisc     Number of packets discarded due to
                       Security Filtering measures
gtBrgLocalPropDisc     Number of packets discarded due to reasons other than
                       VLAN ingress and Security filtering
dropCounter            Ingress Drop Counter
outUcFrames            Number of unicast packets transmitted
outMcFrames            Number of multicast packets transmitted. This includes
                       registered multicasts, unregistered multicasts
                       and unknown unicast packets
outBcFrames            Number of broadcast packets transmitted
brgEgrFilterDisc       Number of IN packets that were Bridge Egress filtered
txqFilterDisc          Number of IN packets that were filtered
                       due to TxQ congestion
outCtrlFrames          Number of out control packets
                       (to cpu, from cpu and to  analyzer)
egrFrwDropFrames       Number of packets dropped due to egress
                       forwarding restrictions
goodOctetsSent         Sum of lengths of all good ethernet
                       frames sent from this MAC
        Counter            Source port- 0/0    Destination port- 0/0
-----------------------  --------------------  ---------------------
goodOctetsRcv                    ---                    ---
badOctetsRcv                      ---                    ---
                                      Ingress counters
gtBrgInFrames                   6650                   6650
gtBrgVlanIngFilterDisc            0                      0
gtBrgSecFilterDisc                0                      0
gtBrgLocalPropDisc                0                      0
dropCounter                     2163           Only for source-port
                                      Egress counters
outUcFrames                       0                      0
outMcFrames                     2524                   2524
outBcFrames                     1949                   1949
brgEgrFilterDisc                 14                     14
txqFilterDisc                     0                      0
outCtrlFrames                     0                      0
egrFrwDropFrames                  0                      0
goodOctetsSent                   ---                    ---          #
```

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

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

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

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

The following CLI displays details on hardware switch port traffic:

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


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

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

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

```
firepower-3140(local-mgmt)# show portmanager counters ethernet 1 13
   Good Octets Received                             : 2153
   Bad Octets Received                              : 0
   MAC Transmit Error                               : 0
   Good Packets Received                            : 13
   Bad packets Received                             : 0
   BRDC Packets Received                            : 0
   MC Packets Received                              : 13
   .........
   .........
   txqFilterDisc                                    : 0
   linkchange                                       : 1
   FcFecRxBlocks                                    : 217038081
   FcFecRxBlocksNoError                             : 217038114
   FcFecRxBlocksCorrectedError                      : 0
   FcFecRxBlocksUnCorrectedError                    : 0
```

```
   FcFecRxBlocksCorrectedErrorBits                  : 0
   FcFecRxBlocksCorrectedError0                     : 0
   FcFecRxBlocksCorrectedError1                     : 0
   FcFecRxBlocksCorrectedError2                     : 0
   FcFecRxBlocksCorrectedError3                     : 0
   FcFecRxBlocksUnCorrectedError0                   : 0
   FcFecRxBlocksUnCorrectedError1                   : 0
   FcFecRxBlocksUnCorrectedError2                   : 0
   FcFecRxBlocksUnCorrectedError3                   : 0
```

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

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

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

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

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

      THRESHOLDS
                                 high alarm    high warning    low warning     low alarm

        Temperature     C    +075.000        +070.000        +000.000         -05.000

        Voltage         V    003.6300        003.4650        003.1350        002.9700

        Bias Current   mA    012.0000        011.5000        002.0000        001.0000

        Transmit power mW    034.6740        017.3780        002.5120        001.0000

        Receive power  mW    034.6740        017.3780        001.3490        000.5370
```

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

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

```
firepower-3140(local-mgmt)# show portmanager switch pktcap-rules software
Software DB rule:1
 Slot= 1
 Interface= 12
 Breakout-port= 0
 Protocol= 6
 Ethertype= 0x0000
 Filter_key= 0x00000040
 Session= 1
 Vlan= 0
 SrcPort= 0
 DstPort= 0
 SrcIp= 0.0.0.0
 DstIp= 0.0.0.0
 SrcIpv6= ::
 DestIpv6= ::
 SrcMacAddr= 00:00:00:00:00:00
 DestMacAddr= 00:00:00:00:00:00
```

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

```
firepower-3140(local-mgmt)# show portmanager switch pktcap-rules hardware
Hardware DB rule:1
 Hw_index= 15372
 Rule_id= 10241
 Cnc_index= 1
 Packet_count= 0
 Slot= 1
 Interface= 12
 Protocol= 6
```

```
 Ethertype= 0x0000
 Vlan= 0
 SrcPort= 0
 DstPort= 0
 SrcIp= 0.0.0.0
 DstIp= 0.0.0.0
 SrcIpv6= ::
 DestIpv6= ::
 SrcMacAddr= 00:00:00:00:00:00
 DestMacAddr= 00:00:00:00:00:00
```

The following displays detailed information about the QOS functionality:

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

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

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

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

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

```
 Number of packets passed :                    0
 Number of packets dropped:                    0
Queue 2:
  Number of packets passed :                   0
  Number of packets dropped:                   0
Queue 3:
  Number of packets passed :           466420167
  Number of packets dropped:                   0
Queue 4:
  Number of packets passed :                   0
  Number of packets dropped:                   0
Queue 5:
  Number of packets passed :                   0
  Number of packets dropped:                   0
Queue 6:
  Number of packets passed :            41536261
  Number of packets dropped:                   0
Queue 7:
  Number of packets passed :                 912
  Number of packets dropped:                   0
CPU Statistics:
Queue 2:
  Number of packets passed :              180223
  Number of packets dropped:                   0
Queue 7:
  Number of packets passed :                1572
  Number of packets dropped:                   0
```

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

```
firepower(local-mgmt)# show queuing interface internal 1 1
Queue     Traffic-type    Scheduler-type  oper-bandwidth    Destination
------------------------------------------------------------------------
  3            Data           WRR             100           Application
  4         CCL-CLU            SP               0           Application
  5             BFD            SP               0           Application
  6            OSPF            SP               0           Application
  7  CCL-CONTROL/HA/LACP_Tx    SP               0           Application
  0  packet-capture           N/A               0                   CPU
  7            LACP_Rx        N/A               0                   CPU
Port 1/18 Queue Statistics:
Queue 0:
  Number of packets passed :                   0
  Number of packets dropped:                   0
Queue 1:
 Number of packets passed :                    0
 Number of packets dropped:                    0
Queue 2:
  Number of packets passed :                   0
  Number of packets dropped:                   0
Queue 3:
  Number of packets passed :                  17
  Number of packets dropped:                   0
Queue 4:
  Number of packets passed :                   0
  Number of packets dropped:                   0
Queue 5:
  Number of packets passed :                   0
  Number of packets dropped:                   0
Queue 6:
  Number of packets passed :                5151
  Number of packets dropped:                   0
```

```
Queue 7:
  Number of packets passed :                 17345
  Number of packets dropped:                    0
CPU Statistics:
Queue 2:
  Number of packets passed :                180223
  Number of packets dropped:                     0
Queue 7:
  Number of packets passed :                  1572
  Number of packets dropped:                     0
Note:The CPU statistics are per Queue per Device
```

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

FPR 4200# **connect local-mgmt**

show portmanager

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

```
firepower(local-mgmt)# show portmanager switch forward-rules hardware vtcam-tti
      RULE_ID   VLAN   NUM_MPLS_LABELS  SRC_PORT   PC_ID   SRC_ID   MODE   PAK_CNT
1           2      0       0               10       0       10       0         1951
2           3      0       0               14       0       14       0           19
3           4      0       0                9       0        9       0       227505
4           5      0       0               13       0       13       0       103587
5           6      0       0                8       0        0       0            0
6           7      0       0                7       0        0       0            0
7           8      0       0                6       0        0       0            0
8           9      0       0                5       0        0       0            0
9          10      0       0                4       0        0       0            0
10         11      0       0                3       0        0       0            0
11         12      0       0                2       0        0       0            0
12         13      0       0                1       0        0       0          607
13         14      0       0               44       0        0       0            0
14         15      0       0               40       0        0       0            0
15         16      0       0               36       0        0       0            0
16         17      0       0               32       0        0       0            0
17         30      0       0                1       0      101       1         2120
18         18      0       0                1       0      101       0          306
19         19      0       0                2       0      102       0         2429
```

```
20          20       0         0                3         0       103         0             0
21          21       0         0                4         0       104         0             0
22          22       0         0                5         0       105         0             0
23          23       0         0                6         0       106         0             0
24          24       0         0                7         0       107         0             0
25          25       0         0                8         0       108         0             0
26          26       0         0               32         0       117         0             0
27          27       0         0               36         0       121         0             0
28          28       0         0               40         0       125         0             0
29          29       0         0               44         0       129         0             0
30           1       0         0                9         0         0         0          1875
31        8193       0         1                0         0         0         0             0
32        8194       0         2                0         0         0         0             0
33        8195       0         3                0         0         0         0             0
34        8196       0         4                0         0         0         0             0
35        8197       0         5                0         0         0         0             0
36        8198       0         6                0         0         0         0             0
```

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

```
firepower(local-mgmt)# show portmanager switch forward-rules hardware vtcam-tti
      RULE_ID   VLAN   NUM_MPLS_LABELS  SRC_PORT   PC_ID   SRC_ID   MODE  PAK_CNT
1           2      0         0              10       0       10       0     1961
2           3      0         0              14       0       14       0     19
3           4      0         0               9       0        9       0     227517
4           5      0         0              13       0       13       0     103683
5           6      0         0               8       0        0       0          0
6           7      0         0               7       0        0       0          0
7           8      0         0               6       0        0       0          0
8           9      0         0               5       0        0       0          0
9          10      0         0               4       0        0       0          0
10         11      0         0               3       0        0       0          0
11         12      0         0               2       0        0       0          0
12         13      0         0               1       0        0       0        617
13         14      0         0              44       0        0       0          0
14         15      0         0              40       0        0       0          0
15         16      0         0              36       0        0       0          0
16         17      0         0              32       0        0       0          0
17         30      0         0               1       0      101       1       2156
18         18      0         0               1       0      101       0        306
19         19      0         0               2       0      102       0       2466
20         20      0         0               3       0      103       0          0
21         21      0         0               4       0      104       0          0
22         22      0         0               5       0      105       0          0
23         23      0         0               6       0      106       0          0
24         24      0         0               7       0      107       0          0
25         25      0         0               8       0      108       0          0
26         26      0         0              32       0      117       0          0
27         27      0         0              36       0      121       0          0
28         28      0         0              40       0      125       0          0
29         29      0         0              44       0      129       0          0
30          1      0         0               9       0        0       0       1875
31       8193      0         1               0       0        0       0          0
32       8194      0         2               0       0        0       0          0
33       8195      0         3               0       0        0       0          0
34       8196      0         4               0       0        0       0          0
35       8197      0         5               0       0        0       0          0
36       8198      0         6               0       0        0       0          0
```

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

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

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

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

      NATIVE_VLAN    VLAN   SRC_PORT   PORTCHANNEL_ID   DST_PORT   FLAGS   MODE DMAC
1              0      106          6                0       1536       2      5
1:80:c2:0:0:2
2              0      105          5                0       1536       2      5
ff:ff:ff:ff:ff:ff
3              0      105          5                0       1536       2      5
1:80:c2:0:0:2
4              0      121          0                0         36      24      8
0:0:0:0:0:0
5              0      106          6                0       1536       2      5
ff:ff:ff:ff:ff:ff
6              0      121         36                0       1536       2      5
1:80:c2:0:0:2
7              0      117         32                0       1536       2      5
1:80:c2:0:0:2
```

```
8               0      125          40                0       1536        2       5
ff:ff:ff:ff:ff:ff
9               0      129           0                0         44       24       8
0:0:0:0:0:0
10              0      117          32                0       1536        2       5
ff:ff:ff:ff:ff:ff
11              0      103           3                0       1536        2       5
1:80:c2:0:0:2
12              0      102           2                0       1536        2       5
ff:ff:ff:ff:ff:ff
13              0      117           0                0         32       24       8
0:0:0:0:0:0
14              0      107           0                0          7       24       8
0:0:0:0:0:0
15              0      101           1                0       1536        2       5
ba:db:ad:f0:2:8e
16              0      107           7                0       1536        2       5
ff:ff:ff:ff:ff:ff
17              0      106           6                0       1536        2       5
ba:db:ad:f0:2:93
18              0      105           0                0          5       24       8
0:0:0:0:0:0
19              0      102           0                0          2       24       8
0:0:0:0:0:0
20              0      104           4                0       1536        2       5
ba:db:ad:f0:2:91
21              0      107           7                0       1536        2       5
ba:db:ad:f0:2:94
22              0      129          44                0       1536        2       5
1:80:c2:0:0:2
23              0      102           2                0       1536        2       5
1:80:c2:0:0:2
24              0      121          36                0       1536        2       5
ff:ff:ff:ff:ff:ff
25              0        1          13                0          9       26       8
0:0:0:0:0:0
26              0      108           8                0       1536        2       5
1:80:c2:0:0:2
27              0      101           1                0       1536        2       5
ff:ff:ff:ff:ff:ff
28              0        2          10                0         14       26       8
0:0:0:0:0:0
29              0      101           1                0       1536        2       5
1:80:c2:0:0:2
30              0        1           9                0         13       26       8
0:0:0:0:0:0
31              0      129          44                0       1536        2       5
ff:ff:ff:ff:ff:ff
32              0      125           0                0         40       24       8
0:0:0:0:0:0
33              0      108           8                0       1536        2       5
ba:db:ad:f0:2:95
34              0        2          14                0         10       26       8
0:0:0:0:0:0
35              0      129          44                0       1536        2       5
ba:db:ad:f0:2:a1
36              0      103           0                0          3       24       8
0:0:0:0:0:0
37              0      104           0                0          4       24       8
0:0:0:0:0:0
38              0      104           4                0       1536        2       5
ff:ff:ff:ff:ff:ff
39              0      107           7                0       1536        2       5
1:80:c2:0:0:2
```

```
40              0       104           4                 0       1536        2       5
1:80:c2:0:0:2
41              0       101           1                 0       1536       18       8
0:0:0:0:0:0
42              0       101           0                 0          1       24       8
0:0:0:0:0:0
43              0       108           8                 0       1536        2       5
ff:ff:ff:ff:ff:ff
44              0       121          36                 0       1536        2       5
ba:db:ad:f0:2:9f
45              0       117          32                 0       1536        2       5
ba:db:ad:f0:2:9e
46              0       105           5                 0       1536        2       5
ba:db:ad:f0:2:92
47              0       125          40                 0       1536        2       5
ba:db:ad:f0:2:a0
48              0       125          40                 0       1536        2       5
1:80:c2:0:0:2
49              0       108           0                 0          8       24       8
0:0:0:0:0:0
50              0       106           0                 0          6       24       8
0:0:0:0:0:0
51              0       103           3                 0       1536        2       5
ba:db:ad:f0:2:90
52              0       102           2                 0       1536        2       5
ba:db:ad:f0:2:8f
53              0       103           3                 0       1536        2       5
ff:ff:ff:ff:ff:ff
```

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

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

The following CLI displays details on hardware switch packet counters:

```
how portmanager switch counters packet-trace

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

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

```
egrFrwDropFrames       Number of packets dropped due to egress
                       forwarding restrictions
goodOctetsSent         Sum of lengths of all good ethernet
                       frames sent from this MAC


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

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

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

goodOctetsSent                   ---                    ---
```

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

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

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

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

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

The following CLI displays details on hardware switch port traffic:

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


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

Dev/Port   max-rate  actual-tx-rate    actual-rx-rate
---------  --------  ---------------   ---------------
0/1         1488095    (0%)---           (0%)---
0/2         1488095    (0%)---           (0%)---
```

```
0/3         14880      (0%)---           (0%)---
0/4         14880      (0%)---           (0%)---
0/5         14880      (0%)---           (0%)---
0/6         14880      (0%)---           (0%)---
0/7         14880      (0%)---           (0%)---
0/8         14880      (0%)---           (0%)---
0/9         14880952   (0%)---           (0%)---
0/10        14880952   (0%)---           (0%)---
0/11        14880952   (0%)---           (0%)---
0/12        14880952   (0%)---           (0%)---
0/13        14880952   (0%)---           (0%)---
0/14        14880952   (0%)---           (0%)---
0/15        1488095    (0%)---           (0%)---
0/16        1488095    (0%)---           (0%)---
0/17        14880952   (0%)---           (0%)---
0/18        74404761   (0%)---           (0%)---
0/19        37202380   (0%)---           (0%)---
0/20        37202380   (0%)---           (0%)---
```

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

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

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

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

```
   RsFeccorrectedFecCodeword                          : 0
   RsFecuncorrectedFecCodeword                        : 10
   RsFecsymbolError0                                  : 5
   RsFecsymbolError1                                  : 0
   RsFecsymbolError2                                  : 0
   RsFecsymbolError3                                  : 0
```

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

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

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

      THRESHOLDS
                                high alarm    high warning    low warning     low alarm

         Temperature     C    +075.000        +070.000        +000.000         -05.000

         Voltage         V    003.6300        003.4650        003.1350        002.9700

         Bias Current   mA    012.0000        011.5000        002.0000        001.0000

         Transmit power mW    034.6740        017.3780        002.5120        001.0000

         Receive power  mW    034.6740        017.3780        001.3490        000.5370


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

```
                  PAGE IFC OFFSET VALUE   | PAGE IFC OFFSET VALUE
                  ---- --- ------ -----   | ---- --- ------ -----
```

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

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

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

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

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

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

     |          |                          Per Port and Traffic Class
          |
Port | Per port | TC0     | TC1     | TC2     | TC3     | TC4     | TC5     | TC6
| TC7     |
-----|----------|---------|---------|---------|---------|---------|---------|---------|---------|
0/1  |10        |10       |0        |0        |0        |0        |0        |0
|0        |
0/2  |15        |5        |5        |5        |0        |0        |0        |0
|0        |
0/3  |0         |0        |0        |0        |0        |0        |0        |0
|0        |
```

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

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

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

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

FXOS CLI 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 1000/2100 or Secure Firewall 3100 device.

For example:

```
firepower /ssa # show app
Application:
    Name       Version    Description Author     Deploy Type CSP Type    Is Defa
ult App
    ---------- ---------- ----------- ---------- ----------- ----------- -------
-------
    ftd        6.2.0.131  N/A         cisco      Native      Application No
    ftd        6.2.0.140  N/A         cisco      Native      Application No
    ftd        6.2.0.175  N/A         cisco      Native      Application Yes
```

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 the 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
  ```

Secure Firewall 3100 and 4200 CLI Monitoring Mode Troubleshooting Commands

Use the following CLI commands to troubleshoot issues.

show

Displays the state of memory leak, process wise.
For example:

```
FPR3100 /monitoring/sysdebug/mem-leak-logging # show detail
        Process        Status    Stacktrace
    -------------- --------- ------------
    statsAG        Disabled    Off
    dcosAG         Disabled    Off
    portAG         Disabled    Off
    appAG          Disabled    Off
    eventAG        Disabled    Off
    npuAG          Disabled    Off
    sessionmgrAG   Disabled    Off
    svcmonAG       Disabled    Off
    serviceOrchAG  Disabled    Off
    dme            Disabled    Off
    envAG          Disabled    Off
```

Note By default, mem-leak is disabled for all UCSM processes, and stacktrace is disabled You must enable mem-leak for the specified process to debug the memory leak issues, and enable the stacktrace for more information on the issue.

Packet Capture for Secure Firewall 3100/4200

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

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

Guidelines and Limitations for Packet Capture

The Packet Capture tool has the following limitations:

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

  With all other network modules, packet capture sessions continue across module `adminstate` changes.
- Does not support multiple active packet capturing sessions.
- There is no option to filter based on source or destination IPv6 address.
- Filters are not effective on packets that cannot be understood by the internal switch (for example Security Group Tag and Network Service Header packets).

- You cannot capture packets for an EtherChannel as a whole. However, for an EtherChannel allocated to a logical device, you can capture packets on each member interface of the EtherChannel.
- You cannot copy or export a PCAP file while the capture session is still active.
- When you delete a packet capture session, all packet capture files associated with that session are also deleted.

Creating or Editing a Packet Capture Session

Procedure

Step 1 Enter packet capture mode:

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

Step 2 Create a filter.

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

Table 2: 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 ftd-instance1
firepower-4215 /packet-capture/session/phy-port* #
```

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

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

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

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

e) (Optional) Apply the desired filter.

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

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

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

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

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

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

a) Specify the application port.

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

Syntax Description

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

b) (Optional) Apply the desired filter.

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

Syntax Description

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

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

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

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

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

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

Step 8 Commit the transaction to the system configuration:

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

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

Example

```
firepower-4215 # scope packet-capture
firepower-4215 /packet-capture # create session ftd1inside
firepower-4215 /packet-capture* # create filter interface1vlan100
firepower-4215 /packet-capture/filter* # set ivlan 100
firepower-4215 /packet-capture/filter* # set srcIP 6.6.6.6
firepower-4215 /packet-capture/filter* # set destIP 10.10.10.10
firepower-4215 /packet-capture/filter* # exit
firepower-4215 /packet-capture/session* # create phy-port Ethernet1/1
firepower-4215 /packet-capture/session/phy-port* # set drop mac-filter
firepower-4215 /packet-capture/session/phy-port* # set src-filter interface1vlan100
firepower-4215 /packet-capture/session/phy-port* # exit
firepower-4215 /packet-capture/session* # enable
firepower-4215 /packet-capture/session* # commit-buffer
firepower-4215 /packet-capture/session #
```

Deleting Packet Capture Sessions

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

Procedure

Step 1 Enter packet capture mode:

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

Step 2 To delete a specific packet capture session:

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

Step 3 To delete all inactive packet capture sessions:

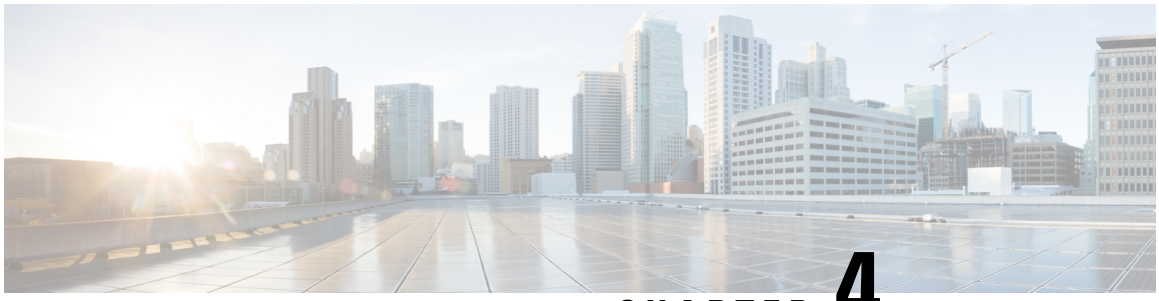
firepower-4215/packet-capture # **delete-all-sessions**

Step 4 Commit the transaction to the system configuration:

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

Example

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



CHAPTER 4

Image Management

About Disaster Recovery

You may need to reset the configuration, reinstall the image, recover the FXOS password, or completely reimage the system. See the following available procedures:

- Erase the configuration and restart the system with the same image—All configurations are removed, and thethreat defense is reinstalled using the current image. Note that after performing this procedure, you will have to reconfigure the system, including admin password and connectivity information. See Reimage the System with the Base Install Software Version, on page 48.
- Perform a factory reset from ROMMON (admin password recovery)—All configurations are removed, and threat defense is reinstalled using the current image. Note that after performing this procedure, you will have to reconfigure the system, including admin password and connectivity information. See Perform a Factory Reset from ROMMON (Password Reset), on page 50.
- Reimage the system with a new version—All configurations are removed, and threat defense is reinstalled using the a new software image. Note that after performing this procedure, you will have to reconfigure the system, including admin password and connectivity information. See Reimage the System with a New Software Version, on page 52.

Note You cannot perform a downgrade to the previous major version using this procedure. You must use the Perform a Complete Reimage, on page 64 instead.

- Reformat the SSD File System—Reformats the SSD if you see disk corruption messages. All configurations are removed. Note that after performing this procedure, you will have to reconfigure the system, including admin password and connectivity information. See Reformat the SSD File System (Firepower 2100), on page 56.
- Boot from ROMMON—Boots FXOS from ROMMON if you cannot boot up. You can then reformat the eMMC and reinstall the software image. This procedure retains all configuration. See Boot from ROMMON, on page 57.
- Erase all configuration and images—This option restores your system to its factory default settings, and erases the images. The procedure requires you to boot the system over TFTP, download the threat defense software, and reconfigure the entire system. See Perform a Complete Reimage, on page 64.
- Change the admin password—This procedure lets you change the admin password from the threat defense CLI. See Change the Admin Password, on page 68.
- Change the admin password if threat defense is offline—This procedure lets you change the admin password from FXOS. See Change the Admin Password if Threat Defense is Offline, on page 69. Note that if the threat defense is online, you must change the admin password using the threat defense CLI.

Reimage the System with the Base Install Software Version

This procedure erases all configuration except the base install software version setting. When the system comes back up after the erase configuration operation, it will run with the startup version of threat defense.

If your current running version is an upgrade-only image, you will have to re-upgrade your threat defense after performing this procedure. For example, version 6.2.2.x is an upgrade-only image. If you elect to perform this procedure on your 6.2.2.x system, then the base install package (version 6.2.1.x) will be reinstalled, and you will need to re-upgrade to version 6.2.2.x using the Secure Firewall Management Center or Secure Firewall device manager. In this case, the FXOS version may not revert back to a lower version. This mismatch may cause failures in a High Availability configuration. For this scenario, we recommended that you perform a complete reimage of the system (see Perform a Complete Reimage, on page 64 for more information).

Note After performing this procedure, the admin password is reset to **Admin123**.

Before you begin

- Verify that you are in the FXOS CLI context. If you connect to the Firepower 1000/2100, Secure Firewall 3100, or Secure Firewall 4200 device via serial console, you will automatically connect to the FXOS CLI context. If you are in the threat defense CLI context, you must first switch to the FXOS CLI context with the **connect fxos** command.
- Take note of your appliance management IP address configuration and copy the information shown from the following command:

```
firepower # scope fabric a
firepower /fabric-interconnect # show detail
```

- Take note of your threat defense base install version using the following commands. The Startup Version column shows your base install version. The Running Version shows any upgrades you applied to the base install version.

```
firepower# scope ssa
firepower /ssa # show app-instance
Application Name      Slot ID    Admin State     Operational State    Running Version
Startup Version Cluster Oper State
-------------------- ---------- --------------- -------------------- ---------------
---------------- ------------------
ftd                   1          Enabled         Online               6.2.2.49
6.2.1.341       Not Applicable
```

- Disassociate your devices from Smart Licensing.
- Deregister your devices from the cloud tenant (if applicable). See Deregister From Cloud, on page 70.
- To reimage your Secure Firewall 3100 device to threat defense 7.3.0 version, you must have ROMMON version 1.1.08 or above. If the current ROMMON version is less than 1.1.08, you must upgrade ROMMON by upgrading to ASA 9.19 or later. You can also use the management center or device manager to upgrade the threat defense to 7.3.0 (see Threat Defense Reimage for more information).
- You cannot reimage the Secure Firewall 3100 device to threat defense 7.4 using the base install software version due to the introduction of a single image for installation and upgrading of the threat defense image. Instead, perform a complete reimage of the system. For more information, see Perform a Complete Reimage, on page 64.

Procedure

Step 1 In the FXOS CLI, connect to local-mgmt:

firepower # **connect local-mgmt**

Step 2 Erase all configuration:

firepower(local-mgmt) # **erase configuration**

Example:

```
firepower(local-mgmt)# erase configuration
All configurations will be erased and system will reboot. Are you sure? (yes/no):yes
Removing all the configuration. Please wait....
Configurations are cleaned up. Rebooting....
```

Step 3 Once the system comes back up, you can check the state of the application with the **show app-instance** command. Note that the password login is now set to the default **admin/Admin123**.

Example:

```
firepower# scope ssa

firepower /ssa # show app-instance
```

```
Application Name     Slot ID    Admin State     Operational State    Running Version Startup
 Version Cluster Oper State
-------------------- ---------- --------------- -------------------- ---------------
--------------- ------------------
ftd                  1          Disabled        Installing
6.2.1-1314     Not Applicable
```

Note It may take more than 10 minutes for the application installation to complete. Once the threat defense is back online, the Operational State of the **show app-instance** command displays as Online:

Example:

```
firepower /ssa # show app-instance
Application Name     Slot ID    Admin State     Operational State    Running Version Startup
 Version Cluster Oper State
-------------------- ---------- --------------- -------------------- ---------------
--------------- ------------------
ftd                  1          Enabled         Online               6.2.1.10140
```

What to do next

Complete the setup tasks in the getting started guide, and upgrade to latest version if necessary.

Perform a Factory Reset from ROMMON (Password Reset)

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 and threat defense configuration to the factory default using ROMMON. The admin password is reset to the default **Admin123**. If you know the password, and want to restore the factory default configuration from within FXOS, see Reimage the System with the Base Install Software Version, on page 48.

Before you begin

- To reimage your Secure Firewall 3100 device to threat defense 7.3.0 version, you must have ROMMON version 1.1.08 or above. If the current ROMMON version is less than 1.1.08, you must upgrade ROMMON by upgrading to ASA 9.19 or later. You can also use the management center or device manager to upgrade threat defense version to 7.3.0 (see Threat Defense Reimage for more information).

Procedure

Step 1 Power on the device. When you see the following prompt, hit ESC to stop the boot.

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

Step 2 Verify the ROMMON version:

rommon 1 > **show info**

Example:

Firepower 1000 and 2100 devices

```
rommon 1 > show info

Cisco System ROMMON, Version 1.0.06, RELEASE SOFTWARE
Copyright (c) 1994-2017  by Cisco Systems, Inc.
Compiled Wed 11/01/2017 18:38:59.66 by builder
```

Secure Firewall 3100 devices

```
rommon 1 > show info
Cisco System ROMMON, Version 1.1.08 , RELEASE SOFTWARE
Copyright (c) 1994-2022  by Cisco Systems, Inc.
Compiled Fri 06/10/2022 10:25:43.78 by Administrator
```

Secure Firewall 4200 devices

```
Cisco System ROMMON, Version 1.0.15, RELEASE SOFTWARE
Copyright (c) 1994-2023  by Cisco Systems, Inc.
Compiled Thu 06/15/2023 14:41:54.43 by builder
```

Step 3 Factory reset the device.

For ROMMON version 1.0.06 or later:

rommon 2 > **factory-reset**

For ROMMON version 1.0.04:

rommon 2 > **password_reset**

Example:

Firepower 1000 and 2100 devices

```
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
```

Example:

Secure Firewall 3100 devices

```
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: Cisco_FTD_SSP_FP3K_Upgrade-7.3.0-4.sh.REL.tar
Are you sure you would like to continue ? yes/no [no]: yes
File size is 0x0817a870
Located Cisco_FTD_SSP_FP3K_Upgrade-7.3.0-4.sh.REL.tar
```

Example:

Secure Firewall 4200 devices

```
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: Cisco_Secure_FW_TD_4200-7.4.0-1044.sh.DEV.tar
Are you sure you would like to continue ? yes/no [no]: yes
File size is 0x0817a870
Located Cisco_Secure_FW_TD_4200-7.4.0-1044.sh.DEV.tar
```

Step 4 If the system does not prompt you to boot, enter the **boot** command:

rommon 3 > **boot**

What to do next

Complete the setup tasks in the getting started guide.

Reimage the System with a New Software Version

This procedure allows you to reimage the system with a new software version. After performing this procedure, you will need to reconfigure the management IP address and other configuration parameters on the device. If you want to upgrade the software without erasing your configuration, see the upgrade guide.

Note You cannot perform a downgrade to the previous major version using this procedure. You must use the Perform a Complete Reimage, on page 64 instead.

Note After performing this procedure, the admin password is reset to **Admin123**.

Before you begin

- Verify that you are in the FXOS CLI context. If you connect to the Firepower 1000/2100, Secure Firewall 3100, or or Secure Firewall 4200 device via serial console, you will automatically connect to the FXOS

CLI context. If you are in the threat defense CLI context, you must first switch to the FXOS CLI context with the **connect fxos** command.

- Take note of your appliance management IP address configuration, and copy the information shown from the following command:

```
firepower # scope fabric a
firepower /fabric-interconnect # show detail
```

- Disassociate your devices from Smart Licensing.
- Deregister your devices from the cloud tenant (if applicable). See Deregister From Cloud, on page 70.
- To reimage your Secure Firewall 3100 device to threat defense version 7.3.0, you must have ROMMON version 1.1.08 or above. If the current ROMMON version is less than 1.1.08, you must upgrade ROMMON by upgrading to ASA 9.19 or later. You can also use the management center or device manager to upgrade threat defense version to 7.3.0 (see Threat Defense Reimage for more information).

Procedure

Step 1 Download the software bundle to your local computer, or to a USB flash drive.

Step 2 If using a USB drive, insert the USB drive into the USB port on the appliance.

Step 3 In FXOS, enter the system scope and verify the current version running on your system:

firepower # **scope system**

firepower /system # **show version detail**

Step 4 Enter the firmware scope:

firepower # **scope firmware**

Step 5 Download the new software package. If you are using a USB drive to download the software package, use the following syntax:

firepower # **scope firmware**

firepower /firmware # **download image** usbA:*image_name*

Note that the *image_name* is the output from the **show version detail** command in step 3, above.

For example:

firepower /firmware # **download image** usbA:cisco-ftd-fp2k.6.2.1-36.SPA

Note In version 7.3+, the threat defense install and upgrade package for Secure Firewall 3100 is a combined package. You can use the `.REL.tar` file instead of `.SPA` file for the described procedure.

You can also use FTP, SCP, SFTP, or TFTP to copy the threat defense software package to the device:

firepower /firmware # **download image** *tftp/ftp/scp/sftp***://***path to the image, including the server root /image name*

Example for Firepower 1000 and 2100 devices:

```
firepower /firmware # download image tftp://example.cisco.com/fxos-2k.6.2.1-1314.SPA
```

Example for Secure Firewall 3100 devices:

```
firepower /firmware # download image scp://example.cisco.com/auto/Cisco_FTD_SSP_FP3K_Upgrade-7.3.0-14.sh.REL.tar
```

Example for Secure Firewall 4200 devices:

```
firepower-4215 /firmware # download image tftp://172.29.185.101:/Cisco_Secure_FW_TD_4200-7.4.0-1044.sh.REL.tar
```

Note When performing a file transfer via FTP/TFTP/SCP/SFTP, you must provide an absolute path to the image, including the server root, as the system prepends a forward slash to the filename provided in the download image request.

You can optionally use a FQDN in place of the IP address.

Step 6 Display the download task to monitor the download progress:

firepower /firmware #**show download-task**

Once Downloaded displays in the output of the Status column, the download is complete.

Example:

Secure Firewall 3100 devices:

```
firepower 3110 /firmware # show download task
File Name Protocol Server Port Userid State
--------- -------- ------ ---- ------------
Cisco_FTD_SSP_FP3K_Upgrade-7.3.0-14.sh.REL.tar
          Scp 172.23.205.217 0 <xxxxxx> Downloaded
```

Example:

Secure Firewall 4200 devices:

```
firepower-4215 /firmware # show download-task

Download task:
    File Name Protocol Server          Port       Userid          State
    --------- -------- --------------- ---------- --------------- -----
    Cisco_Secure_FW_TD_4200-7.4.0-1044.sh.REL.tar
              Tftp     172.29.185.101           0                 Downloading
```

Step 7 Once the download is complete, display the software packages installed on your system and copy the displayed bundle image version from the output:

firepower /firmware # **show package**

Example:

Firepower 1000 and 2100 devices

```
firepower /firmware # show package
Name                                          Package-Vers
--------------------------------------------- ------------
cisco-ftd-fp2k.6.2.1-1314.SPA                 6.2.1-1314
```

In the above example, **6.2.1-1314** is the security pack version.

Example:

Secure Firewall 3100 devices

```
firepower 3110 /firmware # show package
Name                                          Package Vers
--------------------------------------------  ---------------
Cisco_FTD_SSP_FP3K_Upgrade-7.3.0-14.sh.REL.tar      7.3.0-14
```

Example:

Secure Firewall 4200 devices

```
firepower-4215 /firmware # show package
Name                                         Package-Vers
-------------------------------------------- ------------
Cisco_Secure_FW_TD_4200-7.4.0-1044.sh.REL.tar 7.4.0-1044
```

In the above example, **7.3.0-14** is the security pack version.

Step 8 Enter the auto-install scope:

firepower /firmware # **scope auto-install**

Step 9 Install the new application software package (where the *version* is the output from show package, above):

firepower /firmware/auto-install # **install security-pack version** *version*

Example:

```
firepower 3110 /firmware/auto install # install security pack version 7.3.0-14
…
firepower /firmware # connect ftd
> show version
-----------------[ firepower 3100 ]-----------------
Model : Cisco Secure Firewall 3110 Threat Defense (80) Version 7.3.0 (Build
```

Step 10 Enter **yes** when prompted.

The system reboots, then installs the latest software bundle.

What to do next

Complete the setup tasks in the getting started guide.

Download a Package for Multi-Instance Mode

This procedure lets you download an older threat defense package to a multi-instance chassis, so you can add an instance using that version. Both the FXOS and threat defense images are included in the same package, so if you upgraded the chassis FXOS version, the old, matching threat defense version will still be available for instances.

You won't be able to use a threat defense that is not compatible with the running FXOS version. For example, you cannot use a newer threat defense without upgrading your chassis first.

Before you begin

- Verify that you are in the FXOS CLI. If you connect to the device from the console, you will automatically connect to the FXOS CLI. If you SSH to the device, you will connect to the threat defense CLI, and you must use the **connect fxos** command to access the FXOS CLI.

Procedure

Step 1 Copy the package to a FTP, SCP, SFTP, or TFTP server or to a USB flash drive.

Step 2 If using a USB drive, insert the USB drive into the USB port on the device.

Step 3 Download the older software package.

firepower # **scope firmware**

firepower /firmware # **download image** *url*

Example:

For example, to download from a USB drive (usbA), enter:

```
firepower-3110 /firmware # download image usbA:Cisco_FTD_SSP_FP3K_Upgrade-7.4.1-15.sh.DEV.tar
Please use the command 'show download-task' or 'show download-task detail' to check download
 progress.
% Download-task Cisco_FTD_SSP_FP3K_Upgrade-7.4.1-15.sh.DEV.tar : completed successfully.
```

For example, to download from an SCP server, enter:

```
firepower-3110 /firmware # download image
scp://example.cisco.com/auto/Cisco_FTD_SSP_FP3K_Upgrade-7.4.1-78.sh.REL.tar
Please use the command 'show download-task' or 'show download-task detail' to check download
 progress.
% Download-task Cisco_FTD_SSP_FP3K_Upgrade-7.4.1-78.sh.DEV.tar : completed successfully.
```

Step 4 You can now use the package when you add an instance.

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 threat defense configuration is stored. This procedure restores the FXOS configuration to the factory default. The admin password is reset to the default **Admin123**. This procedure also resets the threat defense configuration.

This procedure does not apply to the Firepower 1000 and Secure Firewall 3100, 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.

Step 2 Reformat SSD1.

connect local-mgmt

format ssd1

Step 3 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.
- To reimage your Secure Firewall 3100 device to threat defense version 7.3.0, you must have ROMMON version 1.1.08 or above. If the current ROMMON version is less than 1.1.08, you must upgrade ROMMON by upgrading to ASA 9.19 or later. You can also use the management center or device manager to upgrade threat defense version to 7.3.0 (see Threat Defense Reimage for more information).

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 6.4 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/threat defense version mismatch will cause the threat defense to crash. In 6.5 and later, booting FXOS from ROMMON prevents threat defense 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-ftd-fp3k.7.1.0.SPA
```

If you want to boot from TFTP:

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

address *management_ip_address*

netmask *subnet_mask*

server *tftp_ip_address*

gateway *gateway_ip_address*

file*path/filename*

set

sync

tftpdnld -b

The FXOS image downloads and boots up to the CLI.

See the following information:

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

Example:

Firepower 1000 and 2100 devices

```
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-ftd-fp2k.6.4.0.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-ftd-fp2k.6.4.0.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-ftd-fp2k.6.4.0.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-ftd-fp2k.6.4.0.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 >
```

Example:

Secure Firewall 3100 devices

```
rommon 1 > show info

Cisco System ROMMON, Version 1.1.08, RELEASE SOFTWARE
Copyright (c) 1994-2022  by Cisco Systems, Inc.
Compiled Fri 06/10/2022 10:25:43.78 by Administrator
********************************************************************************

rommon 2 > ADDRESS=172.16.0.50
rommon 3 > NETMASK=255.255.255.0
rommon 4 > GATEWAY=172.16.0.254
rommon 5 > SERVER=172.23.37.186
rommon 6 > IMAGE=image_dir/Cisco_FTD_SSP_FP3K_Upgrade-7.3.0-4.sh.REL.tar
rommon 7 > set
    ADDRESS=172.16.0.50
    NETMASK=255.255.255.0
    GATEWAY=172.16.0.254
    SPEED=10000
    SERVER=172.23.37.186
    IMAGE= image_dir/Cisco_FTD_SSP_FP3K_Upgrade-7.3.0-4.sh.REL.tar
    CONFIG=
    PS1="rommon ! > "
    FIRMWARE_VERSION=1.3.5
```

```
rommon 8 > sync
rommon 9 > tftpdnld -b
Enable boot bundle: tftp_reqsize = 402653184

             ADDRESS: 172.16.0.50
             NETMASK: 255.255.255.0
             GATEWAY: 172.16.0.254
              SERVER: 172.23.37.186
               IMAGE: image_dir/Cisco_FTD_SSP_FP3K_Upgrade-7.3.0-4.sh.REL.tar
           VERBOSITY: Progress
               RETRY: 40
          PKTTIMEOUT: 7200
             BLKSIZE: 1460
            CHECKSUM: Yes
                PORT: 10G/1
             PHYMODE: Auto Detect
.=====…
+-------------------------------------------------------------------+
+------------------------ SUCCESS ----------------------------------+
+-------------------------------------------------------------------+
|                                                                   |
|             LFBFF signature authentication passed !!!             |
|                                                                   |
+-------------------------------------------------------------------+
LFBFF signature verified.
```

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 from ROMMON (Password Reset), on page 50). 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
```

```
firepower-3110# connect local-mgmt
firepower-3110(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 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 threat defense package.

a) Download the package. Because you booted temporarily from USB/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 1000 and 2100 devices

```
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
```

Example:

Secure Firewall 3100 devices

```
firepower-3110# scope firmware
firepower-3110 /firmware # download image
scp://172.23.205.217/auto/Cisco_FTD_SSP_FP3K_Upgrade 7.3.0-14.sh.REL.tar
Please use the command 'show download-task' or 'show download-task detail' to check
download progress.
firepower-3110 /firmware # show download-task
Download task:
File Name     Protocol     Server            Port     Userid     State
---------     --------     ---------------   ----     ------     -----
Cisco_FTD_SSP_FP3K_Upgrade-7.3.0-14.sh.REL.tar 7.3.0-14.sh.REL.tar
              Scp          172.23.205.217     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 1000 and 2100 devices

```
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.
```

Example:

Secure Firewall 3100 devices

```
firepower 3110 /firmware # show package
Name                                          Package-Vers
--------------------------------------------- -------------
Cisco_FTD_SSP_FP3K_Upgrade-7.3.0-14.sh.REL.tar 7.3.0-14
firepower 3110 /firmware # scope auto-install
firepower 3110 /firmware/auto-install # install security-pack version 9.19.0
The system is currently installed with security software package not set, which has:
   - The platform version: not set
If you proceed with the upgrade 9.19.2, it will do the following:
   - upgrade to the new platform version 7.0.3-14
   - install with CSP asa version 9.19.2
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 9.19.0
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 1000 and 2100 devices

```
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.
...
```

Secure Firewall 3100 devices

```
firepower-3110#
Cisco ASA: CMD=-install, CSP-ID=cisco-asa.9.19.0.0__asa_001_JAD20280BW90MEZR11, FLAG=''
Verifying signature for cisco-asa.9.19.0.0 ...
Verifying signature for cisco-asa.9.19.0.0 ... success

Cisco ASA: CMD=-start, CSP-ID=cisco-asa.9.19.0.0__asa_001_JAD20280BW90MEZR11, FLAG=''
Cisco ASA starting ...
Registering to process manager ...
Cisco ASA started successfully.
...
```

Perform a Complete Reimage

This procedure reformats the entire system, erases the images, and returns it to its factory default settings. After performing this procedure, you must download the new software images and reconfigure your system.

Note After performing this procedure, the admin password is reset to **Admin123**.

Before you begin

- To reimage your Secure Firewall 3100 device to threat defense version 7.3.0, you must have ROMMON version 1.1.08 or above. If the current ROMMON version is less than 1.1.08, you must upgrade ROMMON by upgrading to ASA 9.19 or later. You can also use the management center or device manager to upgrade the threat defense version to 7.3.0 (see Threat Defense for more information).
- You must have console access for this procedure.
- Download the threat defense package to a TFTP server or a USB drive formatted as EXT2/3/4 or VFAT/FAT32.

  See: https://www.cisco.com/go/ftd-software
- 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 Deregister your devices from the cloud tenant (if applicable). See Deregister From Cloud, on page 70.

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

Log in as **admin** and the admin password.

Step 3 Reformat the system.

connect local-mgmt

format everything

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

Example:

```
firepower# connect local-mgmt
firepower(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 threat defense 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.

Example:

```
rommon 1 > dir usb:
rommon 2 > boot usb:/Cisco_FTD_SSP_FP3K_Upgrade-7.4.1-01.sh.REL.tar
```

If you want to boot from TFTP:

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

address *management_ip_address*

netmask *subnet_mask*

server *tftp_ip_address*

gateway *gateway_ip_address*

file*path/filename*

set

sync

tftpdnld -b

See the following information:

- **set**—Shows the network settings. You can also use the **ping** command to verify connectivity to the server.
- **sync**—Saves the network settings.
- **tftpdnld -b**—Loads the threat defense 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_FTD_SSP_FP3K_Upgrade-7.3.0-01.sh.REL.tar
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_FTD_SSP_FP3K_Upgrade-7.4.1-01.sh.REL.tar
             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_FTD_SSP_FP3K_Upgrade-7.4.1-01.sh.REL.tar 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 >
```

Note The following error may display once the system boots back up:

```
firepower-2110 : <<%%FPRM-2-DEFAULT_INFRA_VERSION_MISSING>>
[F1309][critical][default-infra-version-missing][org-root/fw-infra-pack-default]
Bundle version in firmware package is empty, need to re-install
```

```
firepower-3105 FPRM: <<%FPRM-2-DEFAULT_INFRA_VERSION_MISSING>>
[F1309][critical][default-infra-version-missing][org-root/fw-infra-pack-default]
Bundle version in firmware package is empty, need to re-install
```

This error condition clears as soon as you install the new threat defense software package version as described later in this procedure.

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 threat defense 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

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 threat defense 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_FTD_SSP_FP3K_Upgrade-7.4.1-01.sh.REL.tar
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_FTD_SSP_FP3K_Upgrade-7.4.1-01.sh.REL.tar
              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* **force**

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

Step 9 After the software package is installed, continue with the setup instructions in the getting started guide for your hardware platform.

Change the Admin Password

After reimaging your device, the admin password is reset to Admin123. You will be prompted to change the password when you first log in. If you want to change the password later, use this threat defense CLI procedure to change the admin password to a new string.

Procedure

Step 1 Connect to the threat defense application CLI:

firepower-chassis # **connect ftd**

Step 2 Verify that the admin user account is present in the **users** table:

> **show user**

Example:

```
> show user
Login UID Auth Access Enabled Reset Exp Warn Str Lock Max
admin 100 Local Config Enabled No Never N/A Dis No 0
```

Step 3 Set the new password for the admin user account:

firepower-chassis # **configure user password admin**

Example:

```
> configure user password admin
Enter current password:
Enter new password for user admin:
Confirm new password for user admin:
```

Change the Admin Password if Threat Defense is Offline

After reimaging your device, the admin password is reset to Admin123. You will be prompted to change the password when you first log in. If you want to change the password later, use this procedure to change the admin password to a new string if threat defense is offline or otherwise unavailable. Note that if threat defense is online, you will need to change the admin password using the threat defense CLI (see Change the Admin Password, on page 68).

Note The procedure to change the admin password via the FXOS CLI depends on the version of threat defense you are currently running.

Before you begin

- Verify that you are in the FXOS CLI context. If you connect to the Firepower 1000/2100 or Secure Firewall 3100 device via serial console, you will automatically connect to the FXOS CLI context. If you are in the threat defense CLI context, you must first switch to the FXOS CLI context with the **connect fxos** command.

Procedure

Step 1 From the FXOS CLI, enter the security scope:

firepower # **scope security**

Step 2 (Firepower Version 6.4 and later) You must reauthenticate the old admin password in order to set a new password:

firepower /security* # **set password**

Example:

```
FPR-2120# scope security
FPR-2120# /security # set password
```

```
Enter old password:
Enter new password:
Confirm new password:
firepower-2120 /security* # commit-buffer
```

(Firepower Version 6.3 and earlier) View the current list of local users. If you have just reimaged your device, admin will be the only user in this list:

firepower /security # **show local-user**

Example:

```
FPR-2120# scope security
FPR-2120 /security # show local-user
User Name       First Name      Last name
--------------- --------------- ---------
admin
```

a) (Firepower Version 6.3 and earlier) Enter the admin local user scope:

   firepower /security # **enter local-user admin**

b) (Firepower Version 6.3 and earlier) Set the new password for user admin:

   firepower /security/local-user # **set password**

   Example:

```
FPR-2100 /security # enter local-user admin
FPR-2100 /security/local-user # set password
Enter a password: cisco
Confirm the password: cisco
```

Step 3 Commit the configuration:

firepower /security/local-user* # **commit-buffer**

Deregister From Cloud

If you reimage or factory reset your Firepower 1000/2100 or Secure Firewall 3100 device for a new purpose (for example, for transfer to a new group within your company, or after purchasing the device from a third party vendor), you may need to deregister the device from the cloud tenancy.

If you have access to the cloud (CDO) account to which the device was registered, log into that account and delete the Firepower 1000/2100 or Secure Firewall 3100 device.

If you do not have access to the cloud account, use the following procedure to deregister your Firepower 1000/2100 or Secure Firewall 3100 device from the cloud tenancy using the FXOS CLI.

Before you begin

- Verify that you are in the FXOS CLI context. If you connect to the Firepower 1000/2100 or Secure Firewall 3100 device via serial console, you will automatically connect to the FXOS CLI context. If you are in the threat defense CLI context, you must first switch to the FXOS CLI context with the **connect fxos** command.
- Verify whether your device has access to the cloud:

```
firepower # scope fabric a
firepower /fabric-interconnect # show detail
```

If no management IP address displays in the `show detail` output, you must first configure a management IP for your device:

1. Enter the fabric interconnect scope:

   firepower # **scope fabric-interconnect**

2. Set the new management IP information:

   firepower /fabric-interconnect # **set out-of-band static ip** *ip* **netmask** *netmask* **gateway** *gateway*

3. Commit the configuration:

   firepower /fabric-interconnect # **commit buffer**

Procedure

Step 1 Connect to the local-management command shell:

firepower # **connect local**

Step 2 Deregister your device from the cloud:

firepower(local-mgmt)# **cloud deregister**

Example

```
firepower # connect local
firepower(local-mgmt) # cloud deregister
```

History for Firepower 1000/2100 and Secure Firewall 3100/4200 FXOS Troubleshooting

Feature Name	Platform Releases	Description
Packet capture for mac-filter dropped packets from switch	Secure Firewall 7.4.1	For Secure Firewall 3100 and 4100 devices, you can now capture mac-filter dropped packets from switch using the **set drop mac-filter** FXOS CLI command.
Switch Packet Path	Firepower 7.1	You can now troubleshoot your Secure Firewall 3100 device for the switch packet path issues using the `portmanager` FXOS CLI command

Feature Name	Platform Releases	Description
Cloud deregister	Firepower 6.7	You can now deregister your Firepower 1000/2100 device from your cloud tenant using the `cloud deregister` FXOS CLI command
Changing the admin password	Firepower 6.4	In Firepower versions 6.4 and later on Firepower 1000/2100 devices, you must reauthenticate the old admin password before setting a new admin password.