Logical Devices

About Logical Devices

A logical device lets you run one application instance (either ASA or Firepower Threat Defense) and also one optional decorator application (Radware DefensePro) to form a service chain.

When you add a logical device, you also define the application instance type and version, assign interfaces, and configure bootstrap settings that are pushed to the application configuration.

Note For the Firepower 9300, you must install the same application instance type (ASA or Firepower Threat Defense) on all modules in the chassis; different types are not supported at this time. Note that modules can run different versions of an application instance type.

Standalone and Clustered Logical Devices

You can add the following logical device types:

- Standalone—A standalone logical device operates as a standalone unit or as a unit in a High Availability pair.
- Cluster—A clustered logical device lets you group multiple units together, providing all the convenience of a single device (management, integration into a network) while achieving the increased throughput and redundancy of multiple devices. Multiple module devices, like the Firepower 9300, support intra-chassis clustering. For the Firepower 9300, all three module application instances belong to a single logical device.

Note For the Firepower 9300, all modules must belong to the cluster. You cannot create a standalone logical device on one security module and then create a cluster using the remaining 2 security modules.

Requirements and Prerequisites for Logical Devices

See the following sections for requirements and prerequisites.

Requirements and Prerequisites for Clustering

Switch Requirements for Inter-Chassis Clustering

- Be sure to complete the switch configuration and successfully connect all the EtherChannels from the chassis to the switch(es) before you configure clustering on the Firepower 9300 chassis.
- For a list of supported switches, see Cisco FXOS Compatibility.

Guidelines and Limitations for Logical Devices

See the following sections for guidelines and limitations.

General Guidelines and Limitations

Firewall Mode

You can set the firewall mode to routed or transparent in the bootstrap configuration for the FTD. For the ASA, you can change the firewall mode to transparent after you deploy. See Change the ASA to Transparent Firewall Mode, on page 18.

High Availability

- Configure high availability within the application configuration.
- You can use any data interfaces as the failover and state links.
- For more information, see the application configuration guide chapter for High Availability

Context Mode

- Multiple context mode is only supported on the ASA.
- Enable multiple context mode in the ASA after you deploy.

Clustering Guidelines and Limitations

- We recommend connecting EtherChannels to a VSS or vPC for redundancy.
- Within a chassis, you cannot cluster some security modules and run other security modules in standalone mode; you must include all security modules in the cluster.

Defaults

The cluster control link uses Port-channel 48.

Add a Standalone Logical Device

Standalone logical devices can be used alone or as high availability units. For more information about high availability usage, see Add a High Availability Pair, on page 8.

Add a Standalone ASA

Standalone logical devices work either alone or in a High Availability pair. On multiple module devices, like the Firepower 9300, you can deploy either a cluster or standalone devices. The cluster must use all modules, so you cannot mix and match a 2-module cluster plus a single standalone device, for example.

You can deploy a routed firewall mode ASA from the Firepower 9300 chassis. To change the ASA to transparent firewall mode, complete this procedure, and then see Change the ASA to Transparent Firewall Mode, on page 18.

For multiple context mode, you must first deploy the logical device, and then enable multiple context mode in the ASA application.

Before you begin

- Download the application image you want to use for the logical device from Cisco.com (see Downloading Images from Cisco.com), and then download that image to the Firepower 9300 chassis (see Downloading a Logical Device Software Image to the Firepower 9300 chassis).
- Configure a management interface to use with the logical device. The management interface is required. Note that this management interface is not the same as the chassis management interface that is used only for chassis management (in FXOS, you might see it displayed as MGMT, management0, or other similar names).

Procedure

Step 1 Enter security services mode.

scope ssa

Example:

```
Firepower# scope ssa
```

```
Firepower /ssa #
```

Step 2 Set the application instance image version.

a) View available images. Note the Version number that you want to use.

show app

Example:

```
Firepower /ssa # show app
    Name       Version         Author     Supported Deploy Types CSP Type    Is Default
 App
    ---------- --------------- ---------- ---------------------- -----------
--------------
    asa        9.9.1           cisco      Native                 Application No
    asa        9.10.1          cisco      Native                 Application Yes
    ftd        6.2.3           cisco      Native                 Application Yes
```

b) Set the scope to the security module/engine slot.

scope slot *slot_id*

The *slot_id* is 1, 2, or 3 for the Firepower 9300.

Example:

```
Firepower /ssa # scope slot 1
Firepower /ssa/slot #
```

c) Create the application instance.

enter app-instance asa

Example:

```
Firepower /ssa/slot # enter app-instance asa
Firepower /ssa/slot/app-instance* #
```

d) Set the ASA image version.

set startup-version *version*

Example:

```
Firepower /ssa/slot/app-instance* # set startup-version 9.10.1
```

e) Exit to slot mode.

exit

Example:

```
Firepower /ssa/slot/app-instance* # exit
Firepower /ssa/slot* #
```

f) Exit to ssa mode.

exit

Example:

```
Firepower /ssa/slot* # exit
Firepower /ssa* #
```

Example:

```
Firepower /ssa # scope slot 1
Firepower /ssa/slot # enter app-instance asa ASA1
Firepower /ssa/slot/app-instance* # set startup-version 9.10.1
Firepower /ssa/slot/app-instance* # exit
Firepower /ssa/slot* # exit
Firepower /ssa* #
```

Step 3 Create the logical device.

enter logical-device *device_name* **asa** *slot_id* **standalone**

Example:

```
Firepower /ssa # enter logical-device ASA1 asa 1 standalone
Firepower /ssa/logical-device* #
```

Step 4 Assign the management and data interfaces to the logical device. Repeat for each interface.

create external-port-link *name interface_id* **asa**

set description *description*

exit

- *name*—The name is used by the Firepower 9300 chassis supervisor; it is not the interface name used in the ASA configuration.
- *description*—Use quotes (") around phrases with spaces.

Example:

```
Firepower /ssa/logical-device* # create external-port-link inside Ethernet1/1 asa
Firepower /ssa/logical-device/external-port-link* # set description "inside link"
Firepower /ssa/logical-device/external-port-link* # exit
Firepower /ssa/logical-device* # create external-port-link management Ethernet1/7 asa
Firepower /ssa/logical-device/external-port-link* # set description "management link"
Firepower /ssa/logical-device/external-port-link* # exit
Firepower /ssa/logical-device* # create external-port-link outside Ethernet1/2 asa
Firepower /ssa/logical-device/external-port-link* # set description "external link"
Firepower /ssa/logical-device/external-port-link* # exit
```

Step 5 Configure the management bootstrap information:

a) Create the bootstrap object.

create mgmt-bootstrap asa

Example:

```
Firepower /ssa/logical-device* # create mgmt-bootstrap asa
Firepower /ssa/logical-device/mgmt-bootstrap* #
```

b) Specify the admin password.

create bootstrap-key-secret PASSWORD

set value

Enter a value: *password*

Confirm the value: *password*

exit

Example:

The pre-configured ASA admin user is useful for password recovery; if you have FXOS access, you can reset the admin user password if you forget it.

Example:

```
Firepower /ssa/logical-device/mgmt-bootstrap* # create bootstrap-key-secret PASSWORD
Firepower /ssa/logical-device/mgmt-bootstrap/bootstrap-key-secret* # set value
Enter a value: floppylampshade
Confirm the value: floppylampshade
Firepower /ssa/logical-device/mgmt-bootstrap/bootstrap-key-secret* # exit
Firepower /ssa/logical-device/mgmt-bootstrap* #
```

c) Configure the IPv4 management interface settings.

create ipv4 *slot_id* **default**

set ip *ip_address* **mask** *network_mask*

set gateway *gateway_address*

exit

Example:

```
Firepower /ssa/logical-device/mgmt-bootstrap* # create ipv4 1 default
Firepower /ssa/logical-device/mgmt-bootstrap/ipv4* # set ip 10.10.10.34 mask 255.255.255.0
Firepower /ssa/logical-device/mgmt-bootstrap/ipv4* # set gateway 10.10.10.1
Firepower /ssa/logical-device/mgmt-bootstrap/ipv4* # exit
Firepower /ssa/logical-device/mgmt-bootstrap* #
```

d) Configure the IPv6 management interface settings.

create ipv6 *slot_id* **default**

set ip *ip_address* **prefix-length** *prefix*

set gateway *gateway_address*

exit

Example:

```
Firepower /ssa/logical-device/mgmt-bootstrap* # create ipv6 1 default
Firepower /ssa/logical-device/mgmt-bootstrap/ipv6* # set ip 2001:0DB8:BA98::3210
```

```
prefix-length 64
Firepower /ssa/logical-device/mgmt-bootstrap/ipv6* # set gateway 2001:0DB8:BA98::3211
Firepower /ssa/logical-device/mgmt-bootstrap/ipv6* # exit
Firepower /ssa/logical-device/mgmt-bootstrap* #
```

e) Exit the management bootstrap mode.

exit

Example:

```
Firepower /ssa/logical-device/mgmt-bootstrap* # exit
Firepower /ssa/logical-device* #
```

Step 6 Save the configuration.

commit-buffer

Example:

```
Firepower /ssa/logical-device* # commit-buffer
Firepower /ssa/logical-device #
```

Example

```
Firepower# scope ssa
Firepower /ssa # scope slot 1
Firepower /ssa/slot # enter app-instance asa MyDevice1
Firepower /ssa/slot/app-instance* # set startup-version 9.10.1
Firepower /ssa/slot/app-instance* # exit
Firepower /ssa/slot* # exit
Firepower /ssa* # create logical-device MyDevice1 asa 1 standalone
Firepower /ssa/logical-device* # create external-port-link inside Ethernet1/1 asa
Firepower /ssa/logical-device/external-port-link* # set description "inside link"
Firepower /ssa/logical-device/external-port-link* # exit
Firepower /ssa/logical-device* # create external-port-link management Ethernet1/7 asa
Firepower /ssa/logical-device/external-port-link* # set description "management link"
Firepower /ssa/logical-device/external-port-link* # exit
Firepower /ssa/logical-device* # create external-port-link outside Ethernet1/2 asa
Firepower /ssa/logical-device/external-port-link* # set description "external link"
Firepower /ssa/logical-device/external-port-link* # exit
Firepower /ssa/logical-device* # create mgmt-bootstrap asa
Firepower /ssa/logical-device/mgmt-bootstrap* # create bootstrap-key-secret PASSWORD
Firepower /ssa/logical-device/mgmt-bootstrap/bootstrap-key-secret* # set value
Enter a value: secretglassine
Confirm the value: secretglassine
Firepower /ssa/logical-device/mgmt-bootstrap/bootstrap-key-secret* # exit
Firepower /ssa/logical-device/mgmt-bootstrap* # create ipv4 1 default
Firepower /ssa/logical-device/mgmt-bootstrap/ipv4* # set gateway 10.0.0.1
Firepower /ssa/logical-device/mgmt-bootstrap/ipv4* # set ip 10.0.0.31 mask 255.255.255.0
Firepower /ssa/logical-device/mgmt-bootstrap/ipv4* # exit
Firepower /ssa/logical-device/mgmt-bootstrap/bootstrap-key* # commit-buffer
Firepower /ssa/logical-device/mgmt-bootstrap/bootstrap-key #
```

Add a High Availability Pair

ASA High Availability (also known as failover) is configured within the application, not in FXOS. However, to prepare your chassis for high availability, see the following steps.

Before you begin

- For High Availability system requirements, see the application configuration guide chapter for High Availability.

Procedure

Step 1 Each logical device should be on a separate chassis; intra-chassis High Availability for the Firepower 9300 is not recommended and may not be supported.

Step 2 Allocate the same interfaces to each logical device.

Step 3 Allocate 1 or 2 data interfaces for the failover and state link(s).

These interfaces exchange high availability traffic between the 2 chassis. We recommend that you use a 10 GB data interface for a combined failover and state link. If you have available interfaces, you can use separate failover and state links; the state link requires the most bandwidth. You cannot use the management-type interface for the failover or state link. We recommend that you use a switch between the chassis, with no other device on the same network segment as the failover interfaces.

Step 4 Enable High Availability on the logical devices.

Step 5 If you need to make interface changes after you enable High Availability, perform the changes on the standby unit first, and then perform the changes on the active unit.

Note For the ASA, if you remove an interface in FXOS (for example, if you remove a network module, remove an EtherChannel, or reassign an interface to an EtherChannel), then the ASA configuration retains the original commands so that you can make any necessary adjustments; removing an interface from the configuration can have wide effects. You can manually remove the old interface configuration in the ASA OS.

Add a Cluster

Clustering lets you group multiple devices together as a single logical device. A cluster provides all the convenience of a single device (management, integration into a network) while achieving the increased throughput and redundancy of multiple devices. The Firepower 9300, which includes multiple modules, supports intra-chassis clustering where you group all modules within a single chassis into a cluster.

Note The Firepower 9300 does not support a cluster across multiple chassis (inter-chassis); only intra-chassis clustering is supported.

About Clustering on the Firepower 9300 Chassis

The cluster consists of multiple devices acting as a single logical unit. When you deploy a cluster on the Firepower 9300 chassis, it does the following:

- Creates a *cluster-control link* (by default, port-channel 48) for unit-to-unit communication. For intra-chassis clustering, this link utilizes the Firepower 9300 backplane for cluster communications.
- Creates the cluster bootstrap configuration within the application.

  When you deploy the cluster, the Firepower 9300 chassis supervisor pushes a minimal bootstrap configuration to each unit that includes the cluster name, cluster control link interface, and other cluster settings. Some parts of the bootstrap configuration may be user-configurable within the application if you want to customize your clustering environment.
- Assigns data interfaces to the cluster as *Spanned* interfaces.

  For intra-chassis clustering, spanned interfaces are not limited to EtherChannels.The Firepower 9300 supervisor uses EtherChannel technology internally to load-balance traffic to multiple modules on a shared interface, so any data interface type works for Spanned mode.

  

  Note Individual interfaces are not supported, with the exception of a management interface.
- Assigns a management interface to all units in the cluster.

The following sections provide more detail about clustering concepts and implementation.

Primary and Secondary Unit Roles

One member of the cluster is the primary unit. The primary unit is determined automatically. All other members are secondary units.

You must perform all configuration on the primary unit only; the configuration is then replicated to the secondary units.

Cluster Control Link

The cluster control link is automatically created using the Port-channel 48 interface. For intra-chassis clustering, this interface has no member interfaces. This Cluster type EtherChannel utilizes the Firepower 9300 backplane for cluster communications for intra-chassis clustering.

Cluster control link traffic includes both control and data traffic.

Management Interface

You must assign a Management type interface to the cluster. This interface is a special *individual* interface as opposed to a Spanned interface. The management interface lets you connect directly to each unit.

For the ASA, the Main cluster IP address is a fixed address for the cluster that always belongs to the current primary unit. You must configure a range of addresses so that each unit, including the current primary unit, can use a Local address from the range. The Main cluster IP address provides consistent management access to an address; when a primary unit changes, the Main cluster IP address moves to the new primary unit, so

management of the cluster continues seamlessly. The Local IP address is used for routing, and is also useful for troubleshooting. For example, you can manage the cluster by connecting to the Main cluster IP address, which is always attached to the current primary unit. To manage an individual member, you can connect to the Local IP address. For outbound management traffic such as TFTP or syslog, each unit, including the primary unit, uses the Local IP address to connect to the server.

Add an ASA Cluster

You can add a single Firepower 9300 chassis as an intra-chassis cluster.

Create an ASA Cluster

Deploy the cluster on the Firepower 9300 chassis.

For multiple context mode, you must first deploy the logical device, and then enable multiple context mode in the ASA application.

You can deploy a routed firewall mode ASA from the Firepower 9300 chassis. To change the ASA to transparent firewall mode, complete the initial deployment, and then change the firewall mode within the ASA CLI.

Before you begin

- You must enable clustering for all 3 module slots in a Firepower 9300 chassis, even if you do not have a module installed. If you do not configure all 3 modules, the cluster will not come up.
- On the **Interfaces** tab, the port-channel 48 cluster type interface shows the **Operation State** as **failed** if it does not include any member interfaces. For intra-chassis clustering, this EtherChannel does not require any member interfaces, and you can ignore this Operational State.

Procedure

Step 1 Configure at least one Data type interface or EtherChannel (also known as a port channel) before you deploy the cluster. See Add an EtherChannel (Port Channel) or Configure a Physical Interface.

All interfaces are assigned to the cluster by default. You can also add data interfaces to the cluster after you deploy.

Step 2 Add a Management type interface or EtherChannel. See Add an EtherChannel (Port Channel) or Configure a Physical Interface.

The management interface is required. Note that this management interface is not the same as the chassis management interface that is used only for chassis management (in FXOS, you might see the chassis management interface displayed as MGMT, management0, or other similar names).

Step 3 Port-channel 48 is reserved as the cluster control link.

Step 4 Enter security services mode:

scope ssa

Example:

```
Firepower # scope ssa
```

```
Firepower /ssa #
```

Step 5 Create the cluster:

enter logical-device *device_name* **asa** *slots* **clustered**

- *device_name*—Used by the Firepower 9300 chassis supervisor to configure clustering settings and assign interfaces; it is not the cluster name used in the security module configuration. You must specify all three security modules, even if you have not yet installed the hardware.
- *slots*—Assigns the chassis modules to the cluster. For the Firepower 4100, specify **1**. For the Firepower 9300, specify **1,2,3**. You must enable clustering for all 3 module slots in a Firepower 9300 chassis, even if you do not have a module installed. If you do not configure all 3 modules, the cluster will not come up.

Example:

```
Firepower /ssa # enter logical-device ASA1 asa 1,2,3 clustered
Firepower /ssa/logical-device* #
```

Step 6 Create the management bootstrap object.

enter mgmt-bootstrap asa

Example:

```
Firepower /ssa/logical-device* # enter mgmt-bootstrap asa
Firepower /ssa/logical-device/mgmt-bootstrap* #
```

Step 7 Specify the admin user password.

enter bootstrap-key-secret PASSWORD

set value

exit

exit

The pre-configured ASA admin user is useful for password recovery; if you have FXOS access, you can reset the admin user password if you forget it.

Example:

```
Firepower /ssa/logical-device/mgmt-bootstrap/bootstrap-key-secret* # set value
Enter a value: happytuesday
Confirm the value: happytuesday
Firepower /ssa/logical-device/mgmt-bootstrap/bootstrap-key-secret* # exit
Firepower /ssa/logical-device/mgmt-bootstrap* # exit
Firepower /ssa/logical-device* #
```

Step 8 Configure the cluster parameters:

enter cluster-bootstrap

Example:

```
Firepower /ssa/logical-device* # enter cluster-bootstrap
Firepower /ssa/logical-device/cluster-bootstrap* #
```

Step 9 Set the cluster group name in the security module configuration.

set service-type *cluster_name*

Example:

```
Firepower /ssa/logical-device/cluster-bootstrap* # set service-type cluster1
Firepower /ssa/logical-device/cluster-bootstrap* #
```

The name must be an ASCII string from 1 to 38 characters.

Step 10 Set the cluster interface mode:

set mode spanned-etherchannel

Example:

```
Firepower /ssa/logical-device/cluster-bootstrap* # set mode spanned-etherchannel
Firepower /ssa/logical-device/cluster-bootstrap* #
```

Spanned EtherChannel mode is the only supported mode.

Step 11 Configure the management IP address information.

This information is used to configure a management interface in the security module configuration.

a) Configure a pool of Local IP addresses, one of which will be assigned to each cluster unit for the interface:

set ipv4 pool *start_ip end_ip*

set ipv6 pool *start_ip end_ip*

Include at least as many addresses as there are units in the cluster. Note that for the Firepower 9300, you must include 3 addresses per chassis, even if you do not have all module slots filled. If you plan to expand the cluster, include additional addresses. The Virtual IP address (known as the Main cluster IP address) that belongs to the current master unit is *not* a part of this pool; be sure to reserve an IP address on the same network for the Main cluster IP address. You can use IPv4 and/or IPv6 addresses.

b) Configure the Main cluster IP address for the management interface:

set virtual ipv4 *ip_address* **mask** *mask*

set virtual ipv6 *ip_address* **prefix-length** *prefix*

This IP address must be on the same network as the cluster pool addresses, but not be part of the pool.

c) Enter the network gateway address:

set ipv4 gateway *ip_address*

set ipv6 gateway *ip_address*

Example:

```
Firepower /ssa/logical-device/cluster-bootstrap* # set ipv4 gateway 10.1.1.254
Firepower /ssa/logical-device/cluster-bootstrap* # set ipv4 pool 10.1.1.11 10.1.1.27
```

```
Firepower /ssa/logical-device/cluster-bootstrap* # set ipv6 gateway 2001:DB8::AA
Firepower /ssa/logical-device/cluster-bootstrap* # set ipv6 pool 2001:DB8::11 2001:DB8::27
Firepower /ssa/logical-device/cluster-bootstrap* # set virtual ipv4 10.1.1.1 mask
255.255.255.0
Firepower /ssa/logical-device/cluster-bootstrap* # set virtual ipv6 2001:DB8::1 prefix-length
 64
```

Step 12 Set the chassis ID:

set chassis-id *id*

Example:

```
Firepower /ssa/logical-device/cluster-bootstrap* # set chassis-id 1
Firepower /ssa/logical-device/cluster-bootstrap* #
```

Step 13 Configure an authentication key for control traffic on the cluster control link:

set key

Example:

```
Firepower /ssa/logical-device/cluster-bootstrap* # set key
Key: diamonddogs
```

You are prompted to enter the shared secret.

The shared secret is an ASCII string from 1 to 63 characters. The shared secret is used to generate the key. This option does not affect datapath traffic, including connection state update and forwarded packets, which are always sent in the clear.

Step 14 Exit the cluster bootstrap mode and logical device mode:

exit

exit

Step 15 View the available software versions and then set the version you want to use:

a) Show the available versions:

show app

Example:

```
/ssa # show app

Application:
    Name       Version    Description Author     Deploy Type  CSP Type    Is Default App

    ---------- ---------- ----------- ---------- -----------  ----------- --------------

    asa        9.1.4.152  N/A         cisco      Native       Application Yes
    asa        9.4.2      N/A         cisco      Native       Application No
    asa        9.5.2.1    N/A         cisco      Native       Application No
```

b) Enter app mode for the version you want to use:

scope app asa *version_number*

c) Set this version as the default:

set-default

d) Exit app mode:

exit

Example:

```
/ssa* # scope app asa 9.5.2.1
/ssa/app* # set-default
/ssa/app* # exit
/ssa* #
```

Step 16 Commit the configuration:

commit-buffer

The Firepower 9300 chassis supervisor deploys the cluster by downloading the default security module software version and pushing the cluster bootstrap configuration and management interface settings to each security module.

Step 17 Connect to the master unit ASA to customize your clustering configuration.

Example

For chassis 1:

```
scope eth-uplink
  scope fabric a
    enter port-channel 1
      set port-type data
      enable
      enter member-port Ethernet1/1
        exit
      enter member-port Ethernet1/2
        exit
      exit
    enter port-channel 2
      set port-type data
      enable
      enter member-port Ethernet1/3
        exit
      enter member-port Ethernet1/4
        exit
      exit
    enter port-channel 3
      set port-type data
      enable
      enter member-port Ethernet1/5
        exit
      enter member-port Ethernet1/6
        exit
      exit
    enter port-channel 4
      set port-type mgmt
      enable
```

```
      enter member-port Ethernet2/1
        exit
      enter member-port Ethernet2/2
        exit
      exit

    exit
  exit
commit-buffer

scope ssa
  enter logical-device ASA1 asa "1,2,3" clustered
    enter cluster-bootstrap
      set chassis-id 1
      set ipv4 gateway 10.1.1.254
      set ipv4 pool 10.1.1.11 10.1.1.27
      set ipv6 gateway 2001:DB8::AA
      set ipv6 pool 2001:DB8::11 2001:DB8::27
      set key
      Key: f@arscape
      set mode spanned-etherchannel
      set service-type cluster1
      set virtual ipv4 10.1.1.1 mask 255.255.255.0
      set virtual ipv6 2001:DB8::1 prefix-length 64
      exit
    exit
  scope app asa 9.5.2.1
    set-default
    exit
  commit-buffer
```

Manage Logical Devices

You can delete a logical device, convert an ASA to transparent mode, change the interface configuration, and perform other tasks on existing logical devices.

Connect to the Console of the Application

Use the following procedure to connect to the console of the application.

Procedure

Step 1 Connect to the module CLI.

connect module *slot_number* **console**

To connect to the security engine of a device that does not support multiple security modules, always use **1** as the *slot_number*.

Example:

```
Firepower# connect module 1 console
Telnet escape character is '~'.
Trying 127.5.1.1...
Connected to 127.5.1.1.
```

```
Escape character is '~'.

CISCO Serial Over LAN:
Close Network Connection to Exit

Firepower-module1>
```

Step 2 Connect to the application console.

connect asa

Example:

```
Firepower-module1> connect asa
Connecting to asa(asa1) console... hit Ctrl + A + D  to return to bootCLI
[...]
asa>
```

Example:

```
Firepower-module1> connect ftd
Connecting to ftd(ftd-native) console... enter exit to return to bootCLI
>
```

Step 3 Exit the application console to the FXOS module CLI.

- ASA—Enter **Ctrl-a, d**

You might want to use the FXOS module CLI for troubleshooting purposes.

Step 4 Return to the supervisor level of the FXOS CLI.

a) Enter ~

You exit to the Telnet application.

b) To exit the Telnet application, enter:

telnet>**quit**

Example

The following example connects to an ASA on security module 1 and then exits back to the supervisor level of the FXOS CLI.

```
Firepower# connect module 1 console
Telnet escape character is '~'.
Trying 127.5.1.1...
Connected to 127.5.1.1.
Escape character is '~'.

CISCO Serial Over LAN:
Close Network Connection to Exit

Firepower-module1>connect asa
asa> ~
```

```
telnet> quit
Connection closed.
Firepower#
```

Delete a Logical Device

Procedure

Step 1 Enter security services mode:

Firepower# **scope ssa**

Step 2 View details for the logical devices on the chassis:

Firepower /ssa # **show logical-device**

Step 3 For each logical device that you want to delete, enter the following command:

Firepower /ssa # **delete logical-device** *device_name*

Step 4 View details for the applications installed on the logical devices:

Firepower /ssa # **show app-instance**

Step 5 For each application that you want to delete, enter the following commands:

a) Firepower /ssa # **scope slot** *slot_number*
b) Firepower /ssa/slot # **delete app-instance** *application_name*
c) Firepower /ssa/slot # **exit**

Step 6 Commit the configuration:

commit-buffer

Commits the transaction to the system configuration.

Example

```
Firepower# scope ssa
Firepower /ssa # show logical-device

Logical Device:
    Name       Description Slot ID    Mode       Operational State        Template Name
    ---------- ----------- ---------- ---------- ------------------------ -------------
    FTD                    1,2,3      Clustered  Ok                       ftd
Firepower /ssa # delete logical-device FTD
Firepower /ssa* # show app-instance
Application Name    Slot ID    Admin State    Operational State    Running Version Startup
 Version Cluster Oper State
------------------- ---------- -------------- -------------------- ---------------
--------------- ------------------
ftd                            1 Disabled       Stopping             6.0.0.837
6.0.0.837       Not Applicable
ftd                            2 Disabled       Offline              6.0.0.837
6.0.0.837       Not Applicable
```

```
ftd                              3 Disabled        Not Available
6.0.0.837       Not Applicable
Firepower /ssa* # scope slot 1
Firepower /ssa/slot # delete app-instance ftd
Firepower /ssa/slot* # exit
Firepower /ssa* # scope slot 2
Firepower /ssa/slot # delete app-instance ftd
Firepower /ssa/slot* # exit
Firepower /ssa* # scope slot 3
Firepower /ssa/slot # delete app-instance ftd
Firepower /ssa/slot* # exit
Firepower /ssa* # commit-buffer
```

Change the ASA to Transparent Firewall Mode

You can only deploy a routed firewall mode ASA from the Firepower 9300 chassis. To change the ASA to transparent firewall mode, complete the initial deployment, and then change the firewall mode within the ASA CLI. For standalone ASAs, because changing the firewall mode erases the configuration, you must then redeploy the configuration from the Firepower 9300 chassis to regain the bootstrap configuration. The ASA then remains in transparent mode with a working bootstrap configuration. For clustered ASAs, the configuration is not erased, so you do not need to redeploy the bootstrap configuration from FXOS.

Procedure

Step 1 Connect to the ASA console according to Connect to the Console of the Application, on page 15. For a cluster, connect to the primary unit. For a failover pair, connect to the active unit.

Step 2 Enter configuration mode:

enable

configure terminal

By default, the enable password is blank.

Step 3 Set the firewall mode to transparent:

firewall transparent

Step 4 Save the configuration:

write memory

For a cluster or failover pair, this configuration is replicated to secondary units:

```
asa(config)# firewall transparent
asa(config)# write memory
Building configuration...
Cryptochecksum: 9f831dfb 60dffa8c 1d939884 74735b69

3791 bytes copied in 0.160 secs
[OK]
asa(config)#
Beginning configuration replication to Slave unit-1-2
 End Configuration Replication to slave.

asa(config)#
```

Step 5 On the Firepower Chassis Manager **Logical Devices** page, click the **Edit** icon to edit the ASA.

The **Provisioning** page appears.

Step 6 Click the device icon to edit the bootstrap configuration. Change any value in your configuration, and click **OK**.

You must change the value of at least one field, for example, the **Password** field.

You see a warning about changing the bootstrap configuration; click **Yes**.

Step 7 Click **Save** to redeploy the configuration to the ASA.

Wait several minutes for the chassis/security modules to reload, and for the ASA to become operational again. The ASA now has an operational bootstrap configuration, but remains in transparent mode.

Change an Interface on a Firepower Threat Defense Logical Device

You can allocate or unallocate an interface on a Firepower Threat Defense logical device. You can then sync the interface configuration in the Firepower Management Center.

Before you begin

- Configure your interfaces, and add any EtherChannels according to Configure a Physical Interface and Add an EtherChannel (Port Channel).
- You can edit the membership of an allocated EtherChannel without affecting the logical device or requiring a sync on the Firepower Management Center.
- If you want to add an already-allocated interface to an EtherChannel (for example, all interfaces are allocated by default to a cluster), you need to unallocate the interface from the logical device first, then add the interface to the EtherChannel. For a new EtherChannel, you can then allocate the EtherChannel to the device.
- If you want to replace the management or firepower eventing interface, you must use the Firepower Chassis Manager; the CLI does not support this change.
- For clustering or High Availability, make sure you add or remove the interface on all units before you sync the configuration in the Firepower Management Center. We recommend that you make the interface changes on the slave/standby unit(s) first, and then on the master/active unit. Note that new interfaces are added in an administratively down state, so they do not affect interface monitoring.

Procedure

Step 1 Enter security services mode:

Firepower# **scope ssa**

Step 2 Edit the logical device:

Firepower /ssa # **scope logical-device** *device_name*

Step 3 Unallocate an interface from the logical device:

Firepower /ssa/logical-device # **delete external-port-link** *name*

Enter the **show external-port-link** command to view interface names.

Step 4 Allocate a new interface to the logical device:

Firepower /ssa/logical-device* # **create external-port-link** *name interface_id* **ftd**

Step 5 Commit the configuration:

commit-buffer

Commits the transaction to the system configuration.

Step 6 Log into the Firepower Management Center.

Step 7 Select **Devices** > **Device Management** and click the edit icon () for your FTD device. The **Interfaces** tab is selected by default.

Step 8 Click the **Sync Interfaces from device** button on the top left of the **Interfaces** tab.

Step 9 Click **Save**.

You can now click **Deploy** and deploy the policy to assigned devices. The changes are not active until you deploy them.

Change an Interface on an ASA Logical Device

You can allocate, unallocate, or replace a management interface on an ASA logical device. ASDM discovers the new interfaces automatically.

Before you begin

- Configure your interfaces and add any EtherChannels according to Configure a Physical Interface and Add an EtherChannel (Port Channel).
- You can edit the membership of an allocated EtherChannel without impacting the logical device.
- If you want to add an already-allocated interface to an EtherChannel (for example, all interfaces are allocated by default to a cluster), you need to unallocate the interface from the logical device first, then add the interface to the EtherChannel. For a new EtherChannel, you can then allocate the EtherChannel to the device.
- If you remove an allocated interface in FXOS (for example, if you remove a network module, remove an EtherChannel, or reassign an allocated interface to an EtherChannel), then the ASA configuration retains the original commands so that you can make any necessary adjustments; removing an interface from the configuration can have wide effects. You can manually remove the old interface configuration in the ASA OS.
- For clustering or failover, make sure you add or remove the interface on all units. We recommend that you make the interface changes on the slave/standby unit(s) first, and then on the master/active unit. New interfaces are added in an administratively down state, so they do not affect interface monitoring.

Procedure

Step 1 Enter security services mode:

Firepower# **scope ssa**

Step 2 Edit the logical device:

Firepower /ssa # **scope logical-device** *device_name*

Step 3 Unallocate an interface from the logical device:

Firepower /ssa/logical-device # **delete external-port-link** *name*

Enter the **show external-port-link** command to view interface names.

For a management interface, delete the current interface then commit your change using the **commit-buffer** command before you add the new management interface.

Step 4 Allocate a new interface to the logical device:

Firepower /ssa/logical-device* # **create external-port-link** *name interface_id* **asa**

Step 5 Commit the configuration:

commit-buffer

Commits the transaction to the system configuration.

Monitoring Logical Devices

- **show app**

  View available images.

```
Firepower# scope ssa
Firepower /ssa # show app
    Name       Version         Author     Supported Deploy Types CSP Type    Is Default
 App
    ---------- --------------- ---------- ---------------------- -----------
--------------
    asa        9.10.1          cisco      Native                 Application Yes
    ftd        6.2.3           cisco      Native                 Application Yes
```

- **show app-instance**

  View the application instance status.

```
Firepower# scope ssa
Firepower /ssa # show app-instance
App Name   Slot ID    Admin State Oper State       Running Version Startup Version
Cluster State   Cluster Role
---------- ---------- ----------- ---------------- --------------- ---------------
--------------- ------------
ftd        1          Enabled     Online           6.2.1.62        6.2.1.62        Not
```

```
 Applicable  None
```

- **show logical-device**

  View details for logical devices.

```
Firepower# scope ssa
Firepower /ssa # show logical-device

Logical Device:
    Name       Description Slot ID    Mode       Oper State                Template Name

    ---------- ----------- ---------- ---------- ------------------------ -------------

    asa1                   1          Standalone Ok                        asa
```

History for Logical Devices

Feature Name	Platform Releases	Feature Information
Intra-chassis Clustering for the Cisco ASA	1.1.1	You can cluster all ASA security modules within the Firepower 9300 chassis. We introduced the following commands: **enter cluster-bootstrap, enter logical-device clustered, set chassis-id, set ipv4 gateway, set ipv4 pool, set ipv6 gateway, set ipv6 pool, set key, set mode spanned-etherchannel, set port-type cluster, set service-type, set virtual ipv4, set virtual ipv6**