Configuring the Fabric Extender

This chapter describes how to configure a Cisco Nexus 2000 Series Fabric Extender using the Cisco Nexus 5000 Series switch and includes the following sections:

Information About Associating a Fabric Extender to a Fabric Interface

A Cisco Nexus 2000 Series Fabric Extender is connected to its parent device through physical Ethernet interfaces or an EtherChannel. By default, the parent device does not allow the attached Fabric Extender to connect until it has been assigned a FEX-number and is associated with the connected interface.

Note The Fabric Extender may connect to the switch through a number of separate physical Ethernet interfaces or one EtherChannel interface.

Note You must enable the Fabric Extender functionality before you can configure and use a Fabric Extender connected to the parent switch.

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Associating a Fabric Extender to an Ethernet Interface

You can associate the Fabric Extender to an Ethernet interface.

Before You Begin

Ensure that you have enabled the Fabric Extender feature.

Procedure

	Command or Action	**Purpose**
Step 1	switch# **configure terminal**	Enters configuration mode.
Step 2	switch(config)# **interface ethernet** *slot*/*port*	Specifies an Ethernet interface to configure.
Step 3	switch(config-if)# **switchport mode fex-fabric**	Sets the interface to support an external Fabric Extender.
Step 4	switch(config-if)# **fex associate** *FEX-number*	Associates the FEX-number to the Fabric Extender unit attached to the interface. The range of the FEX-number is from 100 to 199.
Step 5	switch# **show interface ethernet** *port*/*slot* **fex-intf**	(Optional) Displays the association of a Fabric Extender to an Ethernet interface.

This example shows how to associate the Fabric Extender to an Ethernet interface on the parent device:

```
switch# configure terminal
switch(config)# interface ethernet 1/40
switch(config-if)# switchport mode fex-fabric
switch(config-if)# fex associate 100
```

This example shows how to display the association of the Fabric Extender and the parent device:

```
switch# show interface ethernet 1/40 fex-intf
Fabric          FEX
Interface       Interfaces
-------------------------------------------------
Eth1/40         Eth100/1/48   Eth100/1/47   Eth100/1/46   Eth100/1/45
                Eth100/1/44   Eth100/1/43   Eth100/1/42   Eth100/1/41
                Eth100/1/40   Eth100/1/39   Eth100/1/38   Eth100/1/37
                Eth100/1/36   Eth100/1/35   Eth100/1/34   Eth100/1/33
                Eth100/1/32   Eth100/1/31   Eth100/1/30   Eth100/1/29
                Eth100/1/28   Eth100/1/27   Eth100/1/26   Eth100/1/25
                Eth100/1/24   Eth100/1/23   Eth100/1/22   Eth100/1/21
                Eth100/1/20   Eth100/1/19   Eth100/1/18   Eth100/1/17
                Eth100/1/16   Eth100/1/15   Eth100/1/14   Eth100/1/13
                Eth100/1/12   Eth100/1/11   Eth100/1/10   Eth100/1/9
                Eth100/1/8    Eth100/1/7    Eth100/1/6    Eth100/1/5
                Eth100/1/4    Eth100/1/3    Eth100/1/2    Eth100/1/1
```

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Associating a Fabric Extender to an EtherChannel

You can associate the Fabric Extender to an EtherChannel.

Before You Begin

Ensure that you have enabled the Fabric Extender feature.

Procedure

	Command or Action	Purpose
Step 1	switch# **configure terminal**	Enters configuration mode.
Step 2	switch(config)# **interface port-channnel** *channel*	Specifies an EtherChannel to configure.
Step 3	switch(config-if)# **switchport mode fex-fabric**	Sets the EtherChannel to support an external Fabric Extender.
Step 4	switch(config-if)# **fex associate** *FEX-number*	Associates the FEX-number to the Fabric Extender unit attached to the interface. The range of the FEX-number is from 100 to 199.
Step 5	switch# **show interface port-channel** *channel* **fex-intf**	(Optional) Displays the association of a Fabric Extender to an EtherChannel interface.

This example shows how to associate the Fabric Extender to an EtherChannel interface on the parent device:

```
switch# configure terminal
switch(config)# interface port-channel 4
switch(config-if)# switchport mode fex-fabric
switch(config-if)# fex associate 100
switch(config-if)# exit
switch(config)# interface ethernet 1/37
switch(config-if)# switchport mode fex-fabric
switch(config-if)# fex associate 100
switch(config-if)# channel-group 4
switch(config-if)# exit
switch(config)# interface ethernet 1/38
switch(config-if)# switchport mode fex-fabric
switch(config-if)# fex associate 100
switch(config-if)# channel-group 4
switch(config-if)# exit
switch(config)# interface ethernet 1/39
switch(config-if)# switchport mode fex-fabric
switch(config-if)# fex associate 100
switch(config-if)# channel-group 4
switch(config-if)# exit
switch(config)# interface ethernet 1/40
switch(config-if)# switchport mode fex-fabric
switch(config-if)# fex associate 100
switch(config-if)# channel-group 4
```

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Note You have to associate each Ethernet interface that is a member of the EtherChannel as a fabric interface as shown in the above example.

This example shows how to display the association of the Fabric Extender and the parent device:

```
switch# show interface port-channel 4 fex-intf
Fabric          FEX
Interface       Interfaces
-------------------------------------------------
Po4             Eth100/1/48  Eth100/1/47  Eth100/1/46  Eth100/1/45
                Eth100/1/44  Eth100/1/43  Eth100/1/42  Eth100/1/41
                Eth100/1/40  Eth100/1/39  Eth100/1/38  Eth100/1/37
                Eth100/1/36  Eth100/1/35  Eth100/1/34  Eth100/1/33
                Eth100/1/32  Eth100/1/31  Eth100/1/30  Eth100/1/29
                Eth100/1/28  Eth100/1/27  Eth100/1/26  Eth100/1/25
                Eth100/1/24  Eth100/1/23  Eth100/1/22  Eth100/1/21
                Eth100/1/20  Eth100/1/19  Eth100/1/18  Eth100/1/17
                Eth100/1/16  Eth100/1/15  Eth100/1/14  Eth100/1/13
                Eth100/1/12  Eth100/1/11  Eth100/1/10  Eth100/1/9
                Eth100/1/8   Eth100/1/7   Eth100/1/6   Eth100/1/5
                Eth100/1/4   Eth100/1/3   Eth100/1/2   Eth100/1/1
```

Disassociating a Fabric Extender From an Interface

You can disassociate the Fabric Extender from an interface.

Before You Begin

Ensure that you have enabled the Fabric Extender feature.

Procedure

	Command or Action	Purpose
Step 1	switch# **configure terminal**	Enters configuration mode.
Step 2	switch(config)# **interface** {**ethernet** *slot*/*port* | **port-channel** *channel*}	Specifies the interface to configure. The interface can be an Ethernet interface or a EtherChannel.
Step 3	switch(config-if)# **no fex associate**	Disassociates the Fabric Extender unit attached to the interface.

Configuring Fabric Extender Global Features

You can configure global features for a Fabric Extender.

Before You Begin

Ensure that you have enabled the Fabric Extender feature.

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Procedure

	Command or Action	**Purpose**
Step 1	switch# **configure terminal**	Enters configuration mode.
Step 2	switch(config)# **fex** *FEX-number*	Enters configuration mode for the specified Fabric Extender. The range of the FEX-number is from 100 to 199.
Step 3	switch(config-fex)# **description** *desc*	(Optional) Specifies the description. The default is the string FEX*xxxx* where *xxxx* is the FEX-number. If the FEX-number is 123, the description is FEX0123.
Step 4	switch(config-fex)# **no description**	(Optional) Deletes the description.
Step 5	switch(config-fex)# **type** *FEX-type*	(Optional) Specifies the type of Fabric Extender. The FEX-type is one of **N2148T** for the 48 1000BASE-T Ethernet host interfaces and 4 10-Gigabit Ethernet fabric interfaces module, **N2232P** for the 32 10-Gigabit Ethernet host interfaces and 4 10-Gigabit Ethernet fabric interfaces module, or **N2248T** for the 48 100Base-T/1000BASE-T Ethernet host interfaces and 4 10-Gigabit Ethernet fabric interfaces module The parent device remembers the type of the Fabric Extender in its binary configuration. When this feature is configured, the Fabric Extender is only allowed to come online if its type matches the configured FEX-type.
Step 6	switch(config-fex)# **no type**	(Optional) Deletes the FEX-type. In this case, when a Fabric Extender is connected to the fabric interfaces and does not match the configured type previously saved in the binary configuration on the parent device, all configurations for all interfaces on the Fabric Extender are deleted.
Step 7	switch(config-fex)# **pinning max-links** *uplinks*	(Optional) Defines the number of uplinks. The default is 1. The range is from 1 to 4. This command is only applicable if the Fabric Extender is connected to its parent switch using one or more statically pinned fabric interfaces. There can only be one EtherChannel connection. **Caution** Changing the number of uplinks with the **pinning max-links** command disrupts all the host interface ports of the Fabric Extender.
Step 8	switch(config-fex)# **no pinning max-links**	(Optional) Resets the number of uplinks to the default. **Caution** Changing the number of uplinks with the **no pinning max-links** command disrupts all the host interface ports of the Fabric Extender.

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	Command or Action	Purpose
Step 9	switch(config-fex)# **serial** *serial*	(Optional) Defines a serial number string. If this command is configured, then a switch will only allow the corresponding chassis ID to associate (using the **fex associate** command) if the Fabric Extender reports a matching serial number string. **Caution** Configuring a serial number other than that of the given Fabric Extender will force the Fabric Extender offline.
Step 10	switch(config-fex)# **no serial**	(Optional) Deletes the serial number string.

Enabling the Fabric Extender Locator LED

You can toggle on the locator beacon LED. It allows you to locate a specific Fabric Extender in a rack.

Procedure

	Command or Action	Purpose
Step 1	switch# **locator-led fex** *FEX-number*	Turns on the locator beacon LED for a specific Fabric Extender.
Step 2	switch# **no locator-led fex** *FEX-number*	(Optional) Turns off the locator beacon LED for a specific Fabric Extender.

Redistributing the Links

When you provision the Fabric Extender with statically pinned interfaces, the downlink host interfaces on the Fabric Extender are pinned to the fabric interfaces in the order they were initially configured. If you want to maintain a specific relationship of host interfaces to fabric interface across reboots, you should repin the links.

You may want to perform this function in these two situations:

- A change in the max-links configuration.
- If you need to maintain the pinning order of host interfaces to fabric interfaces.

Changing the Number of Links

If you initially configured a specific port on the parent switch, for example port 33, as your only fabric interface, all 48 host interfaces are pinned to this port. If you provision another port, for example 35, then you must

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enter the **pinning max-links 2** command to redistribute the host interfaces. All host interfaces are brought down and host interfaces 1 to 24 are pinned to fabric interface 33 and host interfaces 25 to 48 are pinned to fabric interface 35.

Maintaining the Pinning Order

The pinning order of the host interfaces is initially determined by the order in which the fabric interfaces were configured. In this example, four fabric interfaces were configured in the following order:

```
switch# show interface ethernet 1/35 fex-intf
Fabric          FEX
Interface       Interfaces
-------------------------------------------------------
 Eth1/35        Eth100/1/12   Eth100/1/11   Eth100/1/10   Eth100/1/9
                Eth100/1/8    Eth100/1/7    Eth100/1/6    Eth100/1/5
                Eth100/1/4    Eth100/1/3    Eth100/1/2    Eth100/1/1

switch# show interface ethernet 1/33 fex-intf
Fabric          FEX
Interface       Interfaces
-------------------------------------------------------
 Eth1/33        Eth100/1/24   Eth100/1/23   Eth100/1/22   Eth100/1/21
                Eth100/1/20   Eth100/1/19   Eth100/1/18   Eth100/1/17
                Eth100/1/16   Eth100/1/15   Eth100/1/14   Eth100/1/13

switch# show interface ethernet 1/38 fex-intf
Fabric          FEX
Interface       Interfaces
-------------------------------------------------------
 Eth1/38        Eth100/1/36   Eth100/1/35   Eth100/1/34   Eth100/1/33
                Eth100/1/32   Eth100/1/31   Eth100/1/30   Eth100/1/29
                Eth100/1/28   Eth100/1/27   Eth100/1/26   Eth100/1/25

switch# show interface ethernet 1/40 fex-intf
Fabric          FEX
Interface       Interfaces
-------------------------------------------------------
 Eth1/40        Eth100/1/48   Eth100/1/47   Eth100/1/46   Eth100/1/45
                Eth100/1/44   Eth100/1/43   Eth100/1/42   Eth100/1/41
                Eth100/1/40   Eth100/1/39   Eth100/1/38   Eth100/1/37
```

The next time that you reboot the Fabric Extender, the configured fabric interfaces are pinned to the host interfaces in an ascending order by port number of the fabric interface. If you want to configure the same fixed distribution of host interfaces without restarting the Fabric Extender, enter the **fex pinning redistribute** command.

Redistributing Host Interfaces

You can redistribute the host interfaces on the Fabric Extender. Enter the **fex pinning redistribute** *FEX-number* command to redistribute the host connections. The range of the FEX-number is from 100 to 199.

This example shows how to redistribute the host interfaces on a Fabric Extender:

```
switch# fex pinning redistribute 100
```

⚠

Caution   The **fex pinning redistribute** command disrupts all the host interface ports of the Fabric Extender.

Upgrading the Fabric Extender

You upgrade the Fabric Extender by upgrading the software on its parent device.

Note   You must have the network-admin role before you can upgrade the software image on the parent device.

You must log into the parent device on its console port connection.

The installation process upgrades both the parent switch and the Fabric Extender at the same time. The process is designed to minimize traffic disruption to the connected hosts.

Procedure

Step 1   Download the new kickstart and system images to the parent switch.

Step 2   Enter the **install all kickstart** *new-kickstart-url* **system** *new-system-url* command.
The switch pushes the new software image to the Fabric Extender then both the switch and the Fabric Extender reboot. The downtime for the hosts connected to the Fabric Extender is the time required for the parent switch and Fabric Extender to reload, configure, and stabilize.

Upgrading the Fabric Extender in a vPC Topology

The Fabric Extender can be deployed in a virtual port channel (vPC) topology. Using a vPC to connect the Fabric Extender to two switches makes the upgrade process less disruptive to the connected hosts.

Note   You must have the network-admin role before you can upgrade the software image on the parent device.

You must log into the parent device on its console port connection.

Performing a Simultaneous Fabric Extender Upgrade

You can perform a simultaneous upgrade of the entire setup.

Procedure

Step 1   Download the new kickstart and system images to both the vPC primary and secondary parent devices.

Step 2   Enter the **install all kickstart** *new-kickstart-url* **system** *new-system-url* command on both switches.
Note   The Fabric Extender will be upgraded by either the vPC primary or the secondary device.

The downtime for the hosts connected to the Fabric Extender in a simultaneous upgrade is the time required for the parent devices and the Fabric Extender to reload, configure, and stabilise.

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Performing an Active-Active Fabric Extender Upgrade

You can reduce the length of the downtime for the hosts connected to the Fabric Extender by performing an *installation pending* upgrade of your dual homed Fabric Extender (Active-Active) vPC topology setup.

Figure 1: Dual Homed Fabric Extender vPC Topology

Note   The previous figure shows that only one Fabric Extender is connected to the parent devices. In most configurations, you would typically have more than one Fabric Extender connected to the parent devices. The following procedure is the same when you have one or more than one Fabric Extender.
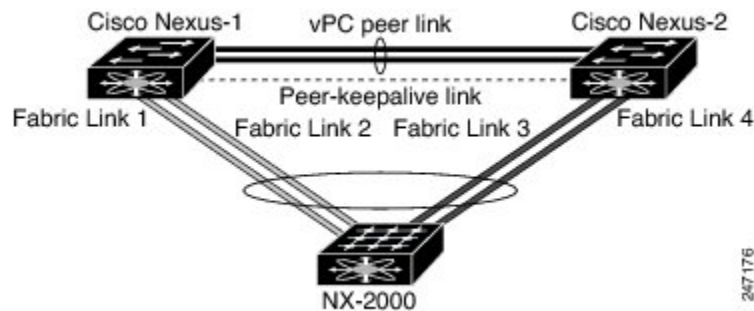
Procedure

Step 1   Download the new kickstart and system images to both the vPC primary and secondary parent devices.

Step 2   Enter the **install all kickstart** *new-kickstart-url* **system** *new-system-url* command on one of the devices (NX-5000-1 in the previous figure).

Step 3   The first device (NX-5000-1) and the attached Fabric Extender are now upgraded. When the device reboots to complete its upgrade, the Fabric Extender stays online and enters the *installation pending* mode. In this mode, the Fabric Extender stays connected to the other device (NX-5000-2 in the previous figure) and continues to forward traffic to and from its attached hosts.

Step 4   Confirmed that the upgraded device (NX-5000-1) and the Fabric Extender are operational.

Step 5   Enter the **install all kickstart** *new-kickstart-url* **system** *new-system-url* command on the second switch (NX-5000-2). When the upgrade is complete, the NX-5000-2 and the Fabric Extender will reboot.
Once the second upgraded switch (NX-5000-2) is operational, the Fabric Extender will reconnect to both the switches and once again be dual-homed.

Related Topics

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Verifying Fabric Extender Configuration

Use the following commands to display configuration information about the defined interfaces on a Fabric Extender:

Command or Action	Purpose
switch# **show fex** [*FEX-number* [**detail**]]	Displays information about a specific Fabric Extender or all attached units.
switch# **show interface** *type number* **fex-intf**	Displays the Fabric Extender ports that are pinned to a specific switch interface.
switch# **show interface fex-fabric**	Displays the switch interfaces that have detected a Fabric Extender uplink.
switch# **show interface ethernet** *number* **transceiver** [**fex-fabric**]	Displays the SFP+ transceiver and diagnostic optical monitoring (DOM) information for the Fabric Extender uplinks.

This example shows how to display all the attached Fabric Extender units:

```
switch# show fex
   FEX          FEX          FEX                       FEX
Number    Description    State          Model              Serial
--------------------------------------------------------------------
100    FEX0100             Online    N2K-C2248TP-1GE    JAF1339BDSK
101    FEX0101             Online    N2K-C2232P-10GE    JAF1333ADDD
102    FEX0102             Online    N2K-C2232P-10GE    JAS12334ABC
```

This example shows how to display the detailed status of a specific Fabric Extender:

```
switch# show fex 100 detail
FEX: 100 Description: FEX0100   state: Online
  FEX version: 4.2(1)N1(1) [Switch version: 4.2(1)N1(1)]
  FEX Interim version: 4.2(1)N1(0.243)
  Switch Interim version: 4.2(1)N1(0.243)
  Extender Model: N2K-C2248TP-1GE,  Extender Serial: JAF1339BDSK
  Part No: 73-12748-01
  Card Id: 83, Mac Addr: 00:0d:ec:e3:28:02, Num Macs: 64
  Module Sw Gen: 21  [Switch Sw Gen: 21]
  post level: bypass
 pinning-mode: static    Max-links: 1
 Fabric port for control traffic: Eth1/29
 Fabric interface state:
   Po100 - Interface Up. State: Active
   Eth1/29 - Interface Up. State: Active
   Eth1/30 - Interface Up. State: Active
 Fex Port        State  Fabric Port  Primary Fabric
      Eth100/1/1    Up       Po100        Po100
      Eth100/1/2    Up       Po100        Po100
      Eth100/1/3    Up       Po100        Po100
      Eth100/1/4    Up       Po100        Po100
      Eth100/1/5    Up       Po100        Po100
      Eth100/1/6    Up       Po100        Po100
      Eth100/1/7    Up       Po100        Po100
      Eth100/1/8    Up       Po100        Po100
      Eth100/1/9    Up       Po100        Po100
     Eth100/1/10    Up       Po100        Po100
     Eth100/1/11    Up       Po100        Po100
```

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```
            Eth100/1/12     Up      Po100       Po100
            Eth100/1/13     Up      Po100       Po100
            Eth100/1/14     Up      Po100       Po100
            Eth100/1/15     Up      Po100       Po100
            Eth100/1/16     Up      Po100       Po100
            Eth100/1/17     Up      Po100       Po100
            Eth100/1/18     Up      Po100       Po100
            Eth100/1/19     Up      Po100       Po100
            Eth100/1/20     Up      Po100       Po100
            Eth100/1/21     Up      Po100       Po100
            Eth100/1/22     Up      Po100       Po100
            Eth100/1/23     Up      Po100       Po100
            Eth100/1/24     Up      Po100       Po100
            Eth100/1/25     Up      Po100       Po100
            Eth100/1/26     Up      Po100       Po100
            Eth100/1/27     Up      Po100       Po100
            Eth100/1/28     Up      Po100       Po100
            Eth100/1/29     Up      Po100       Po100
            Eth100/1/30     Up      Po100       Po100
            Eth100/1/31     Up      Po100       Po100
            Eth100/1/32     Up      Po100       Po100
            Eth100/1/33     Up      Po100       Po100
            Eth100/1/34     Up      Po100       Po100
            Eth100/1/35     Up      Po100       Po100
            Eth100/1/36     Up      Po100       Po100
            Eth100/1/37     Up      Po100       Po100
            Eth100/1/38     Up      Po100       Po100
            Eth100/1/39     Up      Po100       Po100
            Eth100/1/40    Down     Po100       Po100
            Eth100/1/41     Up      Po100       Po100
            Eth100/1/42     Up      Po100       Po100
            Eth100/1/43     Up      Po100       Po100
            Eth100/1/44     Up      Po100       Po100
            Eth100/1/45     Up      Po100       Po100
            Eth100/1/46     Up      Po100       Po100
            Eth100/1/47     Up      Po100       Po100
            Eth100/1/48     Up      Po100       Po100
Logs:
02/05/2010 20:12:17.764153: Module register received
02/05/2010 20:12:17.765408: Registration response sent
02/05/2010 20:12:17.845853: Module Online Sequence
02/05/2010 20:12:23.447218: Module Online
```

This example shows how to display the Fabric Extender interfaces pinned to a specific switch interface:

```
switch# show interface port-channel 100 fex-intf
Fabric          FEX
Interface       Interfaces
-------------------------------------------------
 Po100          Eth100/1/48   Eth100/1/47   Eth100/1/46   Eth100/1/45
                Eth100/1/44   Eth100/1/43   Eth100/1/42   Eth100/1/41
                Eth100/1/40   Eth100/1/39   Eth100/1/38   Eth100/1/37
                Eth100/1/36   Eth100/1/35   Eth100/1/34   Eth100/1/33
                Eth100/1/32   Eth100/1/31   Eth100/1/30   Eth100/1/29
                Eth100/1/28   Eth100/1/27   Eth100/1/26   Eth100/1/25
                Eth100/1/24   Eth100/1/22   Eth100/1/20   Eth100/1/19
                Eth100/1/18   Eth100/1/17   Eth100/1/16   Eth100/1/15
                Eth100/1/14   Eth100/1/13   Eth100/1/12   Eth100/1/11
                Eth100/1/10   Eth100/1/9    Eth100/1/8    Eth100/1/7
                Eth100/1/6    Eth100/1/5    Eth100/1/4    Eth100/1/3
                Eth100/1/2    Eth100/1/1
```

This example shows how to display the switch interfaces that are connected to a Fabric Extender uplink:

```
switch# show interface fex-fabric
      Fabric      Fabric      Fex                FEX
Fex   Port      Port State   Uplink    Model          Serial
---------------------------------------------------------------
100   Eth1/29      Active      3      N2K-C2248TP-1GE  JAF1339BDSK
100   Eth1/30      Active      4      N2K-C2248TP-1GE  JAF1339BDSK
102   Eth1/33      Active      1      N2K-C2232P-10GE  JAS12334ABC
102   Eth1/34      Active      2      N2K-C2232P-10GE  JAS12334ABC
102   Eth1/35      Active      3      N2K-C2232P-10GE  JAS12334ABC
```

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```
102   Eth1/36       Active   4    N2K-C2232P-10GE   JAS12334ABC
101   Eth1/37       Active   5    N2K-C2232P-10GE   JAF1333ADDD
101   Eth1/38       Active   6    N2K-C2232P-10GE   JAF1333ADDD
101   Eth1/39       Active   7    N2K-C2232P-10GE   JAF1333ADDD
101   Eth1/40       Active   8    N2K-C2232P-10GE   JAF1333ADDD
```

Note   The above example shows a Fabric Extender with four uplink connections, only one of which is currently active.

This example shows how to display the SFP+ transceiver and diagnostic optical monitoring (DOM) information for Fabric Extender uplinks for an SFP+ transceiver that is plugged into the parent switch interface:

```
switch# show interface ethernet 1/40 transceiver
Ethernet1/40
    sfp is present
    name is CISCO-MOLEX INC
    part number is 74752-9026
    revision is A0
    serial number is MOC13321057
    nominal bitrate is 12000 MBits/sec
    Link length supported for copper is 3 m(s)
    cisco id is --
    cisco extended id number is 4
```

This example shows how to display the SFP+ transceiver and DOM information for Fabric Extender uplinks for an SFP+ transceiver that is plugged into the uplink port on the Fabric Extender:

```
switch# show interface ethernet 1/40 transceiver fex-fabric
Ethernet1/40
    sfp is present
    name is CISCO-MOLEX INC
    part number is 74752-9026
    revision is A0
    serial number is MOC13321057
    nominal bitrate is 12000 MBits/sec
    Link length supported for 50/125mm fiber is 0 m(s)
    Link length supported for 62.5/125mm fiber is 0 m(s)
    cisco id is --
    cisco extended id number is 4
```

Verifying Chassis Management Information

Use the following commands to display configuration information used on the switch supervisor to manage the Fabric Extender:

Command or Action	Purpose
switch# **show diagnostic result fex** *FEX-number*	Displays results from the diagnostic test for a Fabric Extender.
switch# **show environment fex** {**all**	*FEX-number*} [**temperature**	**power**	**fan**]	Displays the environmental sensor status.
switch# **show inventory fex** *FEX-number*	Displays inventory information for a Fabric Extender.
switch# **show module fex** [*FEX-number*]	Displays module information about a Fabric Extender.

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Command or Action	Purpose
switch# **show sprom fex** *FEX-number* {**all** | **backplane** | **powersupply** *ps-num*} | **all**	Displays the contents of the serial PROM (SPROM) on the Fabric Extender.

This example shows how to display the module information about all connected Fabric Extender units:

```
switch# show module fex
FEX Mod Ports Card Type                              Model              Status.
--- --- ----- ------------------------------------- ------------------ -----------
100 1   48    Fabric Extender 48x1GE + 4x10G Mod N2K-C2248TP-1GE    present
101 1   32    Fabric Extender 32x10GE + 8x10G Mo N2K-C2232P-10GE    present
102 1   32    Fabric Extender 32x10GE + 8x10G Mo N2K-C2232P-10GE    present

FEX Mod Sw            Hw     World-Wide-Name(s) (WWN)
--- --- ------------- ------ ----------------------------------------------
100 1   4.2(1)N1(1)   0.103  --
101 1   4.2(1)N1(1)   1.0    --
102 1   4.2(1)N1(1)   1.0    --

FEX Mod  MAC-Address(es)                       Serial-Num
--- ---  ------------------------------------- ----------
100 1    000d.ece3.2800 to 000d.ece3.282f      JAF1339BDSK
101 1    000d.ecca.73c0 to 000d.ecca.73df      JAF1333ADDD
102 1    000d.ecd6.bec0 to 000d.ecd6.bedf      JAS12334ABC
```

This example shows how to display the module information about a specific Fabric Extender:

```
switch# show module fex 100
FEX Mod Ports Card Type                              Model              Status.
--- --- ----- ------------------------------------- ------------------ -----------
110 1   48    Fabric Extender 48x1GE + 4x10G Mod N2K-C2248TP-1GE    present

FEX Mod Sw            Hw     World-Wide-Name(s) (WWN)
--- --- ------------- ------ ----------------------------------------------
110 1   4.2(1)N1(1)   0.103  --

FEX Mod  MAC-Address(es)                       Serial-Num
--- ---  ------------------------------------- ----------
110 1    000d.ece3.2800 to 000d.ece3.282f      JAF1339BDSK
```

This example shows how to display the inventory information about a specific Fabric Extender:

```
switch# show inventory fex 100
NAME: "FEX 100 CHASSIS", DESCR: "N2K-C2248TP-1GE  CHASSIS"
PID: N2K-C2248TP-1GE   , VID: V00 , SN: SSI13380FSM

NAME: "FEX 100 Module 1", DESCR: "Fabric Extender Module: 48x1GE, 4x10GE Supervisor"
PID: N2K-C2248TP-1GE   , VID: V00 , SN: JAF1339BDSK

NAME: "FEX 100 Fan 1", DESCR: "Fabric Extender Fan module"
PID: N2K-C2248-FAN     , VID: N/A , SN: N/A

NAME: "FEX 100 Power Supply 2", DESCR: "Fabric Extender AC power supply"
PID: NXK-PAC-400W      , VID:  000, SN:     LIT13370QD6
```

This example shows how to display diagnostic test results for a specific Fabric Extender:

```
switch# show diagnostic result fex 100
FEX-100: 48x1GE/Supervisor  SerialNo   : JAF1339BDSK
Overall Diagnostic Result for FEX-100  : OK

Test results: (. = Pass, F = Fail, U = Untested)
TestPlatform:
0)              SPROM: ---------------> .
1)   Inband interface: ---------------> .
2)                Fan: ---------------> .
```

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```
3)       Power Supply: --------------> .
4) Temperature Sensor: --------------> .

TestForwardingPorts:
Eth    1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Port -----------------------------------------------------------------------
       .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .

Eth   25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
Port -----------------------------------------------------------------------
       .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .

TestFabricPorts:
Fabric 1  2  3  4
Port ------------
       .  .  .  .
```

This example shows how to display the environment status for a specific Fabric Extender:

```
switch# show environment fex 100


Temperature Fex 100:
----------------------------------------------------------------------
Module   Sensor     MajorThresh   MinorThres   CurTemp      Status
                    (Celsius)     (Celsius)    (Celsius)
----------------------------------------------------------------------
1        Outlet-1   60            50           33           ok
1        Outlet-2   60            50           38           ok
1        Inlet-1    50            40           35           ok
1        Die-1      100           90           44           ok


Fan Fex: 100:
--------------------------------------------------------
Fan             Model               Hw        Status
--------------------------------------------------------
Chassis         N2K-C2148-FAN       --        failure
PS-1            --                  --        absent
PS-2            NXK-PAC-400W        --        ok


Power Supply Fex 100:
--------------------------------------------------------------------------
Voltage: 12 Volts
--------------------------------------------------------
PS   Model            Power      Power      Status
                      (Watts)    (Amp)
--------------------------------------------------------
1    --                 --         --         --
2    NXK-PAC-400W      4.32       0.36       ok


Mod Model              Power     Power      Power     Power      Status
                       Requested Requested  Allocated Allocated
                       (Watts)   (Amp)      (Watts)   (Amp)
--- ------------------ -------   ---------- --------- ---------- ----------
1   N2K-C2248TP-1GE    0.00      0.00       0.00      0.00       powered-up


Power Usage Summary:
--------------------
Power Supply redundancy mode:              redundant

Total Power Capacity                       4.32 W

Power reserved for Supervisor(s)           0.00 W
Power currently used by Modules            0.00 W

                                           -------------
Total Power Available                      4.32 W
```

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

This example shows how to display the SPROM for a specific Fabric Extender:

```
switch# show sprom fex 100 all
DISPLAY FEX 100 SUP sprom contents
Common block:
 Block Signature : 0xabab
 Block Version   : 3
 Block Length    : 160
 Block Checksum  : 0x1a1e
 EEPROM Size     : 65535
 Block Count     : 3
 FRU Major Type  : 0x6002
 FRU Minor Type  : 0x0
 OEM String      : Cisco Systems, Inc.
 Product Number  : N2K-C2248TP-1GE
 Serial Number   : JAF1339BDSK
 Part Number     : 73-12748-01
 Part Revision   : 11
 Mfg Deviation   : 0
 H/W Version     : 0.103
 Mfg Bits        : 0
 Engineer Use    : 0
 snmpOID         : 9.12.3.1.9.78.3.0
 Power Consump   : 1666
 RMA Code        : 0-0-0-0
 CLEI Code       : XXXXXXXXXTBDV00
 VID             : V00
Supervisor Module specific block:
 Block Signature : 0x6002
 Block Version   : 2
 Block Length    : 103
 Block Checksum  : 0x2686
 Feature Bits    : 0x0
 HW Changes Bits : 0x0
 Card Index      : 11016
 MAC Addresses   : 00-00-00-00-00-00
 Number of MACs  : 0
 Number of EPLD  : 0
 Port Type-Num   : 1-48;2-4
 Sensor #1       : 60,50
 Sensor #2       : 60,50
 Sensor #3       : -128,-128
 Sensor #4       : -128,-128
 Sensor #5       : 50,40
 Sensor #6       : -128,-128
 Sensor #7       : -128,-128
 Sensor #8       : -128,-128
 Max Connector Power: 4000
 Cooling Requirement: 65
 Ambient Temperature: 40

DISPLAY FEX 100 backplane sprom contents:
Common block:
 Block Signature : 0xabab
 Block Version   : 3
 Block Length    : 160
 Block Checksum  : 0x1947
 EEPROM Size     : 65535
 Block Count     : 5
 FRU Major Type  : 0x6001
 FRU Minor Type  : 0x0
 OEM String      : Cisco Systems, Inc.
 Product Number  : N2K-C2248TP-1GE
 Serial Number   : SSI13380FSM
 Part Number     : 68-3601-01
 Part Revision   : 03
 Mfg Deviation   : 0
 H/W Version     : 1.0
 Mfg Bits        : 0
 Engineer Use    : 0
 snmpOID         : 9.12.3.1.3.914.0.0
```

```
                   Power Consump   : 0
                   RMA Code        : 0-0-0-0
                   CLEI Code       : XXXXXXXXXTDBV00
                   VID             : V00
              Chassis specific block:
                   Block Signature : 0x6001
                   Block Version   : 3
                   Block Length    : 39
                   Block Checksum  : 0x2cf
                   Feature Bits    : 0x0
                   HW Changes Bits : 0x0
                   Stackmib OID    : 0
                   MAC Addresses   : 00-0d-ec-e3-28-00
                   Number of MACs  : 64
                   OEM Enterprise  : 0
                   OEM MIB Offset  : 0
                   MAX Connector Power: 0
              WWN software-module specific block:
                   Block Signature : 0x6005
                   Block Version   : 1
                   Block Length    : 0
                   Block Checksum  : 0x66
              wwn usage bits:
                   00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00
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                   00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00
                   00 00 00 00 00 00 00 00
                   00 00
              License software-module specific block:
                   Block Signature : 0x6006
                   Block Version   : 1
                   Block Length    : 16
                   Block Checksum  : 0x86f
              lic usage bits:
                   ff ff ff ff ff ff ff ff

              DISPLAY FEX 141 power-supply 2 sprom contents:
              Common block:
                   Block Signature : 0xabab
                   Block Version   : 3
                   Block Length    : 160
                   Block Checksum  : 0x1673
                   EEPROM Size     : 65535
                   Block Count     : 2
                   FRU Major Type  : 0xab01
                   FRU Minor Type  : 0x0
```

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```
OEM String      : Cisco Systems Inc   NXK-PAC-400W
Product Number  : NXK-PAC-400W
Serial Number   :     LIT13370QD6
Part Number     :        341
Part Revision   : -037
CLEI Code       : 5-01     01   000
VID             :   000
snmpOID         : 12336.12336.12336.12336.12336.12336.12374.12336
H/W Version     : 43777.2
Current         : 36
RMA Code        : 200-32-32-32
Power supply specific block:
Block Signature : 0x0
Block Version   : 0
Block Length    : 0
Block Checksum  : 0x0
Feature Bits    : 0x0
Current 110v    : 36
Current 220v    : 36
Stackmib OID    : 0
```

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