



Cisco Nexus B22 Fabric Extender for HP Getting Started Guide

This Getting Started Guide describes the Cisco Nexus B22 Fabric Extender for HP and how to start using it. This product is referred to by HP as the Cisco Fabric Extender for HP BladeSystem. This Getting Started Guide includes the following sections:

- [Information about the Cisco Nexus B22 Fabric Extender for HP, page 1](#)
- [Shipping Box Contents, page 2](#)
- [HP Blade System Architecture, page 3](#)
- [Installing the Cisco Nexus B22 Fabric Extender for HP, page 5](#)
- [Updating NX-OS, page 6](#)
- [Configuring the Cisco Nexus B22 Fabric Extender for HP, page 8](#)
- [Verifying the Configuration, page 20](#)
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- [Related Documentation, page 22](#)
- [Technical Support, page 22](#)

Information about the Cisco Nexus B22 Fabric Extender for HP

The Cisco Nexus B22 Fabric Extender for HP provides an extension of the Cisco Nexus switch fabric to the HP blade server edge

The Cisco Nexus B22 Fabric Extenders behave as remote line cards for a parent Cisco Nexus 5000 Series switch. The Fabric Extenders are essentially extensions of the parent Cisco Nexus switch fabric, with the Fabric Extenders and the parent Cisco Nexus switch together forming a distributed modular system.

Up to 24 Cisco Nexus B22 Fabric Extenders can be connected to a single Nexus 5000 Series switch, allowing a single distributed modular system to scale to 384 HP blade servers.

Each Cisco Nexus B22 Fabric Extender connects via 1 or 10 Gigabit Ethernet to up to 16 servers within a HP BladeSystem and the HP Integrity Superdome 2 chassis, and contains 8 10 Gigabit Ethernet fabric uplinks towards the Cisco Nexus 5000 Series switch. Multiple low cost options are available for fabric



connections between the Cisco Nexus B22 and the Cisco Nexus 5000 series switch. Low-cost Connections up to 10 meters can be made with copper Twin-ax cable, and longer connections up to 100 meters can use the Fabric Extender Transceiver. Other standard 10 Gigabit Ethernet optics such as 10Gbase-SR and 10Gbase-LR are also supported for these fabric connections.

Finding the Latest Documentation Online

Use the following links to check for the latest documentation for your server product:

- http://www.cisco.com/en/US/products/ps9670/tsd_products_support_series_home.html
- <http://h18004.www1.hp.com/products/blades/components/c-class-tech-installing.html>
- http://www.hp.com/go/Integrity_Servers-docs

Check these links often to verify that your documentation is up to date.

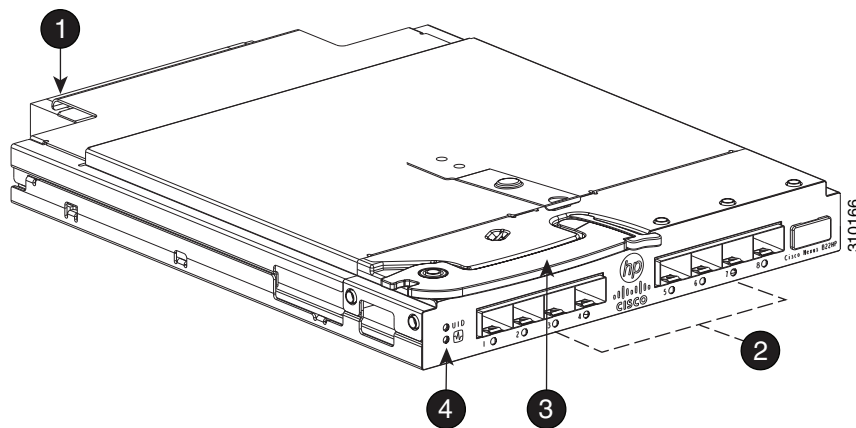
Shipping Box Contents

The Cisco Nexus B22 Fabric Extender for HP shipping box contains:

- Cisco Nexus B22 Fabric Extender for HP, with 16 internal host ports and 8 external network ports.
- This box may contain 16 Fabric Extender Transceivers. The product ID of the bundle with the Cisco Nexus B22 Fabric Extender and the Fabric Extender Transceiver is N2K-B22HP-F.
- 1 CD that contains
 - Getting Started Guide
 - Regulatory Compliance and Safety Information
 - HP End User License Agreement letter
 - Warranty Document

Figure 1 shows the Cisco Nexus B22 Fabric Extender for HP.

Figure 1 Cisco Nexus B22 Fabric Extender for HP

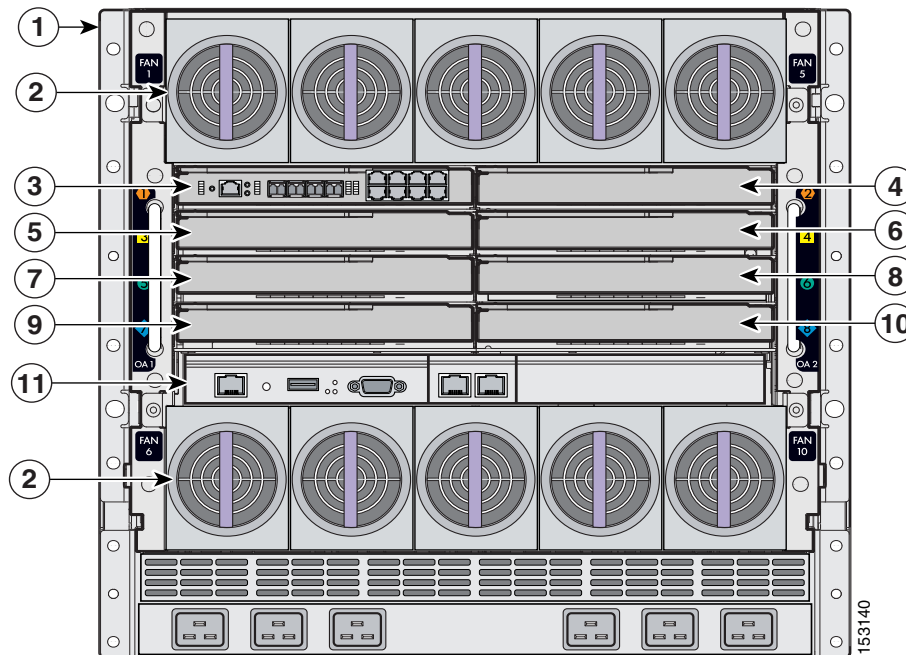


1	Midplane connector
2	Eight external network ports
3	Installation handle
4	Unit ID (UID) LED and Health LED

HP Blade System Architecture

Figure 2 shows the rear view of the blade enclosure, in which you install the switch module.

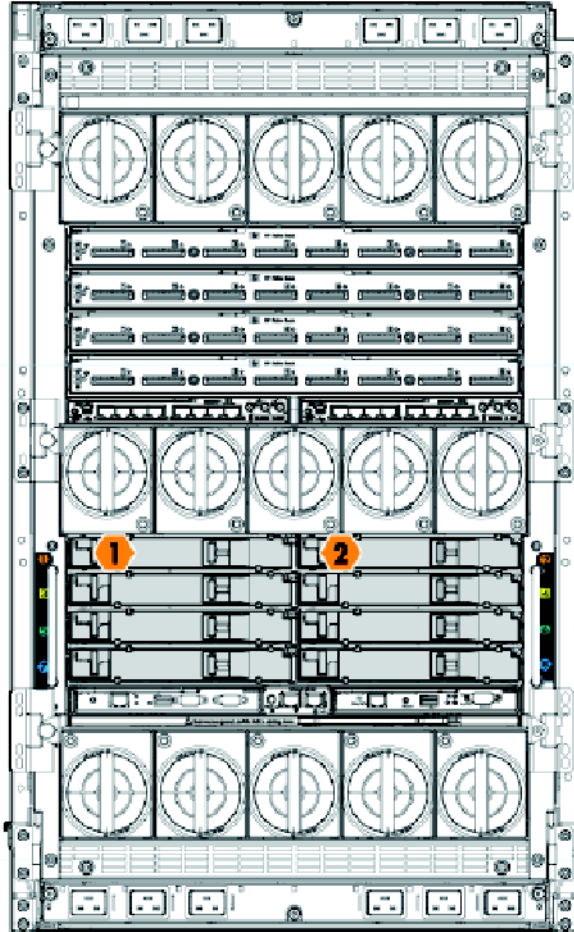
Figure 2 Rear View of the Blade Enclosure







1	Enclosure rear view	7	Interconnect module bay 5
2	Enclosure fans	8	Interconnect module bay 6
3	Interconnect module bay 1	9	Interconnect module bay 7
4	Interconnect module bay 2	10	Interconnect module bay 8
5	Interconnect module bay 3	11	Onboard Administrator module
6	Interconnect module bay 4		

Figure 3 shows the rear of the HP Superdome 2 IOX Enclosure.

Figure 3 Rear of HP Superdome 2 IOX Enclosure



Server Blade Signal	Compute Enclosure Interconnect Bay	Interconnect Bay Labels
NIC 1(embedded)	1	
NIC 2(embedded)	2	
NIC 3(embedded)	1	
NIC 4(embedded)	2	

Consider these prerequisites before you install the switch module:

- Fill any unoccupied interconnect bays or any unoccupied power module bays in the blade enclosure with blanks.
- Identify the bays in which you will insert the switch modules. Plan to install the first switch module in bay 1, the second in bay 2, and so on up to bay 8, if possible. The bay in which you choose to install each switch module depends on whether mezzanine or Ethernet cards are installed in the blade enclosure and how they are configured. See the blade enclosure documentation information about installing and configuring the mezzanine or Ethernet cards.
- See the HP c-Class or HP Integrity Superdome 2 documentation for information on the port mapping between blade enclosures and the switch modules.

Installing the Cisco Nexus B22 Fabric Extender for HP



Caution

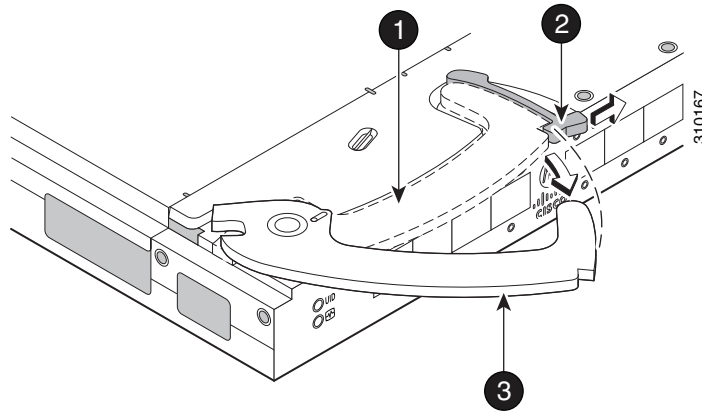
Properly ground yourself before handling the switch.

Populate all the enclosure interconnect bays with an interconnect module or one of the blank panels provided with the enclosure. For the HP Integrity Superdome 2, the Fabric Extender will go to Bay 1, Bay 2 or both.

To install the Cisco Nexus B22 Fabric Extender for HP in the enclosure:

1. Locate the appropriate interconnect bay at the rear of the enclosure. See the setup and installation guide provided with the enclosure.
2. Press the handle latch to release the handle. See [Figure 4](#).

Figure 4 *Releasing the Installation Handle*



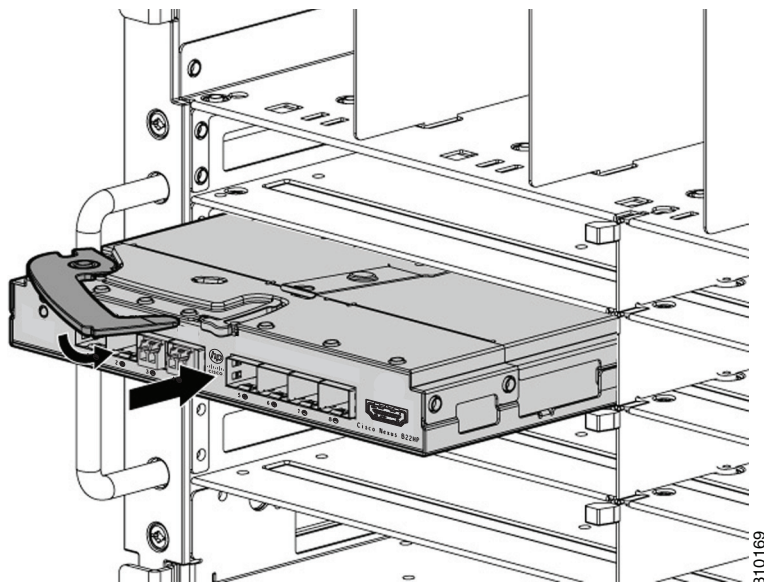
1	Installation handle in latched position
2	Handle latch
3	Installation handle (released)

**Note**

The Cisco Nexus B22 Fabric Extender for HP is a hot-pluggable device. The enclosure may be on or off during installation.

3. Align the Cisco Nexus B22 Fabric Extender for HP with the appropriate interconnect bay, according to the specific configuration for the enclosure. For the HP Integrity Superdome 2, only Bay 1 and Bay 2 are available. Push the switch firmly into the interconnect bay. See [Figure 5](#).

Figure 5 *Installing the Fabric Extender Into an Interconnect Bay*



4. Press the installation handle into the latch to lock the switch into place.
5. Connect the cables.
6. Configure the Cisco Nexus 5000 switch to recognize and boot up the Cisco Nexus B22 Fabric Extender for HP.

Updating NX-OS

To achieve the best performance, HP recommends updating to the latest NX-OS software version.

The Cisco Nexus B22 Fabric Extender for HP downloads the necessary firmware from the connected Cisco Nexus 5x00 switch. You can update the Cisco Nexus 5x00 Switch without any disruptions using the **install all** command. Contact the company from whom your Cisco Nexus 5x00 Switch was purchased.

For units purchased through HP, see the HP StorageWorks Single Point of Connectivity Knowledge (SPOCK) website at www.hp.com/storage/spock for the latest HP supported NX-OS version.

If your Nexus 5000 was purchased through HP, obtain the most current NX-OS software from the HP Support Center website:

<http://h20565.www2.hp.com/portal/site/hpsc/public>

You can download NX-OS software from the Cisco website:

<http://www.cisco.com/cisco/software/navigator.html?mdfid=282076290&i=rm>

If your units are purchased through Cisco, see [Cisco Nexus 5000 Series NX-OS Software Upgrade and Downgrade Guide](#) for instructions on how to download NX-OS from Cisco.

The Cisco Nexus B22 Fabric Extender for HP is managed by its parent Cisco Nexus 5000 Series switch over the fabric interfaces through a zero-touch configuration model. You upgrade the Fabric Extender by upgrading the software on the parent Cisco Nexus 5000 Series switch.

When a Fabric Extender is properly associated with a parent switch, the following upgrade operations are performed:

- The switch checks the software image compatibility and upgrades the Fabric Extender if necessary.
- The switch pushes the configuration data to the fabric extender. The Fabric Extender does not store any configuration locally.
- The Fabric Extender updates the switch with its operational status. All fabric extender information is displayed using the switch commands for monitoring and troubleshooting.

In-Service Software Upgrades (ISSUs) are supported on the Cisco Nexus 5000 Series switches. An ISSU can update the software images on your device without disrupting data traffic. An ISSU updates the Kickstart, System, and Fabric Extender image.

The **install all** command triggers the ISSU on Cisco Nexus 5000 Series switches and the Cisco Nexus B22 Fabric Extender for HP. The command provides the following benefits:

- You can upgrade the Cisco Nexus 5000 Series switches and the Cisco Nexus B22 Fabric Extender for HP using just one command.
- You can receive descriptive information about the intended changes to your system before you continue with the installation. For example, it identifies potential disruptive upgrades.
- You can continue or cancel the upgrade when you see this question (the default is **no**):

```
Do you want to continue (y/n) [n] : y
```

- You can upgrade the Cisco NX-OS software using a nondisruptive procedure.
- The command automatically checks the image integrity, which includes the running kickstart and system images. The command sets the kickstart and system boot variables.
- The command performs a platform validity check to verify that a wrong image is not used.
- The Ctrl-c escape sequence gracefully ends the **install all** command. The command sequence completes the update step in progress and returns to the EXEC prompt.
- After issuing the **install all** command, if any step in the sequence fails, the upgrade ends.
- The following message appears to warn you about the impact of upgrading the power sequencer:

```
Warning: please do not remove or power off the module at this time.
```

```
Note: Power-seq upgrade needs a power-cycle to take into effect.
```

```
On success of power-seq upgrade, SWITCH OFF THE POWER to the system and then, power it up.
```

- You can force a disruptive upgrade.

For additional information, see the [Cisco Nexus 5000 Series NX-OS Software Upgrade and Downgrade Guide](#).

Configuring the Cisco Nexus B22 Fabric Extender for HP

This section describes how to configure a Cisco Nexus B22 Fabric Extender for HP with a Cisco Nexus 5000 Series switch and includes the following sections:

- [Associating a Fabric Extender to a Fabric Interface, page 8](#)
- [Configuring the Fabric Extender, page 10](#)
- [Redistributing the Links, page 11](#)
- [Displaying Fabric Extender Information, page 13](#)

Associating a Fabric Extender to a Fabric Interface

A Fabric Extender is connected to the switch through physical Ethernet interfaces or an EtherChannel. By default, the switch does not allow the attached Fabric Extender to connect until it has been assigned a chassis ID 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 at most one EtherChannel interface.

This section includes the following topics:

- [Associating a Fabric Extender to an Ethernet Interface, page 8](#)
- [Associating a Fabric Extender to an EtherChannel, page 9](#)
- [Disassociating a Fabric Extender from an Interface, page 10](#)

Associating a Fabric Extender to an Ethernet Interface

To associate the Fabric Extender to an Ethernet interface, perform this task:

	Command	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 chassis	Associates the chassis ID to the Fabric Extender unit attached to the interface. The range of the chassis ID 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 switch:

```
switch# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# interface ethernet 1/19
```



```
switch(config-if)# switchport mode fex-fabric
switch(config-if)# fex associate 102
```

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

```
switch# show interface ethernet 1/19 fex-intf
Fabric          FEX
Interface       Interfaces
-----
Eth1/19         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
```

Associating a Fabric Extender to an EtherChannel

To associate the Fabric Extender to an EtherChannel, perform this task:

	Command	Purpose
Step 1	switch# configure terminal	Enters configuration mode.
Step 2	switch(config)# interface port-channel 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 chassis	Associates the chassis ID to the Fabric Extender unit attached to the interface. The range of the chassis ID 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 switch:

```
switch# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
switch(config)# interface port-channel 2
switch(config-if)# switchport mode fex-fabric
switch(config-if)# fex associate 100
switch(config-if)# exit
switch(config)# interface ethernet 1/19
switch(config-if)# switchport mode fex-fabric
switch(config-if)# fex associate 100
switch(config-if)# channel-group 2
switch(config-if)# exit
switch(config)# interface ethernet 1/20
switch(config-if)# switchport mode fex-fabric
switch(config-if)# fex associate 100
switch(config-if)# channel-group 2
switch(config-if)# exit
switch(config)# interface ethernet 1/21
switch(config-if)# switchport mode fex-fabric
switch(config-if)# fex associate 100
switch(config-if)# channel-group 2
switch(config-if)# exit
switch(config)# interface ethernet 1/22
switch(config-if)# switchport mode fex-fabric
switch(config-if)# fex associate 100
```

```
switch(config-if)# channel-group 2
switch(config-if)# exit
```



Note

You have to associate each Ethernet interface that is a members 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 switch:

```
switch# show interface port-channel 2 fex-intf
Fabric          FEX
Interface       Interfaces
-----
Po2             Eth100/1/1   Eth100/1/2   Eth100/1/3   Eth100/1/4
                Eth100/1/5   Eth100/1/6   Eth100/1/7   Eth100/1/8
                Eth100/1/9   Eth100/1/10  Eth100/1/11  Eth100/1/12
                Eth100/1/13  Eth100/1/14  Eth100/1/15  Eth100/1/16
```

Disassociating a Fabric Extender from an Interface

To disassociate the Fabric Extender from an interface, perform this task:

Command	Purpose
switch(config-if)# no fex associate	Disassociates the Fabric Extender unit attached to the interface.

Configuring the Fabric Extender

To configure global features for a Fabric Extender, perform this tasks:

	Command	Purpose
Step 1	switch# configure terminal	Enters configuration mode.
Step 2	switch(config)# fex chassis	Enters configuration mode for the specified Fabric Extender chassis ID. The range of the chassis ID is from 100 to 199.

	Command	Purpose
Step 3	<code>switch(config-fex)# description desc</code>	Specifies the description. The default is the string FEXxxx where xxx is the chassis ID. If the chassis ID is 123, the description is FEX0123.
	<code>switch(config-fex)# no description</code>	Deletes the description.
	<code>switch(config-fex)# pinning max-links uplinks</code>	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.
	<code>switch(config-fex)# no pinning max-links</code>	Resets the number of uplinks to the default.
	<code>switch(config-fex)# serial serial</code>	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. Configuring a serial number other than that of the given Fabric Extender will force the Fabric Extender offline.
	<code>switch(config-fex)# no serial</code>	Deletes the serial number string.
	<code>switch(config-fex)# beacon</code>	Turns on the beacon LED. This LED allows you to locate a specific Fabric Extender in a rack.
	<code>switch(config-fex)# no beacon</code>	Turns off the beacon LED.

**Caution**

Changing the number of uplinks with the **pinning max-links** command or the **no pinning max-links** command disrupts all the host interface ports of the 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 re-pin 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 port 19 on the parent switch as your only fabric interface, all 16 host interfaces are pinned to this port. If you provision another port, for example 20, then you must enter the **pinning max-links 2** command to redistribute the host interfaces. All host interfaces are brought down and host interfaces 1 to 8 are pinned to fabric interface 19 and host interfaces 9 to 16 are pinned to fabric interface 20.

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(config-fex)#
switch(config-fex)#
switch(config-fex)# show interface ethernet 1/19 fex-intf
Fabric          FEX
Interface       Interfaces
-----
Eth1/19         Eth100/1/4    Eth100/1/3    Eth100/1/2    Eth100/1/1

switch(config-fex)# show interface ethernet 1/20 fex-intf
Fabric          FEX
Interface       Interfaces
-----
Eth1/20         Eth100/1/8    Eth100/1/7    Eth100/1/6    Eth100/1/5

switch(config-fex)# show interface ethernet 1/21 fex-intf
Fabric          FEX
Interface       Interfaces
-----
Eth1/21         Eth100/1/12   Eth100/1/11   Eth100/1/10   Eth100/1/9

switch(config-fex)# show interface ethernet 1/22 fex-intf
Fabric          FEX
Interface       Interfaces
-----
Eth1/22         Eth100/1/16   Eth100/1/15   Eth100/1/14   Eth100/1/13
```

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.

To redistribute the host interfaces on the Fabric Extender, perform this task:

Command	Purpose
switch# fex pinning redistribute chassis	Redistributes the host connections. The range of the chassis ID is from 100 to 199.

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

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



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

For additional information about configuring the Cisco Nexus B22 Fabric Extender for HP and Cisco Nexus 5000 Series Switches, see the following documentation:

- **Cisco Nexus 2000 Series Fabric Extender Software Configuration Guide**
http://www.cisco.com/en/US/docs/switches/datacenter/nexus2000/sw/configuration/guide/rel_4_0_1a/NX2000CLIConfig.html
- **Cisco Nexus 5000 Series NX-OS Software Configuration Guide**
http://www.cisco.com/en/US/docs/switches/datacenter/nexus5000/sw/configuration/guide/cli_rel_4_0_1a/CLIConfigurationGuide.html

Displaying Fabric Extender Information

This section describes the **show** commands that are available to display the configuration and status of the Fabric Extender and includes the following topics:

- [Displaying Configuration Information, page 13](#)
- [Displaying Chassis Management Information, page 15](#)

Displaying Configuration Information

To display configuration information about the defined interfaces, perform one of these tasks:

Command	Purpose
switch# show fex [<i>chassis</i> [<i>detail</i>]]	Displays information about a specific Fabric Extender or all attached units.
switch# show interface <i>type number</i> fex-intf	Displays the Fabric Extender ports pinned to a specific switch interface.
switch# show interface fex-fabric	Displays the switch interfaces that have detected a Fabric Extender uplink.

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

```
switch(config-fex)# show fex
  FEX      FEX      FEX      FEX
Number  Description  State      Model      Serial
-----
100      FEX0100      Online     N2K-B22HP-P  FOC1516ZZLS
switch(config-fex)#
```

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: 5.0(3)N2(1) [Switch version: 5.0(3)N2(1)]
  FEX Interim version: 5.0(3)N2(0.236)
  Switch Interim version: 5.0(3)N2(0.236)
  Extender Model: N2K-B22HP-P, Extender Serial: FOC1514256S
  Part No: 73-13780-05
  Bay: 2
  Rack: UnnamedRack
  Enclosure: 1Z34AB789012
  Enclosure Serial: USE6401VEX
  Rack Id: Default RUID
```

```

Card Id: 145, Mac Addr: e8:b7:48:4b:e8:82, Num Macs: 64
Module Sw Gen: 21 [Switch Sw Gen: 21]
  post level: complete
pinning-mode: static      Max-links: 4
Fabric port for control traffic: Eth1/19
Fabric interface state:
  Eth1/19 - Interface Up. State: Active
  Eth1/20 - Interface Up. State: Active
  Eth1/21 - Interface Up. State: Active
  Eth1/22 - Interface Up. State: Active
Fex Port      State  Fabric Port
  Eth100/1/1   Up    Eth1/19
  Eth100/1/2   Down  Eth1/19
  Eth100/1/3   Down  Eth1/19
  Eth100/1/4   Down  Eth1/19
  Eth100/1/5   Down  Eth1/20
  Eth100/1/6   Down  Eth1/20
  Eth100/1/7   Down  Eth1/20
  Eth100/1/8   Down  Eth1/20
  Eth100/1/9   Up    Eth1/21
  Eth100/1/10  Down  Eth1/21
  Eth100/1/11  Down  Eth1/21
  Eth100/1/12  Down  Eth1/21
  Eth100/1/13  Down  Eth1/22
  Eth100/1/14  Down  Eth1/22
  Eth100/1/15  Down  Eth1/22
  Eth100/1/16  Down  Eth1/22

Logs:
06/22/2011 21:43:50.260429: Module register received
06/22/2011 21:43:50.261621: Image Version Mismatch
06/22/2011 21:43:50.261906: Registration response sent
06/22/2011 21:43:50.262180: Requesting satellite to download image
06/22/2011 21:47:36.78886: Deleting route to FEX
06/22/2011 21:47:36.83969: Module disconnected
06/22/2011 21:47:36.85724: Module Offline
06/22/2011 21:53:08.757010: Module register received
06/22/2011 21:53:08.758178: Registration response sent
06/22/2011 21:53:09.6227: Module Online Sequence
06/22/2011 21:53:11.736373: Module Online
06/22/2011 22:09:48.190062: Deleting route to FEX
06/22/2011 22:09:48.196995: Module disconnected
06/22/2011 22:09:48.198227: Deleting route to FEX
06/22/2011 22:09:48.203294: Module disconnected
06/22/2011 22:09:48.204160: Offlining Module
06/22/2011 22:09:48.204977: Module Offline Sequence
06/22/2011 22:09:48.527385: Module Offline
06/22/2011 22:10:23.644325: Module register received
06/22/2011 22:10:23.645444: Registration response sent
06/22/2011 22:10:23.864695: Module Online Sequence
06/22/2011 22:10:25.289316: Module Online
    
```

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

```

switch(config-fex)# show interface ethernet 1/19 fex-intf
'Fabric          FEX
Interface        Interfaces
-----
Eth1/19          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(config-fex)# show interface fex-fabric
Fabric          Fabric          Fex          FEX
Fex Port        Port State      Uplink       Model        Serial
    
```

```

-----
100  Eth1/19      Active    1        N2K-B22HP-P  FOC1514256S
100  Eth1/20      Active    2        N2K-B22HP-P  FOC1514256S
100  Eth1/21      Active    3        N2K-B22HP-P  FOC1514256S
100  Eth1/22      Active    4        N2K-B22HP-P  FOC1514256S
switch(config-fex)#

```



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:

```

switch# show interface ethernet 1/40 transceiver
Ethernet1/40
  sfp is present
  name is CISCO-EXCELIGHT
  part number is SPP5101SR-C1
  revision is A
  serial number is ECL120901AV
  nominal bitrate is 10300 Mbits/sec
  Link length supported for 50/125mm fiber is 82 m(s)
  Link length supported for 62.5/125mm fiber is 26 m(s)
  cisco id is --
  cisco extended id number is 4

switch# show interface ethernet 1/40 transceiver fex-fabric
Ethernet1/40
  sfp is present
  name is CISCO-EXCELIGHT
  part number is SPP5101SR-C1
  revision is A
  serial number is ECL120601U0
  nominal bitrate is 10300 Mbits/sec
  Link length supported for 50/125mm fiber is 82 m(s)
  Link length supported for 62.5/125mm fiber is 26 m(s)
  cisco id is --
  cisco extended id number is 4

```



Note

The first **show** command above shows the SFP+ transceiver that is plugged into the parent switch interface. The second **show** command displays the SFP+ transceiver that is plugged into the uplink port on the Fabric Extender.

Displaying Chassis Management Information

To display configuration information used on the switch supervisor to manage the Fabric Extender, perform one of these tasks:

Command	Purpose
switch# show diagnostic result fex chassis	Displays results from the diagnostic test for a Fabric Extender chassis.

Command	Purpose
switch# show inventory fex chassis	Displays inventory information for a Fabric Extender chassis.
switch# show module fex chassis	Displays module information about a Fabric Extender chassis.

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

```
switch(config-fex)# show module fex
FEX Mod Ports Card Type                               Model                               Status.
-----
100 1 16      Fabric Extender 16x10GE + 8x10G Module N2K-B22HP-P      present

FEX Mod Sw                Hw      World-Wide-Name(s) (WWN)
-----
100 1 5.0(3)N2(1)         0.501  --

FEX Mod  MAC-Address(es)                               Serial-Num
-----
100 1    e8b7.484b.e880 to e8b7.484b.e88f          FOC1514256S
switch(config-fex)# show module fex 100
FEX Mod Ports Card Type                               Model                               Status.
-----
100 1 16      Fabric Extender 16x10GE + 8x10G Module N2K-B22HP-P      present

FEX Mod Sw                Hw      World-Wide-Name(s) (WWN)
-----
100 1 5.0(3)N2(1)         0.501  --

FEX Mod  MAC-Address(es)                               Serial-Num
-----
100 1    e8b7.484b.e880 to e8b7.484b.e88f          FOC1514256S
switch(config-fex)#
```

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

```
switch(config-fex)# show inventory fex 100
NAME: "FEX 100 CHASSIS", DESCR: "N2K-B22HP-P CHASSIS"
PID: N2K-B22HP-P      , VID: V00 , SN: FOC1516ZZLS

NAME: "FEX 100 Module 1", DESCR: "Fabric Extender Module: 16x10GE, 8x10GE Supervisor"
PID: N2K-B22HP-P      , VID: V00 , SN: FOC1514256S
switch(config-fex)#
```

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

```
switch(config-fex)# show diagnostic result fex 100
FEX-100: Fabric Extender 16x10GE + 8x10G Module SerialNo : FOC1514256S
Overall Diagnostic Result for FEX-100 : OK

Test results: (. = Pass, F = Fail, U = Untested)
TestPlatform:
0)          SPROM: -----> .
1) Inband interface: -----> .
2)          Fan: -----> .
3) Power Supply: -----> .
4) Temperature Sensor: -----> .
Eth  1  2  3  4  5  6  7  8
Port -----
. . . . .
```



```

Eth    9 10 11 12 13 14 15 16
Port  -----
      . . . . .

TestFabricPorts:
Fabric 1 2 3 4 5 6 7 8
Port  -----
      . . . . .
switch(config-fex)#

```

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

```

switch(config-fex)# show environment fex 100
Temperature Fex 100:
-----
Module   Sensor      MajorThresh  MinorThres  CurTemp  Status
         (Celsius)   (Celsius)   (Celsius)
-----
1        Outlet-1    85           75          39       ok
1        Outlet-2    85           75          48       ok
1        Inlet-1     85           75          36       ok
1        Inlet-2     85           75          27       ok
1        Die-1      110          105         55       ok
switch(config-fex)#

```

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

```

switch(config-fex)# show sprom fex 100 all
DISPLAY FEX 100 SUP sprom contents
Common block:
Block Signature : 0xabab
Block Version   : 3
Block Length    : 160
Block Checksum  : 0x1860
EEPROM Size     : 65535
Block Count     : 3
FRU Major Type  : 0x6002
FRU Minor Type  : 0x0
OEM String      : Cisco Systems, Inc.
Product Number  : N2K-B22HP-P
Serial Number   : FOC1514256S
Part Number     : 73-13780-05
Part Revision   : 02
Mfg Deviation   : 0
H/W Version     : 0.501
Mfg Bits        : 0
Engineer Use    : 0
snmpOID         : 9.12.3.1.9.78.9.0
Power Consump   : 625
RMA Code        : 0-0-0-0
CLEI Code       : COUCAPKCAA
VID             : V00
Supervisor Module specific block:
Block Signature : 0x6002
Block Version   : 2
Block Length    : 103
Block Checksum  : 0x2603
Feature Bits    : 0x0
HW Changes Bits : 0x0
Card Index      : 11048
MAC Addresses   : 00-00-00-00-00-00
Number of MACs  : 0
Number of EPLD : 0

```

```

Port Type-Num      : 1-8
Sensor #1         : 85,75
Sensor #2         : 85,75
Sensor #3         : 85,75
Sensor #4         : 85,75
Sensor #5         : 95,85
Sensor #6         : -128,-128
Sensor #7         : -128,-128
Sensor #8         : -128,-128
Max Connector Power: 625
Cooling Requirement: 8
Ambient Temperature: 40
    
```

DISPLAY FEX 100 backplane sprom contents:

Common block:

```

Block Signature : 0xabab
Block Version   : 3
Block Length    : 160
Block Checksum  : 0x17e8
EEPROM Size    : 65535
Block Count     : 5
    
```

```

FRU Major Type : 0x6001
FRU Minor Type : 0x0
OEM String     : Cisco Systems, Inc.
Product Number : N2K-B22HP-P
Serial Number  : FOC1516ZZLS
Part Number    : 68-4133-02
Part Revision  : 05
Mfg Deviation  : 0
H/W Version    : 0.501
Mfg Bits       : 0
Engineer Use   : 0
snmpOID       : 9.12.3.1.3.1058.0.0
Power Consump  : 0
RMA Code       : 0-0-0-0
CLEI Code      : COUCAPKCAA
VID            : V00
    
```

Chassis specific block:

```

Block Signature : 0x6001
Block Version   : 3
Block Length    : 39
Block Checksum  : 0x465
Feature Bits    : 0x0
HW Changes Bits : 0x0
Stackmib OID    : 0
MAC Addresses   : e8-b7-48-4b-e8-80
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
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 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  : 0x77

```

lic usage bits:

```

00 00 00 00 00 00 00 00

```

DISPLAY FEX 100 UPLINK sprom contents

Common block:

```

Block Signature : 0x0
Block Version   : 0
Block Length    : 0
Block Checksum  : 0x0
EEPROM Size     : 0
Block Count     : 0
FRU Major Type  : 0x0
FRU Minor Type  : 0x0
OEM String      :

```

```

Product Number :
Serial Number  :
Part Number    :
Part Revision   :
Mfg Deviation  :
H/W Version    : 0.0
Mfg Bits       : 0
Engineer Use   : 0
snmpOID        : 0.0.0.0.0.0.0.0
Power Consump  : 0
RMA Code       : 0-0-0-0
CLEI Code      :
VID            : V00

```

Supervisor Module specific block:

```

Block Signature : 0x0
Block Version   : 0
Block Length    : 0
Block Checksum  : 0x0
Feature Bits    : 0x0

```

```

HW Changes Bits : 0x0
Card Index      : 0
MAC Addresses   : 00-00-00-00-00-00
Number of MACs  : 0
Number of EPLD  : 0
Port Type-Num   : 0-0
Sensor #1       : 0,0
Sensor #2       : 0,0
Sensor #3       : 0,0
Sensor #4       : 0,0
Sensor #5       : 0,0
Sensor #6       : 0,0
Sensor #7       : 0,0
Sensor #8       : 0,0
Max Connector Power: 0
Cooling Requirement: 0
Ambient Temperature: 0
switch(config-fex)#
switch(config-fex)#
switch(config-fex)#
switch(config-fex)#
switch(config-fex)#
switch(config-fex)#
switch(config-fex)#
switch(config-fex)#

```

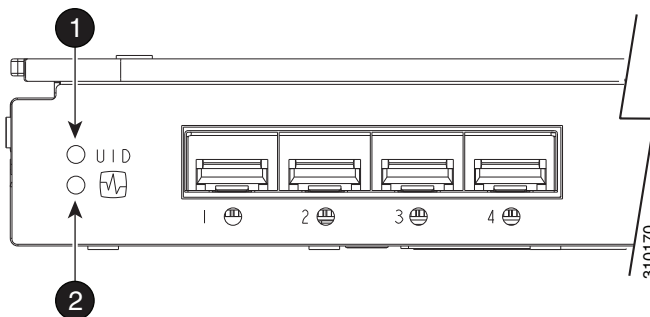
Verifying the Configuration

The Onboard Administrator (OA) is the management module used to support and manage the HP BladeSystem c-Class enclosure or the HP Integrity Superdome 2 and all the devices used in the enclosure. The Onboard Administrator (OA) is the management module used to support and manage the HP BladeSystem c-Class and HP Integrity Superdome 2 enclosures along with all the devices used in the enclosure. Once the switch is installed in the interconnect bay, the OA verifies that the switch type matches the mezzanine cards present on the server blades. If there is no mismatch, the OA powers on the switch. If the switch does not power on, check the enclosure and switch status using the OA web interface. For more information and troubleshooting tips, see the *HP BladeSystem Onboard Administrator User Guide* or the *HP Integrity Superdome 2 Onboard Administrator User Guide*.

To verify the configuration,

1. Locate the LEDs. See [Figure 6](#).

Figure 6 Identifying LEDs



1	UID LED
2	Health LED

2. Check the LEDs and refer to the indicators described in the following table.

Item	Description	Indicators
1	UID LED—Helps the user locate a specific module in the BladeSystem, such as for replacement.	Off
2	Health LED—Indicates normal operation.	Steady green light

**Note**

You need an OA version of 3.3.

**Note**

For HP Integrity Superdome 2, the minimum F/W bundle is 2.51.102

Additional Information

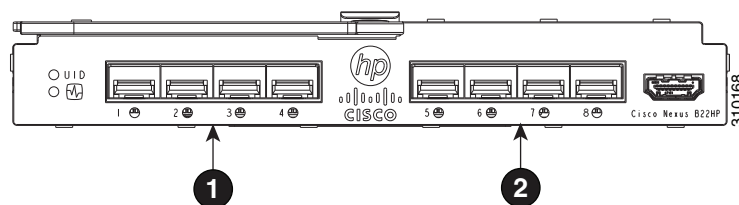
For more information on the association between the server mezzanine bays and the enclosure interconnect bays, see the setup and installation guide provided with your enclosure. For more information see the HP websites:

- <http://www.hp.com/go/bladesystem/interconnects>
- <http://www.hp.com/go/bladesystem/documentation>
- http://www.hp.com/go/Integrity_Servers-docs

The location where you install the mezzanine card determines where you need to install the interconnect modules such as the Cisco Nexus B22 Fabric Extender for HP.

Figure 7 shows the external ports for the Cisco Nexus B22 Fabric Extender for HP.

Figure 7 External Ports



1	External ports 1, 2, 3, and 4
2	External ports 5, 6, 7, and 8

**Note**

For specific information about the Bladesystem enclosure internal port mapping, see the setup and installation guide provided with the enclosure.

Related Documentation

Documentation for Cisco Nexus 5000 Series Switches and Cisco Nexus 2000 Series Fabric Extenders is available at the following URL:

http://www.cisco.com/en/US/products/ps9670/tsd_products_support_series_home.html

Installation documentation for the HP BladeSystem is available at:

<http://h18004.www1.hp.com/products/blades/components/c-class-tech-installing.html>

Documentation for HP Integrity Superdome 2:

<http://h20000.www2.hp.com/bizsupport/TechSupport/DocumentIndex.jsp?lang=en&cc=us&taskId=101&prodClassId=-1&contentType=SupportManual&docIndexId=64255&prodTypeId=15351&prodSeriesId=4311905>

Technical Support

Technical support for the Cisco Nexus B22 Fabric Extender for HP can be obtained from either Cisco or Hewlett Packard. This topic includes the following sections:

- [For Hewlett Packard Support, page 22](#)
- [For Cisco Support, page 22](#)

For Hewlett Packard Support

For hardware replacement under warranty, contact Hewlett Packard.

In the United States, for contact options see the [Contact HP United States](#) webpage. To contact HP by phone:

- Call 1-800-HP-INVENT (1-800-474-6836). This service is available 24 hours a day, 7 days a week. For continuous quality improvement, calls may be recorded or monitored.
- If you have purchased a Care Pack (service upgrade), call 1-800-633-3600. For more information about Care Packs, refer to the [HP website](#).

In other locations or for the name of the nearest HP authorized reseller, see the [Contact HP worldwide \(in English\) webpage](#).

For Cisco Support

For configuration or troubleshooting assistance, the Cisco Nexus B22 Fabric Extender for HP is covered under the Cisco support contract of the parent Cisco Nexus switch.

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

Subscribe to the *What's New in Cisco Product Documentation* as an RSS feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service. Cisco currently supports RSS Version 2.0.

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