



Cisco Nexus B22 Fabric Extender for Dell Getting Started Guide

This Getting Started Guide describes the Cisco Nexus B22 Fabric Extender for Dell and how to start using it. This Getting Started Guide includes the following sections:

- [Information about the Cisco Nexus B22 Fabric Extender for Dell, page 1](#)
- [Shipping Box Contents, page 2](#)
- [Dell Blade System Architecture, page 4](#)
- [Installing the Cisco Nexus B22 Fabric Extender for Dell, page 7](#)
- [Updating NX-OS, page 8](#)
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Information about the Cisco Nexus B22 Fabric Extender for Dell

The Cisco Nexus B22 Fabric Extender for Dell provides an extension of the Cisco Nexus switch fabric to the Dell blade servers.

The Cisco Nexus B22 Fabric Extenders behave as remote line cards for a parent Cisco Nexus 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. The Cisco Nexus B22 Fabric Extender for Dell support is limited to the Cisco Nexus 5500 series of switches.

Each Cisco Nexus B22 Fabric Extender connects via 10-Gigabit Ethernet for 16 servers within a Dell BladeEnclosure and contains 8 10-Gigabit Ethernet fabric uplinks towards the parent Cisco Nexus switch. Multiple low cost options are available for fabric connections between the Cisco Nexus B22 and the parent Cisco Nexus switch. Low-cost connections up to 10 meters can be made with copper Twin-ax cables, and longer connections up to 100 meters can use the Fabric Extender Transceiver. Other standard 10 Gigabit Ethernet optics such as 10GBASE-SR, 10GBASE-LR, and 10GBASE-ER are also supported for these fabric connections.



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The Cisco Nexus B22 Fabric Extender for Dell has the following features:

- Sixteen internal 10-Gigabit Ethernet KR ports to the blade servers
- Eight External 10-Gigabit Ethernet SFP+ ports
- One Bicolor LED (Green/Amber) for external up link ports and no LED's for internal ports.
- Thermal monitoring
- Thermal management provided by the M1000e Blade Enclosure
- Hot pluggable
- 12V power from chassis

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/ps10110/tsd_products_support_series_home.html
- <http://support.dell.com/support/edocs/systems/pem/en/index.htm>

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

Shipping Box Contents

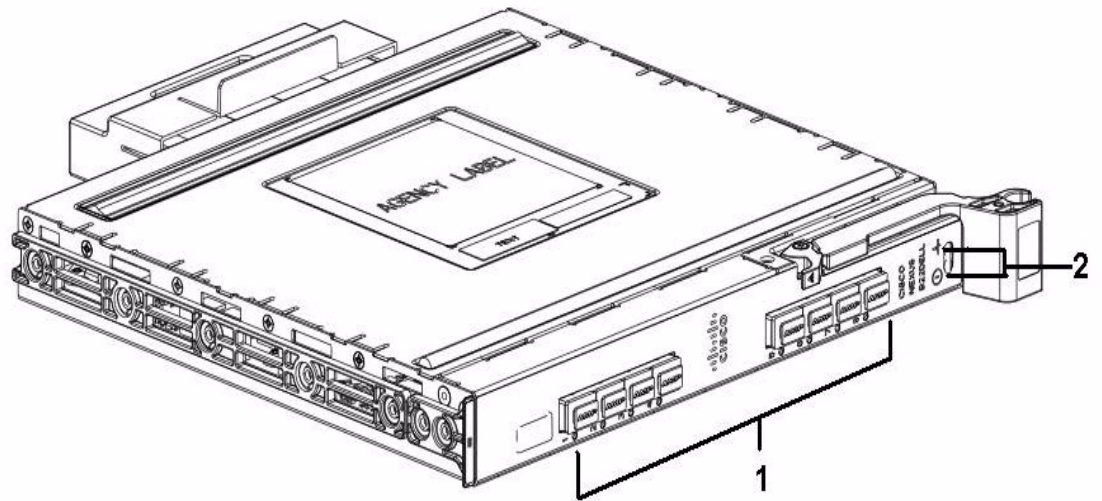
The Cisco Nexus B22 Fabric Extender for Dell shipping box contains:

- Cisco Nexus B22 Fabric Extender for Dell, with 16 internal host ports and 8 external network ports.

The shipping box is available with or without the Fabric Extender Transceiver (FET). The product ID of the bundle with the Cisco Nexus B22 Fabric Extender and the Fabric Extender Transceiver is N2K-B22DELL-F (Dell part number 4PTY0) and contains 16 Fabric Extender Transceivers.

[Figure 1](#) shows the Cisco Nexus B22 Fabric Extender for Dell.

Figure 1 Cisco Nexus B22 Fabric Extender for Dell

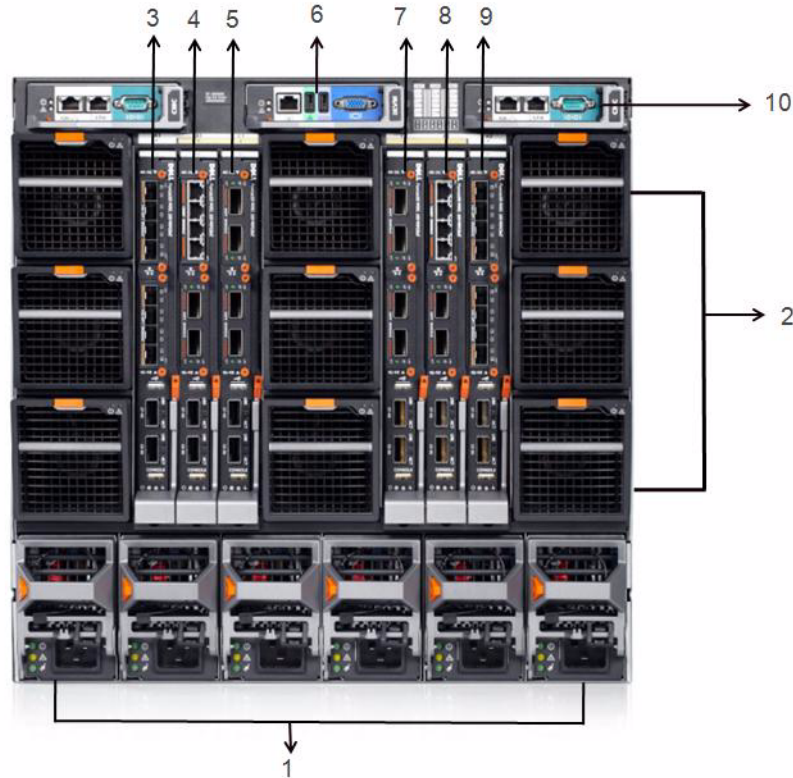


1 Eight External 10-Gigabit SFP+ ports	2 Power LED (Left) and Health (LED Right)
-----------------------------------------------	--------------------------------------------------

Dell Blade System Architecture

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

Figure 2 Rear View of the Blade Chassis



1	Power Supply Units	6	iKVM
2	Fan Units	7	Fabric C2 (This is C2 IOM position)
3	Fabric A1 (This is A1 IOM position)	8	Fabric B2 (This is B2 IOM position)
4	Fabric B1 (This is B1 IOM position)	9	Fabric A2 (This is A2 IOM position)
5	Fabric C1 (This is C1 IOM position)	10	Chassis Management Controller (CMC) (located at the top left and right corner of blade chassis)

Consider these prerequisites before you install the switch module:

- Fill any unoccupied interconnect bays or any unoccupied power module bays in the blade chassis with blanks.
- The switch module should be installed into the I/O slot that corresponds to the I/O fabric (A, B, or C) where a 10GE KR Ethernet Adapter, or 10GE Converged Network Adapter (CNA), within the blade server, is appropriately installed. The Chassis Management Controller (CMC) GUI can

be used to view the location of network adapters installed in the Blade servers. Browse to the CMC IP address and login, then under **Server Overview**, click on the servers to determine which I/O fabric contains the 10GE adapters.

- For complete instructions for installing a switch module into the blade server enclosure, refer to the section on installing an I/O module in the *Dell PowerEdge M1000e Enclosure Owner's Manual*.
- See the Dell documentation for information on the port mapping between the blade chassis and the switch modules.

M1000e I/O Module Port Mapping

Full-Height Blades

Full height blades support up to 2 LOM or bNDC adapters, with at least 2 port connections each.

For a full-height blade in bay n:

- Adapter1, port 1 connects to I/O module A1, port n.
- Adapter1, port 2 connects to I/O module A2, port n.
- Adapter2, port 1 connects to I/O module A1, port n+8.
- Adapter2, port 2 connects to I/O module A2, port n+8.

Full-height blades support four mezzanine cards, with 2 port connections each:

- Slot Mezz1_Fabric_C supports Fabric C
 - Mezz1 Port 1 to I/O Module C1, port n
 - Mezz1 Port 2 to I/O Module C2, port n
- Slot Mezz2_Fabric_B supports Fabric B, port n.
 - Mezz2 Port 1 to I/O Module B1, port n
 - Mezz2 Port 2 to I/O Module B2, port n
- Slot Mezz3_Fabric_C supports Fabric C, port n+8.
 - Mezz3 Port 1 to I/O Module C1, port n+8
 - Mezz3 Port 2 to I/O Module C2, port n+8
- Slot Mezz4_Fabric_B supports Fabric B, port n+8.
 - Mezz4 Port 1 to I/O Module B1, port n+8
 - Mezz4 Port 2 to I/O Module B2, port n+8

Mezzanine card type must match the fabric type of the I/O modules installed in corresponding I/O module slots.

Half-Height Blades

Half-height blades support a LOM or bNDC adapter, with at least 2 port connections.

For a half-height blade in bay n:

- Adapter port 1 connects to I/O module A1, port n.

- Adapter port 2 connects to I/O module A2, port n.

Half-height blades support two mezzanine cards:

- Slot Mezz1_Fabric_C supports Fabric C
 - Mezz1 Port 1 to I/O Module C1, port n
 - Mezz1 Port 2 to I/O Module C2, port n
- Slot Mezz2_Fabric_B supports Fabric B, port n.
 - Mezz2 Port 1 to I/O Module B1, port n
 - Mezz2 Port 2 to I/O Module B2, port n

Mezzanine card type must match the fabric type of the I/O modules installed in corresponding I/O module slots.

Quarter-Height Blades

Quarter-height blades, 4 within a sleeve (Blade a, b, c and d), each support a LOM, with 2 port connections (the second port connection is only available to I/O modules with 32 ports).

I/O modules with 16 internal ports require populating both A1 and A2 in order to connect to all Quarter Height Blade positions within a sleeve.

For a full height sleeve in enclosure slot n(n=1-8):

- Blade a LOM port 1 connects to I/O module A1, port n.
- Blade b LOM port 1 connects to I/O module A2, port n.
- Blade c LOM port 1 connects to I/O module A1, port (n+8).
- Blade d LOM port 1 connects to I/O module A2, port (n+8).

Second adapter port requires a 32 port I/O Module:

- Blade a LOM port 2 connects to I/O module A2, port (n+16).
- Blade b LOM port 2 connects to I/O module A1, port (n+16).
- Blade c LOM port 2 connects to I/O module A2, port (n+24).
- Blade d LOM port 2 connects to I/O module A1, port (n+24).

A quarter-height blade supports a single mezzanine card slot:

The mezzanine card slot Fabric supported (B or C) depends on the position in the sleeve where the blade is installed. Each mezzanine card has two port connections. Population of four cards (B1, B2, C1, C2) will provide dual connections to all 32 quarter height servers.

For a full height sleeve in enclosure slot n(n= 1 -8):

- Blade a Mezzanine card supports Fabric C
 - Mezz Port 1 to I/O Module C1, port n
 - Mezz Port 2 to I/O Module C2, port n
- Blade b Mezzanine card supports Fabric B
 - Mezz Port 1 to I/O Module B1, port n
 - Mezz Port 2 to I/O Module B2, port n
- Blade c Mezzanine card supports Fabric C
 - Mezz Port 1 to I/O Module C1, port n+8

Mezz Port 2 to I/O Module C2, port n+8

- Blade d Mezzanine card supports Fabric B

Mezz Port 1 to I/O Module B1, port n+8



Mezz Port 2 to I/O Module B2, port n+8

Mezzanine card type must match the fabric type of the I/O modules installed in corresponding I/O module slots.

Dell FEX LEDs

Table 1 shows the description of the Dell FEX LEDs:

Table 1 IOM Dell Defined LED behavior Chart

Module State	Power LED (Green) 	Health LED (Blue/Amber) 
Module Off	OFF	OFF
Boot in Progress	ON	OFF
Normal Boot (No faults)	ON	ON Blue
IOM Fault (Self -Diagnosed)	ON	Blink (1Hz) Amber
IOM Fault (Misconfiguration or other CMC detected fault)	OFF	Blink (1Hz) Amber
Module Identify (Activated from CMC)	ON	Blink (1Hz) Blue

Installing the Cisco Nexus B22 Fabric Extender for Dell



Caution

Properly ground yourself before handling the Fabric Extender.

Populate all the chassis interconnect bays with a fabric blade or one of the blank panels provided with the chassis.

To install the Cisco Nexus B22 Fabric Extender for Dell in the chassis:

1. Locate the appropriate interconnect bay at the rear of the chassis. See the setup and installation guide provided with the chassis.
2. Press the handle latch to release the handle.

**Note**

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

3. Align the Cisco Nexus B22 Fabric Extender for Dell with the appropriate interconnect bay, according to the specific configuration for the chassis. Push the switch firmly into the interconnect bay.
4. Press the installation handle into the latch to lock the switch into place.
5. Connect the cables.
6. Configure the parent Cisco Nexus switch to recognize and boot up the Cisco Nexus B22 Fabric Extender for Dell.

Updating NX-OS

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

**Note**

The minimum version of NX-OS is 5.2(1)N1(3)
The minimum CMC firmware versions is:
M1000e CMC Firmware Version 4.3

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

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

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

The Cisco Nexus B22 Fabric Extender for Dell is managed by its parent Cisco Nexus 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 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 parent Cisco Nexus 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 the parent Cisco Nexus switches and the Cisco Nexus B22 Fabric Extender for Dell. The command provides the following benefits:

- You can upgrade the parent Cisco Nexus switches and the Cisco Nexus B22 Fabric Extender for Dell 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 Dell

This section describes how to configure a Cisco Nexus B22 Fabric Extender for Dell with a Cisco Nexus 5500 series switch and includes the following sections:

- [Associating a Fabric Extender to a Fabric Interface, page 9](#)
- [Configuring the Fabric Extender, page 12](#)
- [Redistributing the Links, page 12](#)
- [Displaying Fabric Extender Information, page 14](#)

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 10](#)
- [Associating a Fabric Extender to an EtherChannel, page 10](#)
- [Disassociating a Fabric Extender from an Interface, page 11](#)

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 FEX Number	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 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 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 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 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	<code>switch# configure terminal</code>	Enters configuration mode.
Step 2	<code>switch(config)# fex FEX Number</code>	Enters configuration mode for the specified Fabric Extender FEX Number. The range of the FEX Number is from 100 to 199.
Step 3	<code>switch(config-fex)# description desc</code>	Specifies the description. The default is the string FEXxxx where xxx is the FEX Number. If the FEX Number 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 8. 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 FEX Number 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.



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.



Note The ports are distributed across the number specified in the pinning max-links section. So if you only have 4 uplinks, you do not want to have max 8 since it will leave half your internal ports unmapped.

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 <i>FEX Number</i>	Redistributes 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
```



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 Dell and parent Cisco Nexus Switches, see the following documentation:

- **Cisco Nexus 2000 Series Fabric Extender Software Configuration Guide**
http://www.cisco.com/en/US/products/ps10110/tsd_products_support_configure.html
- **Cisco Nexus 5000 Series NX-OS Software Configuration Guide**
http://www.cisco.com/en/US/products/ps9670/tsd_products_support_configure.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 14](#)
- [Displaying Chassis Management Information, page 16](#)

Displaying Configuration Information

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

Command	Purpose
switch# show fex [<i>FEX Number</i>] [detail]	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-B22DELL-P  FOC1516ZZLS
switch(config-fex)#
```

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

```
N5596-2-Dell# show fex 160 detail
FEX: 160 Description: FEX0160 state: Online
  FEX version: 5.2(1)N1(3) [Switch version: 5.2(1)N1(3)]
  FEX Interim version: 5.2(1)N1(3)
  Switch Interim version: 5.2(1)N1(3)
  Extender Serial: FOC1625R0JK
  Extender Model: N2K-B22DELL-P, Part No: 73-14668-02
```

```

Bay: A2
Enclosure: Dell M1000e Slot A2
Service Tag:
Card Id: 210, Mac Addr: 0c:d9:96:a2:07:02, Num Macs: 64
Module Sw Gen: 21 [Switch Sw Gen: 21]
post level: complete
Pinning-mode: static      Max-links: 1
Fabric port for control traffic: Eth1/1
FCoE Admin: false
FCoE Oper: true
FCoE FEX AA Configured: false
Fabric interface state:
  Eth1/1 - Interface Up. State: Active
Fex Port      State  Fabric Port
  Eth160/1/1  Down   Eth1/1
  Eth160/1/2  Down   Eth1/1
  Eth160/1/3  Down   Eth1/1
  Eth160/1/4  Down   Eth1/1
  Eth160/1/5  Down   Eth1/1
  Eth160/1/6  Down   Eth1/1
  Eth160/1/7  Down   Eth1/1
  Eth160/1/8  Down   Eth1/1
  Eth160/1/9  Down   Eth1/1
  Eth160/1/10 Down   Eth1/1
  Eth160/1/11 Down   Eth1/1
  Eth160/1/12 Down   Eth1/1
  Eth160/1/13 Down   Eth1/1
  Eth160/1/14 Down   Eth1/1
  Eth160/1/15 Down   Eth1/1
  Eth160/1/16 Down   Eth1/1

Logs:
11/13/2012 11:16:24.279906: Module register received
11/13/2012 11:16:24.280679: Image Version Mismatch
11/13/2012 11:16:24.281110: Registration response sent
11/13/2012 11:16:24.281275: Requesting satellite to download image
11/13/2012 11:20:30.369615: Image preload successful.
11/13/2012 11:20:31.488788: Deleting route to FEX
11/13/2012 11:20:31.520840: Module disconnected
11/13/2012 11:20:31.521393: Module Offline
11/13/2012 11:22:02.719250: Module register received
11/13/2012 11:22:02.720395: Registration response sent
11/13/2012 11:22:03.42785: Module Online Sequence
11/13/2012 11:22:04.622252: Module Online
N5596-2-Dell#

```

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-B22DELL-P FOC1514256S
100 Eth1/20        Active      2 N2K-B22DELL-P FOC1514256S
100 Eth1/21        Active      3 N2K-B22DELL-P FOC1514256S
100 Eth1/22        Active      4 N2K-B22DELL-P FOC1514256S
switch(config-fex)#

```



Note

The above example shows a Fabric Extender with four uplink connections.

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 <i>FEX Number</i>	Displays results from the diagnostic test for a Fabric Extender.
switch# show inventory fex <i>FEX Number</i>	Displays inventory information for a Fabric Extender.
switch# show module fex <i>FEX Number</i>	Displays module information about a Fabric Extender.

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

```
N5596-2-Dell# show module fex
FEX Mod Ports Card Type Model Status
-----
160 1 16 Fabric Extender 16x10GE + 8x10G Module N2K-B22DELL-P present
```



```

FEX Mod Sw          Hw          World-Wide-Name(s) (WWN)
-----
160 1    5.2(1)N1(3)    0.203    --

FEX Mod  MAC-Address(es)          Serial-Num
-----
160 1    0cd9.96a2.0700 to 0cd9.96a2.070f    FOC1625R0JK
N5596-2-Dell#
N5596-2-Dell#
N5596-2-Dell#
N5596-2-Dell# show module fex 160
FEX Mod Ports Card Type          Model          Status
-----
160 1    16    Fabric Extender 16x10GE + 8x10G Module  N2K-B22DELL-P    present

FEX Mod Sw          Hw          World-Wide-Name(s) (WWN)
-----
160 1    5.2(1)N1(3)    0.203    --

FEX Mod  MAC-Address(es)          Serial-Num
-----
160 1    0cd9.96a2.0700 to 0cd9.96a2.070f    FOC1625R0JK
N5596-2-Dell#
N5596-2-Dell#

```

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-B22DELL-P CHASSIS"
PID: N2K-B22DELL-P , VID: V00 , SN: FOC1613R0UP

NAME: "FEX 100 Module 1", DESCR: "Fabric Extender Module: 16x10GE, 8x10GE Supervisor"
PID: N2K-B22DELL-P , VID: V00 , SN: FOC16125KR8
switch(config-fex)#

```

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

```

N5596-2-Dell# show diagnostic result fex 160
FEX-160: Fabric Extender 16x10GE + 8x10G Module  SerialNo    : FOC1625R0JK
Overall Diagnostic Result for FEX-160    : 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 -----
. . . . .
N5596-2-Dell#

```

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

```
N5596-2-Dell# show environment fex 132

Temperature Fex 132:
-----
Module   Sensor      MajorThresh  MinorThres  CurTemp     Status
          (Celsius)   (Celsius)   (Celsius)
-----
1        Die-1       110         105         52          ok

N5596-2-Dell#
```

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

```
N5596-2-Dell# show sptom fex 160 all
DISPLAY FEX 160 SUP sptom contents
Common block:
Block Signature : 0xabab
Block Version   : 3
Block Length    : 160
Block Checksum  : 0x1834
EEPROM Size     : 65535
Block Count     : 3
FRU Major Type  : 0x6002
FRU Minor Type  : 0x0
OEM String      : Cisco Systems, Inc.
Product Number  : N2K-B22DELL-P
Serial Number   : FOC162511NQ
Part Number     : 73-14668-02
Part Revision   : 04
Mfg Deviation   : 0
H/W Version     : 0.203
Mfg Bits        : 0
Engineer Use    : 0
snmpOID         : 9.12.3.1.9.78.14.0
Power Consump   : 625
RMA Code        : 0-0-0-0
CLEI Code       : Cxxxx
VID             : V00
Supervisor Module specific block:
Block Signature : 0x6002
Block Version   : 2
Block Length    : 103
Block Checksum  : 0x27e9
Feature Bits    : 0x0
HW Changes Bits : 0x0
Card Index      : 11074
MAC Addresses   : 00-00-00-00-00-00
Number of MACs  : 0
Number of EPLD : 0
Port Type-Num   : 1-8
Sensor #1       : -128,-128
Sensor #2       : -128,-128
Sensor #3       : -128,-128
Sensor #4       : -128,-128
Sensor #5       : -128,-128
Sensor #6       : -128,-128
Sensor #7       : -128,-128
Sensor #8       : -128,-128
Max Connector Power: 625
Cooling Requirement: 8
Ambient Temperature: 40
```

DISPLAY FEX 160 backplane sprom contents:

Common block:

Block Signature : 0xabab
 Block Version : 3
 Block Length : 160
 Block Checksum : 0x19e7
 EEPROM Size : 65535
 Block Count : 5

FRU Major Type : 0x6001
 FRU Minor Type : 0x0
 OEM String : Cisco Systems, Inc.
 Product Number : N2K-B22DELL-P
 Serial Number : FOC1625R0JK
 Part Number : 68-4555-01
 Part Revision : 09
 Mfg Deviation : 0x00000
 H/W Version : 0.203
 Mfg Bits : 0
 Engineer Use : 0
 snmpOID : 9.12.3.1.3.1211.0.0
 Power Consump : 0
 RMA Code : 0-0-0-0
 CLEI Code : Cxxxxx
 VID : V00

Chassis specific block:

Block Signature : 0x6001
 Block Version : 3
 Block Length : 39
 Block Checksum : 0x2ef
 Feature Bits : 0x0
 HW Changes Bits : 0x0
 Stackmib OID : 0
 MAC Addresses : 0c-d9-96-a2-07-00
 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
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 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 160 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
N5596-2-Dell#

Additional Information

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

- Dell PowerEdge M1000e Enclosure Owners Manual.

<http://support.dell.com/support/edocs/systems/pem/en/index.htm>

The location where you install the mezzanine card determines where you need to install the connection blades such as the Cisco Nexus B22 Fabric Extender for Dell.



Note

For specific information about the Blade system chassis internal port mapping, see the setup and installation guide provided with the FEX.

Related Documentation

Documentation for Cisco Nexus 5500 Series Switches is available at the following URL:

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

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

http://www.cisco.com/en/US/products/ps10110/tsd_products_support_series_home.html

Information about the Dell BladeServers is available at:

http://www.dell.com/us/business/p/poweredge-m1000e/pd?refid=pedge_m1000e&baynote_bnrnk=0&baynote_irrnk=0&~ck=baynoteSearch&isredir=true

Technical Support

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

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

For Dell Support

For hardware replacement under warranty, contact Dell.

For support information, see the Dell support and downloads page at:

<http://support.dell.com/support/index.aspx?~ck=pn>

Dell offers country specific support. Use the country selector on the Dell support and downloads page to find support or contact information.

For contact options in the United States, see

http://support.dell.com/support/topics/global.aspx/support/dellcare/contact_technical_support?c=us&l=en&s=gen

To contact Dell by phone call 1-800-822-8965. This service is available 24 hours a day, 7 days a week. For continuous quality improvement, calls may be recorded or monitored.

For Cisco Support

For configuration or troubleshooting assistance, the Cisco Nexus B22 Fabric Extender for Dell 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>

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