Connecting 1- and 2-Port Fast Ethernet High-Speed WAN Interface Cards to the Network

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This guide describes how to connect Cisco 1- and 2-Port Fast Ethernet high-speed WAN interface cards (HWICs) to your network. It contains the following sections:

Cisco 1- and 2-Port Fast Ethernet HWICs

The Cisco Fast Ethernet HWICs are single-wide interface cards, available as a 1-port HWIC (HWIC-1FE) and as a 2-port HWIC (HWIC-2FE), that provide Cisco modular and integrated services routers with additional line-rate Layer 3 routed ports. (See the "Fast Ethernet HWICs Supported Platforms" section on page 2.)

Fast Ethernet HWICs Standards

The Fast Ethernet HWICs are designed in accordance with IEEE 802.3 10BASE-T Ethernet and IEEE 802.3u 100BASE-TX Fast Ethernet standards.

The following IEEE standards are also supported:

- 802.1p

- 802.1u

- 802.1x

Fast Ethernet HWICs Restrictions

The following features are *not supported* on the Fast Ethernet HWICs:

- Cisco Interswitch Link (ISL) tagging

- Connectivity fault management (CFM)
- Flow control
- Online insertion and removal (OIR)

Fast Ethernet HWICs Supported Platforms

Install the Fast Ethernet HWICs in the following Cisco routers:

- Cisco 1841 integrated services router
- Cisco 2800 series integrated services routers
- Cisco 3800 series integrated services routers

Note Insert Fast Ethernet HWICs into HWIC slots only. They do not fit into WIC/VIC slots.

Table 1 shows the maxmum number of each type of HWIC that may be installed, the slot locations, and slot numbering for each platform.

For information about HWIC slot locations on each router, see the "Interface Card Slot Locations and Numbering on Cisco Access Routers" section of the *Cisco Interface Cards for Cisco Access Routers* guide located at:

http://www.cisco.com/en/US/docs/routers/access/interfaces/ic/hardware/installation/guide/oview_ic.html

Table 1   Supported Platforms for Fast Ethernet HWICs

Chassis	HWIC-1FE	HWIC-2FE	HWIC slots
Cisco 1841	1 may be installed	1 may be installed[1]	Slot 0 and slot 1
Cisco 2801	1 to 2 may be installed	1 may be installed[1]	Slot 1 and slot 3 support HWICs
Cisco 2811	1 to 2 may be installed	1 may be installed[1]	Slot 0 to slot 3
Cisco 2821	1 to 2 may be installed	1 may be installed[1]	Slot 0 to slot 3
Cisco 2851	1 to 2 may be installed	1 may be installed[1]	Slot 0 to slot 3
Cisco 3825	1 to 4 may be installed	1 to 2 may be installed	Slot 0 to slot 3
Cisco 3845	1 to 4 may be installed	1 to 2 may be installed	Slot 0 to slot 3

1. Requires Cisco IOS Release 12.4(24)T or later.

Fast Ethernet HWICs Port Numbering

Port numbers identify the interfaces on the modules and interface cards installed in the router. Modules and interface cards are identified by three digits: slot number/subslot number/port number.

For example, HWIC port 0 in HWIC subslot 1 of router slot 0 is represented as:

```
interface FastEthernet 0/1/0
```

Fast Ethernet HWICs LEDs

The Fast Ethernet HWICs use three LEDs per port to indicate full- or half-duplex operation, collisions, speed, transmit/receive activity, and link status. Figure 1 and Figure 2 show the HWIC-1FE and HWIC-2FE faceplates, and Table 2 describes the functions of the LEDs.
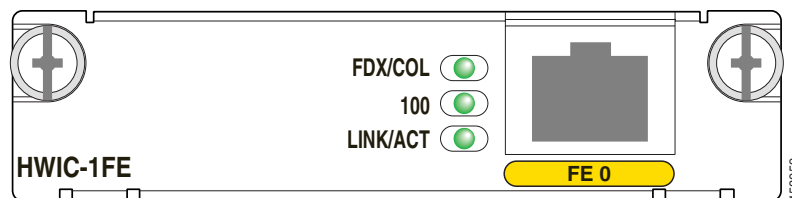
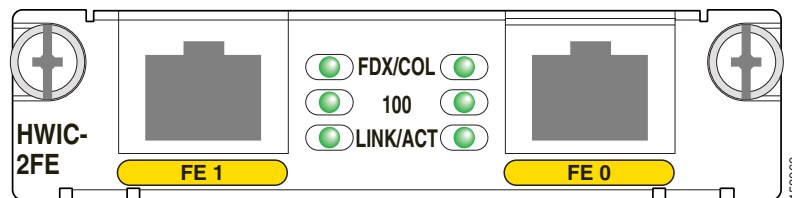*Figure 1   HWIC-1FE Faceplate*

Figure 2   HWIC-2FE Faceplate

Table 2   Fast Ethernet HWIC LEDs

LED	Meaning	States
FDX/COL	Duplex/Collision	On = Full-duplex
		Off = Half-duplex
		Blinking = Collision activity
100	Speed	On = 100 Mbps
		Off = 10 Mbps
LNK/ACT	Link Status	On = Link pulses detected
		Off = No link pulses detected
		Blinking = Transmit or receive activity

Connecting Fast Ethernet HWICs to a Network

To connect a Fast Ethernet HWIC to the network, do the following procedure:

Step 1   Confirm that the router is powered down.

⚠
Warning   **To comply with the Telcordia GR-1089 NEBS standard for electromagnetic compatibility and safety, connect the HWIC-1FE and HWIC-2FE interface cards only to intra-building or unexposed wiring or cable. The intrabuilding cable must be shielded and the shield must be grounded at both ends. The intra-building port(s) of the equipment or subassembly must not be metallically connected to interfaces that connect to the OSP or its wiring. These interfaces are designed for use as intra-building interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE, Issue 4) and require isolation from the exposed OSP cabling. The addition of Primary Protectors is not sufficient protection in order to connect these interfaces metallically to OSP wiring.**

Step 2   Insert the Fast Ethernet HWIC into an HWIC slot on the router. (See *Installing Cisco Interface Cards in Cisco Access Routers*.)

✎
Note   Insert Fast Ethernet HWICs into HWIC slots only. They do not fit into WIC/VIC slots.

Step 3   Using the appropriate cables, connect the HWIC to your system.

⚠
Caution   To comply with the Telcordia GR-1089 NEBS standard for electromagnetic compatibility and safety, connect the 1-port HWIC (HWIC-1FE) and 2-port HWIC (HWIC-2FE) only to intrabuilding or nonexposed wiring or cabling.

- For 10BASE-T operation, Category 3, 4, or 5 UTP cable may be used, for distances of up to 328 feet (100 meters).
- For 100BASE-TX operation, Category 5 UTP cable is required, for distances of up to 328 feet (100 meters).
- The HWICs support Auto-MDIX, so either straight-through or crossover cable can be used.

Step 4   Power up the router.

Related Documents

For additional information, see the following documents and resources.

Related Topic	Document Title
Regulatory compliance and safety information	*Cisco Network Modules and Interface Cards Regulatory Compliance and Safety Information* http://www.cisco.com/en/US/docs/routers/access/interfaces/rcsi/IOHrcsi.html
Cisco IOS software website and reference documentation	*Cisco IOS Software* http://www.cisco.com/web/psa/products/index.html?c=268438303

Obtaining Documentation, Obtaining Support, and Security Guidelines

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, 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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