Doc. No. 78-3637-01

WAN Card Slot Network Module Configuration Note

Product Numbers:
NM-1E2W, NM-2E2W, NM-1E1R2W

CPANM-1E2W, CPANM-2E2W, CPANM-1E1R2W

This document provides information about the following network modules for the Cisco 3600 series of modular access routers:

- 1-Ethernet 2-WAN card slot network module, Cisco product number NM-1E2W or CPANM-1E2W. (See Figure 1.) This module will also be referred to as the 1E 2-slot network module.
- 2-Ethernet 2-WAN card slot network module, Cisco product number NM-2E2W or CPANM-2E2W. (See Figure 2.) This module will also be referred to as the 2E 2-slot network module.
- 1-Ethernet 1-Token Ring 2-WAN card slot network module, Cisco product number NM-1E1R2W or CPANM-1E1R2W. (See Figure 3.) This module will also be referred to as the 1E1R 2-slot network module.

Unless specifically identified, references to 2-slot network modules in this configuration note and other publications include all three network modules.

Each 2-slot network module provides one or two LAN interfaces, plus two slots for optional WAN interface cards. For information on WAN interface cards, see the card's configuration note.

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Figure 1 1-Ethernet 2-WAN Card Slot Network Module

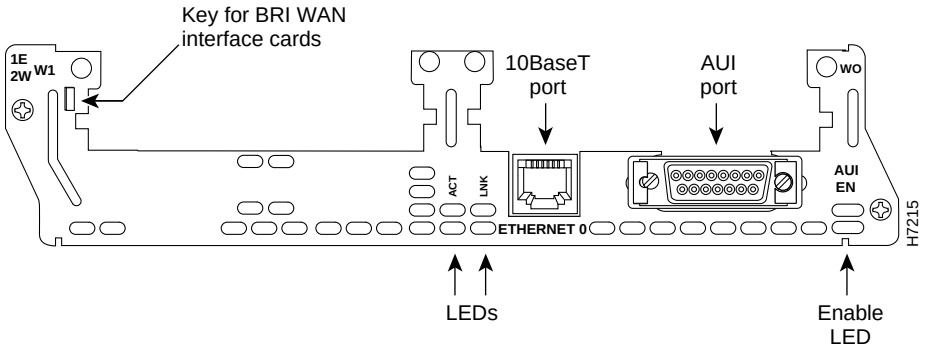


Figure 2 2-Ethernet 2-WAN Card Slot Network Module

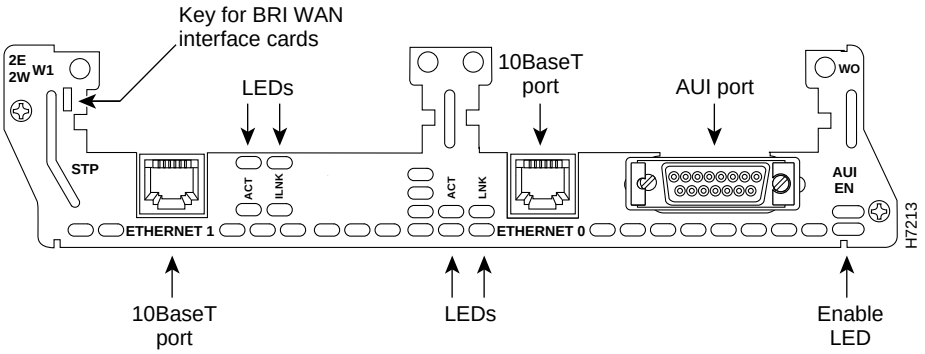
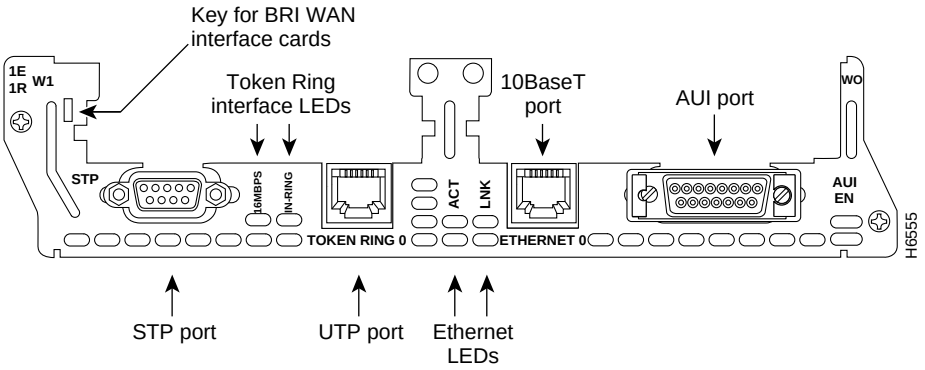


Figure 3 1-Ethernet 1-Token Ring 2-WAN Card Slot Network Module



Use this document in conjunction with your router installation and configuration guide and the *Regulatory Compliance and Safety Information* document for your router. If you have questions or need help, refer to the section “Obtaining Service and Support” later in this document for further information.

This document contains the following sections:

Warning Only trained and qualified personnel should be allowed to install or replace this equipment. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied the router.)

Warning Before working on a chassis or working near power supplies, unplug the power cord on AC units; disconnect the power at the circuit breaker on DC units. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied the router.)

Warning Ultimate disposal of this product should be handled according to all national laws and regulations. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied the router.)

Caution To avoid damaging electrostatic discharge (ESD)-sensitive components, ensure that you have discharged all static electricity from your body before opening the chassis. Before performing procedures described in this document, review the section “Safety Recommendations” later in this document.

Software Requirements

The minimum version of Cisco Internetwork Operating System (Cisco IOS) software needed for 2-slot network modules is 11.1(6)AAS.

Safety Recommendations

Follow these guidelines to ensure general safety:

- Keep the chassis area clear and dust-free during and after installation.
- Put the removed chassis cover in a safe place.
- Keep tools away from walk areas where you or others could fall over them.

- Do not wear loose clothing that could get caught in the chassis. Fasten your tie or scarf and roll up your sleeves.
- Wear safety glasses when working under any conditions that might be hazardous to your eyes.
- Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.

Warning The Ethernet 10BaseT, Token Ring, serial, console, and auxiliary ports contain safety extra-low voltage (SELV) circuits. BRI circuits are treated like telephone-network voltage (TNV) circuits. Avoid connecting SELV circuits to TNV circuits. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied the router.)

Warning Network hazardous voltages are present in the BRI cable. If you detach the BRI cable, detach the end away from the router first to avoid possible electric shock. Network hazardous voltages also are present on the system card in the area of the BRI port (RJ-45 connector), regardless of when power is turned off. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied the router.)

Warning The ISDN connection is regarded as a source of voltage that should be inaccessible to user contact. Do not attempt to tamper with or open any public telephone operator (PTO)-provided equipment or connection hardware. Any hardwired connection (other than by a nonremovable, connect-one-time-only plug) must be made only by PTO staff or suitably trained engineers. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied the router.)

Safety with Electricity

Warning Before working on equipment that is connected to power lines, remove jewelry (including rings, necklaces, and watches). Metal objects will heat up when connected to power and ground and can cause serious burns or weld the metal object to the terminals. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied the router.)

Follow these guidelines when working on equipment powered by electricity:

- Locate the emergency power-OFF switch in the room in which you are working. Then, if an electrical accident occurs, you can quickly shut the power OFF.
- Before working on the router, turn OFF the power and unplug the power cord.
- Disconnect all power before doing the following:
  - Installing or removing a router chassis
  - Working near power supplies
- Do not work alone if potentially hazardous conditions exist.

Warning Before opening the chassis, disconnect the telephone-network cables to avoid contact with telephone-network voltages. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied the router.)

Warning Do not work on the system or connect or disconnect cables during periods of lightning activity. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied the router.)

- Never assume that power is disconnected from a circuit. Always check.

Warning Do not touch the power supply when the power cord is connected. For systems with a power switch, line voltages are present within the power supply even when the power switch is OFF and the power cord is connected. For systems without a power switch, line voltages are present within the power supply when the power cord is connected. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied the router.)

- Look carefully for possible hazards in your work area, such as moist floors, ungrounded power extension cables, and missing safety grounds.
- If an electrical accident occurs, proceed as follows:
  - Use caution; do not become a victim yourself.
  - Turn OFF power to the router.
  - If possible, send another person to get medical aid. Otherwise, determine the condition of the victim and then call for help.
  - Determine if the person needs rescue breathing or external cardiac compressions; then take appropriate action.

Preventing Electrostatic Discharge Damage

Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. It occurs when electronic printed circuit cards are improperly handled and can result in complete or intermittent failures. Always follow ESD prevention procedures when removing and replacing cards. Ensure that the router chassis is electrically connected to earth ground. Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. Connect the clip to an unpainted surface of the chassis frame to safely channel unwanted ESD voltages to ground. To properly guard against ESD damage and shocks, the wrist strap and cord must operate effectively. If no wrist strap is available, ground yourself by touching the metal part of the chassis.

Caution For safety, periodically check the resistance value of the antistatic strap, which should be between 1 and 10 megohms (Mohm).

Required Tools and Equipment

You need the following tools and equipment to install a network module in a Cisco 3600 series chassis slot:

- Network module
- Number 1 Phillips screwdriver or small flat-blade screwdriver
- ESD-preventive wrist strap

Installing a 2-Slot Network Module in a Chassis Slot

Caution Network modules do not support online insertion and removal (hot swap). To avoid damaging the module, before you insert a network module into a chassis slot, you must turn OFF electrical power and disconnect network cables.

The following instructions apply only to installing network modules in a chassis slot. To install a WAN interface card in a network module, see the configuration note for the WAN interface card.

You can install network modules in the chassis either before or after mounting the router, whichever is more convenient.

Follow this procedure to install a network module:

Step 1 Turn OFF electrical power to the router. However, to channel ESD voltages to ground, do not unplug the power cable. Remove all network interface cables, including telephone cables, from the rear panel.

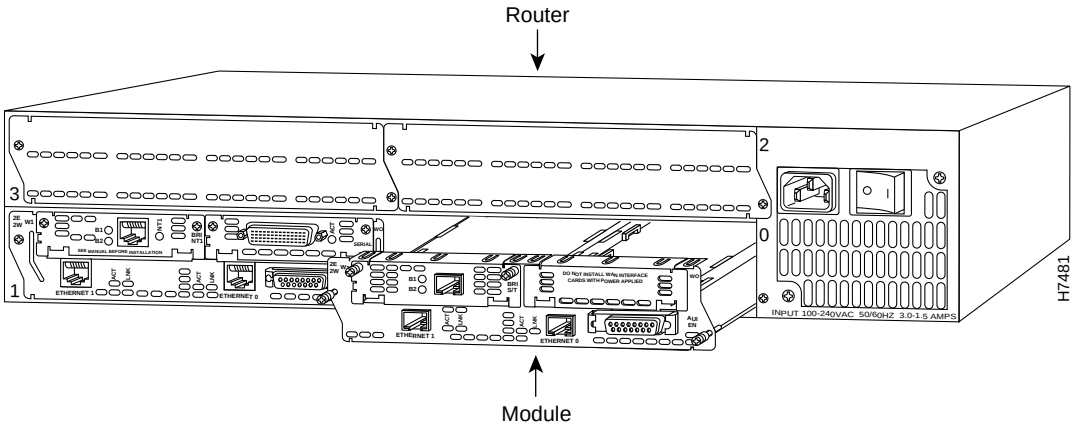
The following warning applies to routers that use a DC power supply:

Warning Before performing any of the following procedures, ensure that power is removed from the DC circuit. To ensure that all power is OFF, locate the circuit breaker on the panel board that services the DC circuit, switch the circuit breaker to the OFF position, and tape the switch handle of the circuit breaker in the OFF position. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied the router.)

Step 2 Using either a number 1 Phillips screwdriver or a small flat-blade screwdriver, remove the blank filler panel from the chassis slot where you plan to install the module. Save the blank panel for future use.

Step 3 Align the network module with the guides in the chassis and slide it gently into the slot. (See Figure 4.)

Figure 4 Installing a Module in a Router



Step 4 Push the module into place until you feel its edge connector mate securely with the connector on the motherboard.

Step 5 Fasten the module's captive mounting screws into the holes in the chassis, using the Phillips or flat-blade screwdriver.

Step 6 If the router was previously running, reinstall the network interface cables and turn ON power to the router.

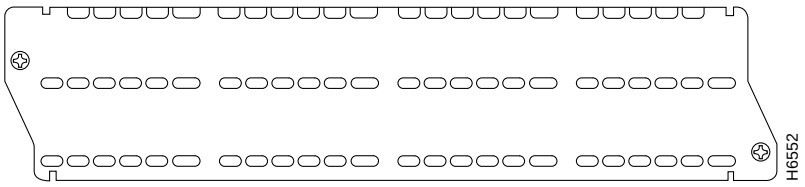
The following warning applies to routers that use a DC power supply:

Warning After wiring the DC power supply, remove the tape from the circuit breaker switch handle and reinstate power by moving the handle of the circuit breaker to the ON position. (To see translated versions of this warning, refer to the *Regulatory Compliance and Safety Information* document that accompanied the router.)

Blank Network Module Panels

If the router is configured with fewer than four network modules, make sure that blank panels fill the open chassis slots to provide proper airflow. (See Figure 5.)

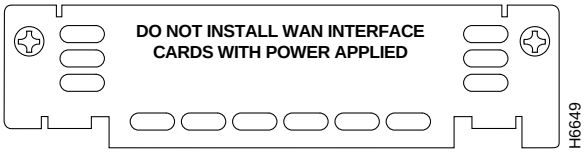
Figure 5 Blank Network Module Panel



Blank WAN Interface Card Panels

If the 2-slot network module is configured with fewer than two WAN interface cards, make sure that blank panels fill the open base module slots to provide proper airflow. (See Figure 6.)

Figure 6 Blank WAN Interface Card Panel



Network Module Connectors

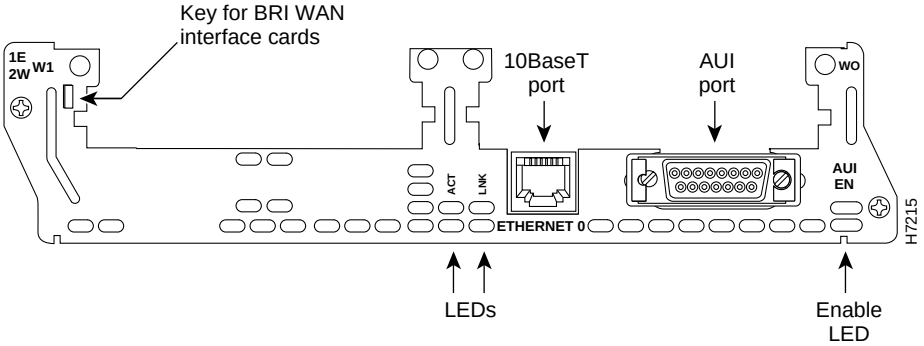
The number and type of connectors on a 2-slot network module depend on the type of module.

1E 2-Slot Network Module

The 1E 2-slot network module has one Ethernet attachment unit interface (AUI) DB-15 connector and one 10BaseT RJ-45 connector. (See Figure 7.) Only one of these two connectors can be active at a time. The active port is identified in software by port type (Ethernet), the module's slot number, and port number 0.

The module detects the type of network connection automatically, and you do not need to select the media type in software. If cables are plugged into both ports, the 10BaseT connection is selected.

Figure 7 1E 2-Slot Network Module



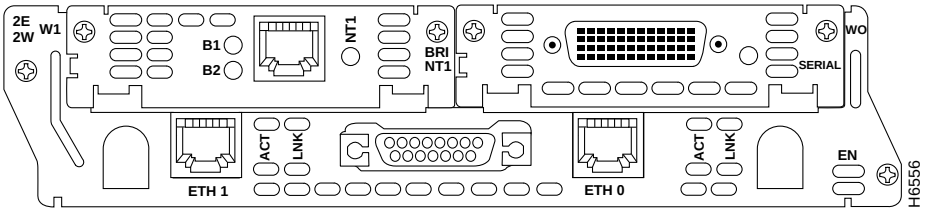
2E 2-Slot Network Module

The 2E 2-slot network module has ports for two Ethernet connections. (See Figure 8.)

Ethernet port 0 uses either the AUI (DB-15) connector on the right or the 10BaseT (RJ-45) connector in the center, but only one at a time. Ethernet port 1 uses the 10BaseT connector on the left. This port does not provide an AUI connector. Ports are identified in software by port type (Ethernet), the module's slot number, and the port number.

The module detects the type of network connection automatically, and you do not need to select the media type in software. If cables are plugged into both ports, the 10BaseT connection is selected.

Figure 8 2E 2-Slot Network Module



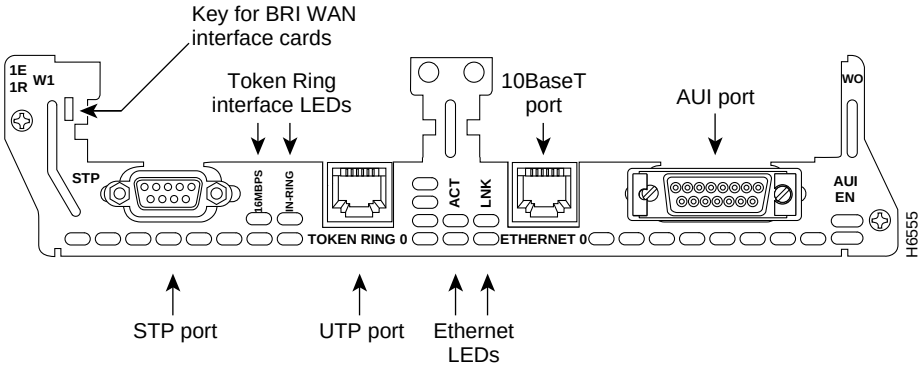
1E1R 2-Slot Network Module

The 1E1R 2-slot network module has ports for one Ethernet connection and one Token Ring connection. (See Figure 9.)

The Ethernet port (Ethernet 0) uses either the AUI (DB-15) connector or the 10BaseT (RJ-45) connector, but only one at a time. The Token Ring port (Token Ring 0) uses either the shielded twisted-pair (STP) connector or the unshielded twisted-pair (UTP) connector, but only one at a time. Ports are identified in software by port type (Ethernet or Token Ring), the module's slot number, and the port number.

The module detects the type of network connection automatically, and you do not need to select the media type in software. If cables are plugged into both Ethernet ports, the 10BaseT connection is selected.

Figure 9 1E1R 2-Slot Network Module



Connecting Ethernet Ports

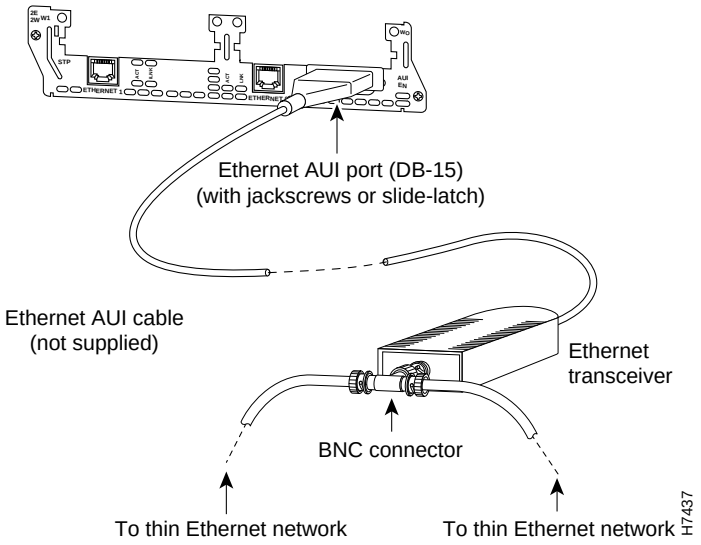
On 1-Ethernet network modules and on Ethernet port 0 (the right-hand port) of 2-Ethernet network modules, connect either the Ethernet AUI or the 10BaseT connector, but not both at the same time.

Ethernet port 1 (the left-hand port) of 2-Ethernet network modules provides only a 10BaseT connector.

AUI Connections

Use an Ethernet AUI cable to connect the AUI port on an Ethernet network module to an Ethernet transceiver. The female end of the AUI cable mates with the slide-latch connector of the transceiver cable. (See Figure 10.)

Figure 10 Connecting an Ethernet AUI Port to a Transceiver

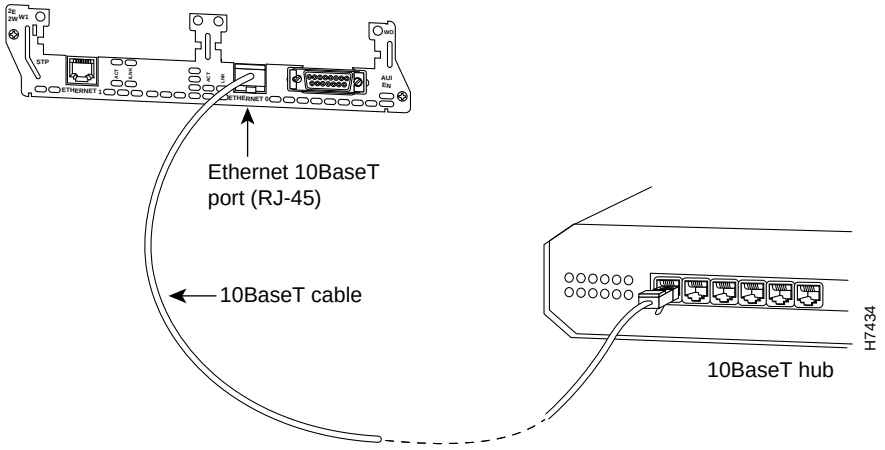


If the transceiver cable has thumbscrew connectors, you can connect it directly to the AUI port by replacing the AUI port slide latch with a jackscrew (provided in a separate bag).

10BaseT Connections

Use an Ethernet 10BaseT cable to connect the 10BaseT port on an Ethernet network module to a hub or other network device. Figure 11 shows the 10BaseT port on an Ethernet network module connected to a hub.

Figure 11 Connecting an Ethernet 10BaseT Port to a Hub



Selecting the Ethernet Media Type

Ethernet network modules detect the type of connection, AUI or 10BaseT, automatically. You do not need to select the media type in software. If cables are plugged into both ports, the 10BaseT connection is selected.

Ethernet Cable Pinouts

This section illustrates the Ethernet AUI (DB-15) cable assembly and 10BaseT (RJ-45) connector, and lists pinouts and signal descriptions for each.

AUI Cable Assembly

Figure 12 shows the Ethernet AUI cable assembly, and Table 1 lists the pinout.

Figure 12 AUI Cable Assembly

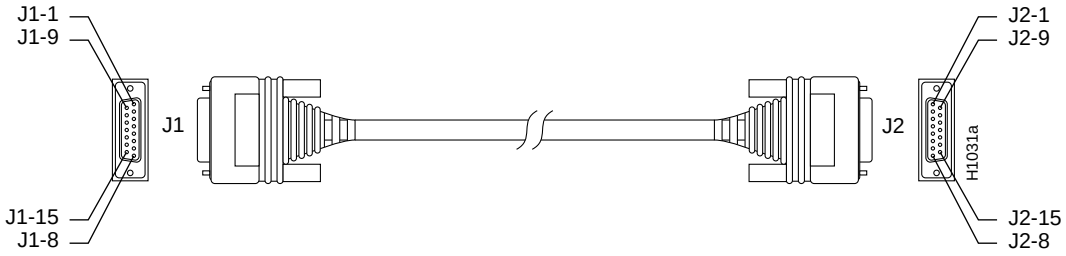


Table 1 AUI Pinout

Pin	Ethernet Circuit	Signal Name
3	DO-A	Data Out Circuit A
10	DO-B	Data Out Circuit B
11	DO-S	Data Out Circuit Shield
5	DI-A	Data In Circuit A
12	DI-B	Data In Circuit B
4	DI-S	Data In Circuit Shield
7	CO-A	Control Out Circuit A (not connected)
15	CO-B	Control Out Circuit B (not connected)
8	CO-S	Control Out Circuit Shield (not connected)
2	CI-A	Control In Circuit A
9	CI-B	Control In Circuit B
1	CI-S	Control In Circuit Shield
6	VC	Voltage Common
13	VP	Voltage Plus
14	VS	Voltage Shield (L25 and M25)
Shell	PG	Protective Ground

10BaseT Connector Pinouts

Figure 13 shows the 10BaseT (RJ-45) connector, and Table 2 lists the pinout. Pins not listed are not connected.

Figure 13 10BaseT Connector

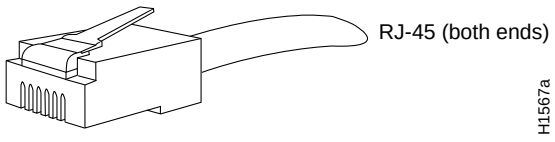


Table 2 10BaseT Connector Pinout

Pin	Description
1	TX+
2	TX–
3	RX+
6	RX–

Connecting Token Ring Ports

The 1E1R 2-slot network module has one DB-9 connector for an STP Token Ring connection and one RJ-45 connector for a UTP connection. (See Figure 9.) Only one connector can be active at a time.

To connect the module to a Token Ring network, attach one end of a shielded Token Ring lobe cable to the DB-9 connector on the network module (see Figure 14), or attach one end of an unshielded Token Ring lobe cable to the UTP connector on the network module (see Figure 15). Attach the other end of the cable to the Token Ring media attachment unit (MAU). The network module automatically detects which connector is in use.

Figure 14 Connecting a Token Ring STP Port (DB-9) to an MAU

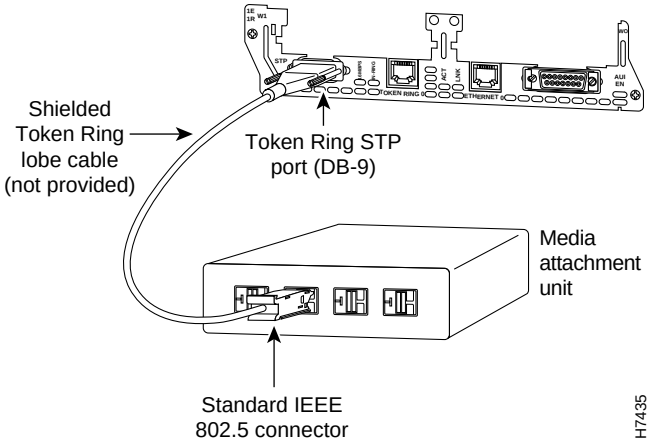
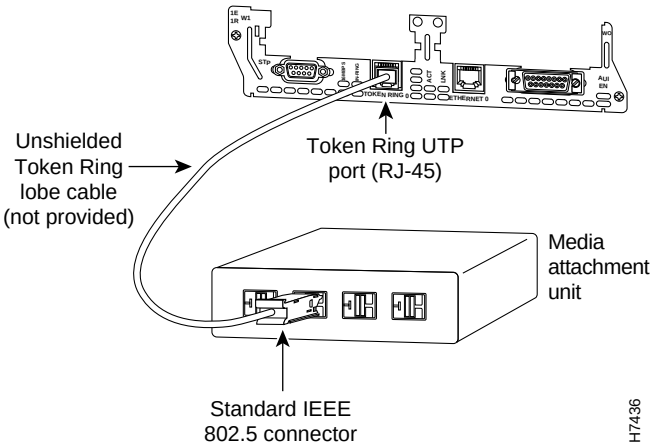


Figure 15 Connecting a Token Ring UTP Port (RJ-45) to an MAU



Token Ring Pinout

Table 3 lists the pinout for the Token Ring port. Pins not listed are not connected.

Table 3 Token Ring Port Pinout (DB-9)

Pin	Signal
1	Receive
3	+5V[1]
5	Transmit
6	Receive
9	Transmit

1. 600 mA maximum.

WAN Card Slot Module LEDs

Figure 16, Figure 17, and Figure 18 show the LEDs on each 2-slot network module.

All network modules have an enable LED. The enable LED indicates that the module has passed its self-tests and is available to the router.

Ethernet Network Module LEDs

The 1E and 2E 2-slot network modules have two Ethernet LEDs. The ACT (activity) LED indicates that the router is sending or receiving Ethernet transmissions. The LNK (link) LED indicates that the Ethernet port is receiving the link integrity signal from the hub (10BaseT only).

Figure 16 1-Ethernet 2-WAN Card Slot Network Module

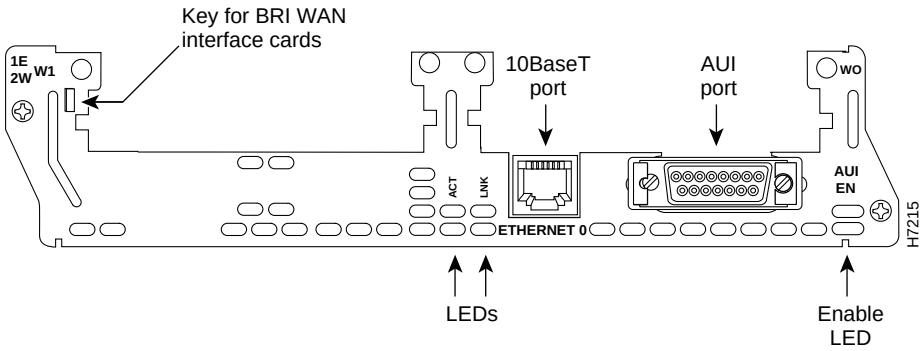


Figure 17 2-Ethernet 2-WAN Card Slot Network Module

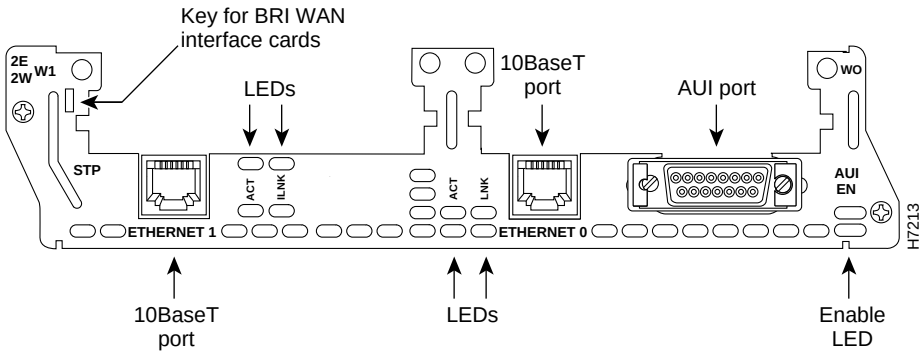
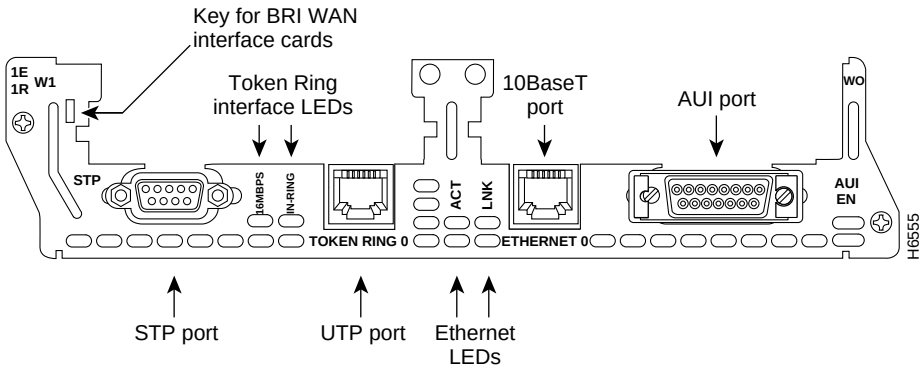


Figure 18 1-Ethernet 1-Token Ring 2-WAN Card Slot Network Module



Token Ring Module LEDs

The 1E1R 2-slot network module has two Token Ring LEDs, labeled 16MBPS and IN-RING. The 16MBPS LED indicates a ring speed of 16 Mbps. If it is off, the ring speed is 4 Mbps.

The IN-RING LED indicates that the Token Ring interface is inserted into the ring. If it is off, the interface is not inserted into the ring.

Timesaver When the IN-RING LED is off, you can unplug the Token Ring cable without causing a problem on the ring.

Configuring the LAN Interfaces

Whenever you install a new interface, or if you want to change the configuration of an existing interface, you must configure the interface. If you replace a module that was already configured, the router recognizes it and brings up the interface in the existing configuration.

Before you configure an interface, have the following information available:

- Protocols you plan to route on the new interface
- IP addresses, subnet masks, network numbers, zones, or other information related to the routing protocol

Timesaver Obtain this information from your system administrator or network plan before you begin router configuration.

You can configure the new interface and other router parameters by using any of the following methods:

- Configuration Mode (manual configuration)—Recommended if you are familiar with Cisco IOS commands. Enter the commands at the prompt.
- AutoInstall—Recommended for automatic installation if another router running Cisco IOS software is installed on the network. This configuration method must be set up by someone with experience using Cisco IOS software.
- System Configuration Dialog (setup facility)—Recommended if you are not familiar with Cisco IOS commands. You are prompted for each response.

These procedures are explained in the following sections. If you have questions or need help, refer to the section “Obtaining Service and Support” later in this document for further information.

Configuration Mode

You can configure the Ethernet or Token Ring interfaces on your 2-slot network module manually, by entering Cisco IOS commands on the command line. This method, called configuration mode, provides the greatest power and flexibility.

Before you begin, disconnect all WAN cables from the router to keep it from trying to run the AutoInstall process. The router tries to run AutoInstall whenever you power it ON if there is a WAN connection on both ends and the router does not have a valid configuration file stored in nonvolative random-access memory (NVRAM) (for instance, when you add a new interface). It can take several minutes for the router to determine that AutoInstall is not connected to a remote Transmission Control Protocol/Internet Protocol (TCP/IP) host.

To enter configuration mode, follow this procedure:

Step 1 Connect a console to the router. If you need instructions for connecting a console, refer to the installation chapter of your router installation and configuration guide. Power up the router.

Step 2 If the current configuration is no longer valid, after about a minute you see the following prompt:

```
Would you like to enter the initial dialog? [yes]:
```

Answer **no**. You now enter the normal operating mode of the router.

Note If the current configuration is valid, you enter the normal operating mode automatically.

Step 3 After a few seconds you see the user EXEC prompt (Router>). Type **enable** and the password to enter enable mode:

```
Router> enable
Password:
```

Configuration changes can be made only in enable mode. The prompt changes to the privileged EXEC (enable) prompt (Router#):

```
Router#
```

Step 4 Enter the command **config terminal** to enter configuration mode:

```
Router# config terminal
Router(config)#
```

The router enters global configuration mode, indicated by the Router(config)# prompt.

Step 5 If you have not configured the router before, or want to change the configuration, configure global parameters, passwords, network management, and routing protocols. In this example, IP routing, AppleTalk routing, and Internetwork Packet Exchange (IPX) routing are all enabled:

```
Router(config)# ip routing
Router(config)# appletalk routing
Router(config)# ipx routing
```

For complete information about global configuration commands, refer to the Cisco IOS configuration guides and command references.

Step 6 Select the LAN interface to configure (using the keywords Ethernet or TokenRing):

```
Router(config)# interface ethernet 0/0
Router(config-if)#
```

The prompt changes again to show that you are in interface configuration mode.

Step 7 Configure routing protocols on the interface. (You must have previously enabled these protocols as part of global configuration.) In this example, IP, AppleTalk, and IPX are being configured on the interface:

```
Router(config-if)# ip address 172.16.74.3 255.255.255.0
Router(config-if)# appletalk static cable-range 3-3
Router(config-if)# appletalk zone ZZEth
Router(config-if)# ipx network B005
```

Step 8 If your router has more than one LAN interface, enter the **exit** command to return to the Router(config)# prompt. Repeat Step 6 and Step 7 of this procedure to configure the next LAN interface.

Step 9 When you are finished configuring interfaces, exit configuration mode and return to the enable prompt by pressing **Ctrl-Z**. To see the current operating configuration, including any changes you just made, enter the **show running-config** command:

```
Router# show running-config
```

To see the configuration currently stored in nonvolatile random-access memory (NVRAM), enter the command **show startup-config** at the enable prompt.

```
Router# show startup-config
```

Step 10 The results of the **show running-config** and **show startup-config** commands differ from each other if you have made changes to the configuration, but have not yet written them to NVRAM. To write your changes to NVRAM, making them permanent, enter the command **copy running-config startup-config** at the enable prompt:

```
Router# copy running-config startup-config
Building configuration. . .
[OK]
Router#
```

The router is now configured to boot in the new configuration.

AutoInstall

The AutoInstall process is designed to configure the router automatically after it connects to your WAN. For AutoInstall to work properly, a TCP/IP host on your network must be configured to provide the configuration files. The TCP/IP host can reside anywhere on the network if the following two conditions are met:

- The host must be on the remote side of the router's synchronous serial connection to the WAN.
- User Datagram Protocol (UDP) broadcasts to and from the router and the TCP/IP host must be enabled.

This functionality is coordinated by your system administrator at the TCP/IP host site. You should not try to use AutoInstall unless the required files have been installed on the TCP/IP host.

Follow this procedure to prepare your router for the AutoInstall process:

Step 1 Connect the router to the WAN.

Step 2 Turn ON power to the router.

The router loads the operating system image from Flash memory. If the remote end of the WAN connection is connected and properly configured, the AutoInstall process begins.

Step 3 If AutoInstall succeeds, you should write the configuration data to the router's NVRAM. To do this, enter the **copy running-config startup-config** command at the Router# prompt:

```
Router# copy running-config startup-config
Building configuration. . .
[OK]
Router#
```

Note This step saves the configuration settings that the AutoInstall process created. If you do not do this, your new configuration will be lost the next time you boot the router.

System Configuration Dialog

You can configure the router manually using the System Configuration Dialog facility. Unlike configuration mode, the System Configuration Dialog prompts you for each response.

Before you begin, disconnect all WAN cables from the router to keep it from trying to run the AutoInstall process. The router tries to run AutoInstall whenever you power it ON if there is a WAN connection on both ends and the router does not have a configuration file stored in NVRAM. It can take several minutes for the router to determine that AutoInstall is not connected to a remote TCP/IP host.

This section shows a sample configuration using the System Configuration Dialog. You should enter values appropriate for your router and network.

Many prompts in the System Configuration Dialog include default answers, shown in square brackets following the question. Enter your response, or press **Return** to accept the default answer.

You can request help at any time by entering a question mark (**?**) at a System Configuration Dialog prompt.

Follow this procedure to configure the router using the System Configuration Dialog:

Step 1 Connect a console to the router. If you need instructions for connecting a console, refer to your router installation and configuration guide. Power up the router.

Step 2 If the current configuration is no longer valid, after about a minute you see the following prompt:

```
Would you like to enter the initial dialog? [yes]:
```

Press **Return** or enter **yes** to enter the System Configuration Dialog.

Note You can enter the System Configuration Dialog at any time from the enable prompt (Router#) by entering the **setup** command.

Step 3 When the System Configuration Dialog asks whether you want to view the current interface summary, press **Return** or enter **yes**:

```
First, would you like to see the current interface summary? [yes]:

Interface      IP-Address    OK?   Method   Status   Protocol

First, would you like to see the current interface summary? [yes]:

Interface      IP-Address    OK?   Method   Status   Protocol

Ethernet0/0    unassigned    NO    unset    up       down

Ethernet0/1    unassigned    NO    unset    up       down

Ethernet1/0    unassigned    NO    unset    up       down

TokenRing1/0   unassigned    NO    unset    reset    down
```

Step 4 If you have not configured the router before, or want to change the configuration, you should now configure global parameters, passwords, network management, and routing protocols. Refer to the procedures in the Cisco IOS configuration guides and command references. Press **Return** if you want to accept the default values.

Step 5 The System Configuration Dialog prompts you to configure network interfaces. To configure an Ethernet interface, press **Return** or enter **yes** when you reach a prompt similar to this one, and then continue with Step 6:

```
Configuring interface Ethernet0/0:
  Is this interface in use? [yes]:
```

To configure a Token Ring interface. press **Return** or enter **yes** when you reach a prompt similar to this one, enter the ring speed, 4 or 16, and then continue with Step 6:

```
Configuring interface TokenRing1/0:
   Is this interface in use? [yes]:
   Tokenring ring speed (4 or 16) ? [16]:
```

Step 6 Determine which protocols you want on the LAN interface and enter the appropriate responses. (You must have previously enabled these protocols as part of global configuration.) In the following example, the interface is being configured for IP, AppleTalk, and IPX:

```
Configure IP on this interface? [yes]:
    IP address for this interface: 172.16.74.3
    Number of bits in subnet field [8]: 8
    Class B network is 172.16.0.0, 8 subnet bits; mask is
    255.255.255.0
  Configure AppleTalk on this interface? [no]: yes
    Extended AppleTalk network? [no]: yes
    AppleTalk starting cable range [0]: 3
    AppleTalk ending cable range [1]: 3
    AppleTalk zone name [myzone]: ZZEth
    AppleTalk additional zone name:
    AppleTalk additional zone name:
  Configure IPX on this interface? [no]: yes
    IPX network number [1]: B005
```

Step 7 If your router has more than one LAN interface, repeat Step 5 and Step 6 to configure the next LAN interface.

Step 8 The configuration you entered is displayed as a command script and you are asked if you want to use it. If you enter **no**, the information you just entered is discarded and you can begin the configuration again. If you enter **yes**, the configuration is saved in the startup configuration:

```
Use this configuration? [yes/no]: yes
Building configuration...
Use the enabled mode 'configure' command to modify this configuration.


Press RETURN to get started!
```

The configuration is saved. If you added an interface, the router reboots in the new configuration when you press **Return**.

Obtaining Service and Support

For service and support for a product purchased from a reseller, contact the reseller. Resellers offer a wide variety of Cisco service and support programs, which are described in the section "Service and Support" in the information packet that shipped with your chassis.

Note If you purchased your product from a reseller, you can access Cisco Connection Online (CCO) as a guest. CCO is Cisco Systems' primary, real-time support channel. Your reseller offers programs that include direct access to CCO's services.

For service and support for a product purchased directly from Cisco, use CCO.

Cisco Connection Online

CCO is Cisco Systems' primary, real-time support channel. SMARTnet customers and partners can self-register on CCO to obtain additional content and services.

Note If you purchased your product from a reseller, you can access CCO as a guest. Your reseller offers programs that include direct access to CCO's services.

Available 24 hours a day, 7 days a week, CCO provides a wealth of standard and value-added services to Cisco's customers and business partners. CCO services include product information, software updates, release notes, technical tips, the Bug Navigator, configuration notes, brochures, descriptions of service offerings, and download access to public and authorized files.

CCO serves a wide variety of users through two interfaces that are updated and enhanced simultaneously—a character-based version and a multimedia version that resides on the World Wide Web (WWW). The character-based CCO supports Zmodem, Kermit, Xmodem, FTP, and Internet e-mail, and is excellent for quick access to information over lower bandwidths. The WWW version of CCO provides richly formatted documents with photographs, figures, graphics, and video, as well as hyperlinks to related information.

You can access CCO in the following ways:

- WWW: http://www.cisco.com.
- WWW: http://www-europe.cisco.com.
- WWW: http://www-china.cisco.com.
- Telnet: cco.cisco.com.
- Modem: From North America, 408 526-8070; from Europe, 33 1 64 46 40 82. Use the following terminal settings: VT100 emulation; databits: 8; parity: none; stop bits: 1; and baud rates up to 14.4 kbps.

For a copy of CCO's Frequently Asked Questions (FAQ), contact cco-help@cisco.com. For additional information, contact cco-team@cisco.com.

Note If you need technical assistance with a Cisco product that is under warranty or covered by a Cisco maintenance contract, contact Cisco's Technical Assistance Center (TAC) at 800 553-2447, 408 526-7209, or tac@cisco.com.

Please use CCO to obtain general information about Cisco Systems, Cisco products, or upgrades. If CCO is not accessible, contact 800 553-6387, 408 526-7208, or cs-rep@cisco.com.

This document is to be used in conjunction with your router installation and configuration guide and the *Regulatory Compliance and Safety Information* document for your router.

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