Cabling Specifications

This appendix describes cables and cabling guidelines for the router and contains the following sections:

- Ethernet Cables
- Ethernet Network Cabling Guidelines
- Console Cable and Adapters
- VIC Cables and Pinouts

Note   For detailed information about cables used with Cisco WICs and VICs, refer to the *Cisco WAN Interface Cards Hardware Installation Guide* that comes with each of the cards.

Ethernet Cables

This section describes the Ethernet cables that are used to connect the router to your local Ethernet network. A 10/100BaseTX router, like the Cisco 1750 router, requires Category 5 unshielded twisted-pair (UTP) or shielded twisted-pair (STP) cable. Table B-1 describes the pinouts for a RJ-45-to-RJ-45 Ethernet cable.

Table B-1   Straight-Through Ethernet Cable (RJ-45-to-RJ-45) Pinouts

RJ-45 Pin[1]	Signal	Direction	RJ-45 Pin
1	TX+	—>	1
2	TX–	—>	2
3	RX+	<—	3
6	RX–	<—	6

1   Pins 4, 5, 7, and 8 are not used for signaling but
     to reduce radiated cable emissions.

Ethernet Network Cabling Guidelines

Table B-2 describes some guidelines for creating Ethernet networks. Figures might vary, depending on the manufacturer of the network equipment.

Table B-2   Ethernet Cabling Guidelines

Specification	10BaseT	100BaseTX
Maximum segment length	100 meters	100 meters
Maximum number of segments per network	5	• With Class I repeaters: 1 • With Class II repeaters: 2
Maximum hop count[1]	4	• With Class I repeaters: none • With Class II repeaters: 1
Maximum number of nodes per segment	1024	1024
Cable type required	UTP Category 3, 4, or 5	UTP Category 5 or STP

1   Hop count = Routing metric used to measure the distance between a source and a destination.

Console Cable and Adapters

A console cable kit is provided with your router. Use this kit when connecting your router to a PC or terminal.

The console cable kit contains:

- RJ-45-to-RJ-45 console cable (light blue)

- DB-9-to-RJ-45 console adapter

Table B-2 describes the wiring for the console port, the console cable, and the included adapters. This table also includes pinouts for a DB-9-to-RJ-45 console adapter.

Table B-3   Console Cable and Adapter Pinouts

Console (DTE)	Console Port	Console Cable	Adapter	Adapter	Terminal (DTE)
Signal	RJ-45 Pin	RJ-45 Pin	DB-9 Pin	DB-25 Pin	Signal
RTS	1	8	8	5	CTS
DTR	2	7	6	6	DSR
TXD	3	6	2	3	RXD
GND	4	5	5	7	GND
GND	5	4	5	7	GND
RXD	6	3	3	2	TXD
DSR	7	2	4	20	DTR
CTS	8	1	7	4	RTS

Figure B-1 illustrates how to identify the console cable, which is also referred to as the *rollover* cable.

Figure B-1   Identifying a Rollover Cable
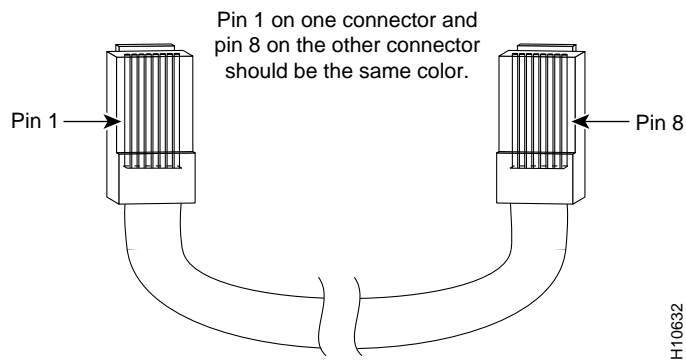
VIC Cables and Pinouts

This section describes the VIC cables and pinouts for foreign exchange station (FXS), foreign exchange office (FXO), and E&M connectors. Use the following cables to connect the VICs to the network:

- Standard RJ-11 modular telephone cable to connect FXS VIC ports (color-coded gray) to a telephone or fax machine.

- Standard RJ-11 modular telephone cable to connect FXO VIC ports (color-coded pink) to the PSTN or to a PBX that does not support E&M signaling.

- Standard RJ-48S connector and cable to connect E&M VIC ports (color-coded brown) to a PBX line. The cable wiring depends on the PBX type and connection. For details refer to the *Cisco WAN Interface Cards Hardware Installation Guide*.

Figure B-2 shows how to connect the VICs to the network.
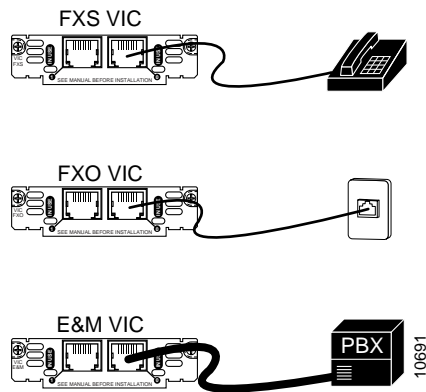
Figure B-2   Connecting VICs to the Network

Table B-4 lists the pinouts for FXS and FXO VIC connectors.

> **Note** Pins that are not used should not be connected.

Table B-4   RJ-11 Pinout

Pin	Signal
1	–
2	–
3	Ring
4	Tip
5	–
6	–

The E&M VIC pinout depends on the PBX type and connection. Table B-5 lists the pinout for this connector.

Note Pins that are not used should not be connected.

Table B-5 **E&M Pinouts**

Pin	Signal	Description
1	SB	–48V signaling battery
2	M-lead	Signaling input
3	R	Ring, audio input
4	R or R1	Ring, audio input/output, or output
5	T or T1	Tip, audio input/output, or output
6	T	Tip, audio input
7	E-lead	Signaling output
8	SG	Signaling ground return