



Installing the Catalyst 4224 Access Gateway Switch Interface Cards

This section describes how to install and connect interface cards in the Catalyst 4224 Access Gateway Switch. This section contains the following topics:

- [Required Tools, page 4-1](#)
- [Installing Voice and WAN Interface Cards, page 4-2](#)
- [Connecting the Voice and WAN Interface Cards, page 4-5](#)



Warning

Before you install, operate, or service the system, read *Regulatory Compliance and Safety Information for Catalyst 4200 Series Access Gateway Switch*. This guide contains important safety information you should know before working with the system.



Warning

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

Required Tools

You need these tools to install the interface cards:

- Flat-blade screwdriver

- Small flat-head screwdriver
- Number 1 and 2 Phillips screwdrivers
- Antistatic mat or foam
- ESD-preventive wrist strap or other grounding device

Installing Voice and WAN Interface Cards

The Catalyst 4224 has four slots reserved for WAN interface cards (WICs), voice interface cards (VICs), and T1/E1 multiflex voice/WAN interface cards (VWICs). You can install any combination of VICs, WICs, and VWICs in slots 1 and 2, but slot 3 accepts only VICs and VWICs. Slot 4 is filled with the high-density analog module when you first receive the switch.



Caution

You cannot swap an interface card without powering down the Catalyst 4224. If you fail to power down the switch, you will damage the interface cards.



Warning

Do not work on the system or connect or disconnect cables during periods of lightning activity.



Warning

This equipment is to be installed and maintained by service personnel only as defined by AS/NZS 3260 Clause 1.2.14.3 Service Personnel.



Warning

Incorrect connection of this or connected equipment to a general purpose outlet could result in a hazardous situation.



Warning

The telecommunications lines must be disconnected 1) before unplugging the main power connector and/or 2) while the housing is open.

**Warning**

Hazardous network voltages are present in WAN ports regardless of whether power to the unit is OFF or ON. To avoid electric shock, use caution when working near WAN ports. When detaching cables, detach the end away from the unit first.

**Warning**

To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telephone-network voltage (TNV) circuits. LAN ports contain SELV circuits, and WAN ports contain TNV circuits. Some LAN and WAN ports both use RJ-45 connectors. Use caution when connecting cables.

**Warning**

Network hazardous voltages are present in the BRI, fractional T1/T1, and Switched 56 cables. If you detach the cable, detach the end away from the router first to avoid possible electric shock. Network hazardous voltages are also present in the area of the BRI (RJ-45), fractional T1/T1 (RJ-48C), and Switched 56 (RJ-11 or RJ-48S) ports, regardless of whether power is off or on.

**Warning**

To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord.

To install an interface card, perform these steps:

Procedure

-
- Step 1** Remove all network interface cables, including telephone cables, from the front panel.
- Step 2** If the Catalyst 4224 is on, you must power it off.

**Caution**

To channel ESD voltages to ground, do not unplug the power cable.

- Step 3** Use either a number 2 Phillips screwdriver or a small flat-blade screwdriver to loosen the screws of the blank faceplate and remove the faceplate from the interface slot where you plan to install the card. Save the faceplate for future use.
- Step 4** Align the card with the cable guides in the interface slot and slide the card gently into the slot.

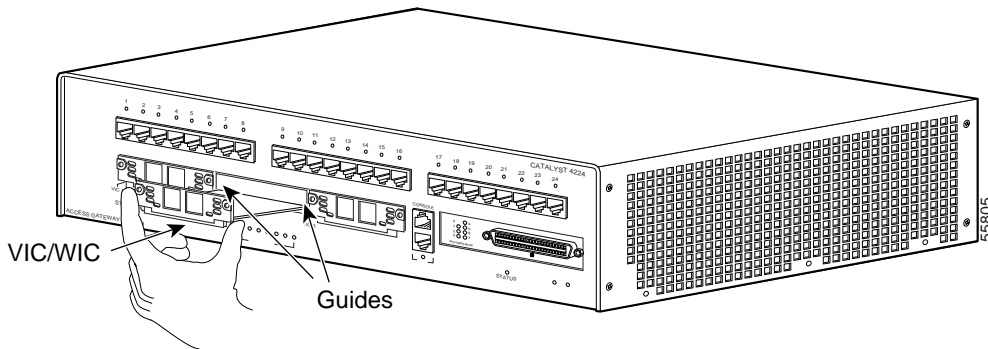
Figure 4-1 shows how to insert a VIC or WIC into slot 2 of the Catalyst 4224.



Warning

Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain EMI that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all modules, faceplates, front covers, and rear covers are in place.

Figure 4-1 Inserting a Voice or WAN Interface Card



- Step 5** Push the card into place until you feel its edge connector mate securely with the connector in the interface slot.
- Step 6** Tighten the card's captive mounting screws into the holes in the Catalyst 4224 faceplate using a Phillips or a flat-blade screwdriver.
- Step 7** Reinstall the network interface cables and power on the switch.

Connecting the Voice and WAN Interface Cards

These sections describe how to connect the supported VWICs, WICs, and VICs:

- [WAN Interface Cards, page 4-5](#)
- [Voice Interface Cards, page 4-13](#)
- [T1/E1 Multiflex Voice/WAN Interface Cards, page 4-25](#)

After you connect the cards, refer to the *Catalyst 4224 Access Gateway Switch Software Configuration Guide*.

WAN Interface Cards

This section describes the procedures for connecting the following WAN interface cards:

- [Connecting the One-Port 56/64-kbps DSU/CSU Cards, page 4-5](#)
- [Connecting the One-Port T1/FT1 DSU/CSU Cards, page 4-7](#)
- [Connecting the Two-Port Asynchronous/Synchronous Serial Cards, page 4-9](#)
- [Connecting the One-Port and two-port Serial Cards, page 4-11](#)

Connecting the One-Port 56/64-kbps DSU/CSU Cards

This section describes how to connect and verify the status of the one-port 56/64-kbps Data Service Unit/Channel Service Unit (DSU/CSU) interface cards (WIC-1DSU-56K).

Use a straight-through RJ-48S-to-RJ-48S or the straight-through RJ-48C-to-RJ-48C cable that shipped with the Catalyst 4224.

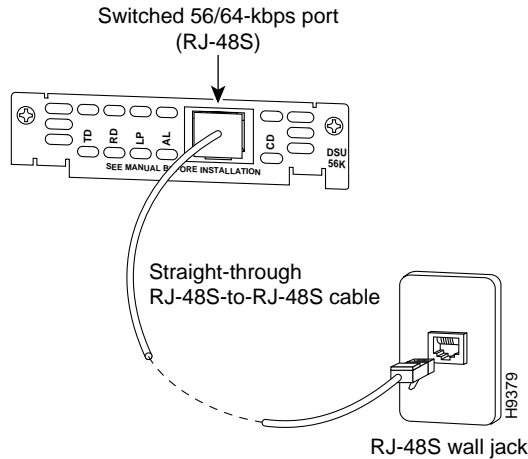
To connect the one-port 56/64-kbps DSU/CSU card, follow these steps:

Procedure

-
- Step 1** Power off the Catalyst 4224.
 - Step 2** Connect one end of the cable to the 56/64-kbps port of the card, as shown in [Figure 4-2](#).

- Step 3** Connect the other end of the cable to the RJ-48S wall jack, as shown in [Figure 4-2](#).

Figure 4-2 Connecting a 56/64-Kbps Card (WIC-1DSU-56K)



- Step 4** Power on the Catalyst 4224.
- Step 5** Verify that the CD LED is green, indicating that the internal DSU/CSU is communicating with another DSU/CSU.

[Table 4-1](#) describes the 56/64-kbps WAN interface card LEDs.

Table 4-1 56/64-kbps WAN Interface Card LEDs

LED	Description
TD	Green indicates that data is being transmitted to the DTE interface.
RD	Green indicates that data is being received from the DTE interface.
LP	Yellow indicates that the internal DSU/CSU is in loopback mode. This LED is off during normal operation.

Table 4-1 56/64-kbps WAN Interface Card LEDs (continued)

LED	Description
AL	Yellow indicates that one of these alarm conditions is present: no receive signal, loss of frame signal from the remote station, or an out-of-service signal from the remote station. This LED is off during normal operation.
CD	Green indicates that the internal DSU/CSU in the WIC is communicating with another DSU/CSU. This LED is off during normal operation.

Connecting the One-Port T1/FT1 DSU/CSU Cards

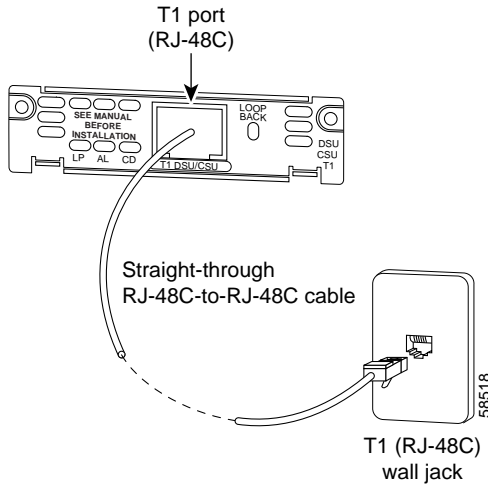
This section describes how to connect and verify the status of the one-port T1/FT1 DSU/CSU interface card (WIC-1DSU-T1).

Use a straight-through RJ-48S-to-RJ-48S or the straight-through RJ-48C-to-RJ-48C cable that shipped with the Catalyst 4224.

To connect the one-port T1/FT1 card, follow these steps:

Procedure

-
- Step 1** Power off the Catalyst 4224.
 - Step 2** Connect one end of the cable to the T1/FT1 port of the card, as shown in [Figure 4-3](#).
 - Step 3** Connect the other end of the cable to the RJ-48S wall jack, as shown in [Figure 4-3](#).

Figure 4-3 Connecting a T1/FT1 Card (WIC-1DSU-T1)

- Step 4** Power on the Catalyst 4224.
- Step 5** Verify that the CD LED is green, indicating that the internal DSU/CSU in the card is communicating with another DSU/CSU.

[Table 4-2](#) describes the T1/FT1 WAN interface card LEDs.

Table 4-2 T1/FT1 WAN Interface Card LEDs

LED	Description
LP	Yellow indicates that the internal DSU/CSU is in loopback mode. This LED is off during normal operation.
AL	Yellow indicates that one of these alarm conditions is present: no receive signal, loss of frame signal from the remote station, or an out-of-service signal from the remote station. This LED is off during normal operation.
CD	Green indicates that the internal DSU/CSU in the WIC is communicating with another DSU/CSU. This LED is off during normal operation.

Connecting the Two-Port Asynchronous/Synchronous Serial Cards

This section describes how to connect and verify the status of two-port asynchronous/synchronous (A/S) serial cards (WIC-2A/S).



Note

The Catalyst 4224 does not support asynchronous mode operation at this time.

The two-port A/S serial card has “smart” serial ports. The serial cable attached to one of the card’s ports can determine the electrical interface type and mode (DTE or DCE).

Six types of serial cables (also called serial adapter cables or serial transition cables) are available from Cisco Systems for use with the two-port A/S serial card:

- EIA/TIA-232 serial cable assembly
- EIA/TIA-449 serial cable assembly
- V.35 serial cable assembly
- X.21 serial cable assembly
- EIA/TIA-530 serial cable assembly
- EIA/TIA-530A serial cable assembly

All serial cables have a universal plug at the interface card end. The network end of each cable provides the physical connectors that are most commonly used for the interface. For example, the network end of the EIA/TIA-232 serial cable is a DB-25 connector, which is the most widely used EIA/TIA-232 connector.

All serial interface types, except EIA-530, are available in DTE or DCE mode: DTE with a plug connector at the network end and DCE with a receptacle at the network end. The V.35 assembly is available in either mode with either gender at the network end. The EIA/TIA-530 assembly is available in DTE only.

After you install the two-port A/S serial card, use the appropriate serial cable to connect the serial port on the card to one of the following types of equipment (see [Figure 4-4](#)):

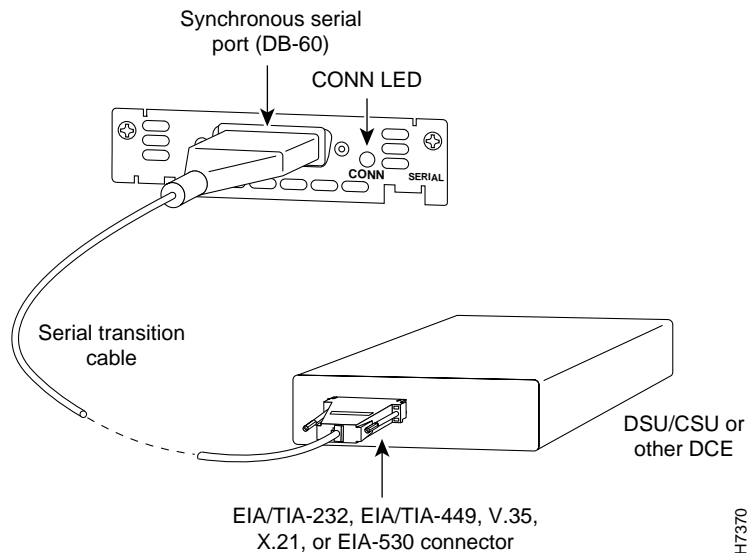
- Synchronous modem
- DSU/CSU
- Other DCE, if connecting to a digital WAN line

To connect the two-port A/S serial card, follow these steps:

Procedure

-
- Step 1** Power off the Catalyst 4224.
 - Step 2** Connect one end of the appropriate serial cable to a DB-60 port on the card, as shown in [Figure 4-4](#).
 - Step 3** Connect the other end of the cable to the appropriate type of equipment, as shown in [Figure 4-4](#).
 - Step 4** Power on the Catalyst 4224.
 - Step 5** Verify that the CONN LED goes on, indicating that the serial port on the card detects the WAN serial connection.
-

Figure 4-4 Connecting a Two-Port A/S Serial Card (WIC-2A/S)



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Table 4-3 describes the two-port A/S serial interface card LED.

Table 4-3 Asynchronous/Synchronous WAN Interface Card LED

LED	Description
CONN	Green indicates that the serial port detects a WAN serial connection.

Connecting the One-Port and two-port Serial Cards

This section describes how to connect and verify the status of the 1- and two-port serial cards (WIC-1T and WIC-2T).



Note

The Catalyst 4224 does not support asynchronous mode operation at this time.

The two-port A/S serial card has “smart” serial ports. The serial cable attached to one of the card’s ports can determine the electrical interface type and mode (DTE or DCE).

Six types of serial cables (also called serial adapter cables or serial transition cables) are available from Cisco Systems for use with the two-port A/S serial card:

- EIA/TIA-232 serial cable assembly
- EIA/TIA-449 serial cable assembly
- V.35 serial cable assembly
- X.21 serial cable assembly
- EIA/TIA-530 serial cable assembly
- EIA/TIA-530A serial cable assembly

All serial cables provide a universal plug at the interface card end. The network end of each cable provides the physical connectors that are most commonly used for the interface. For example, the network end of the EIA/TIA-232 serial cable is a DB-25 connector, which is the most widely used EIA/TIA-232 connector.

All serial interface types except EIA-530 are available in the following DTE or DCE mode: DTE with a plug connector at the network end and DCE with a receptacle at the network end. The V.35 assembly is available in either mode with either gender at the network end. The EIA/TIA-530 assembly is available in DTE only.

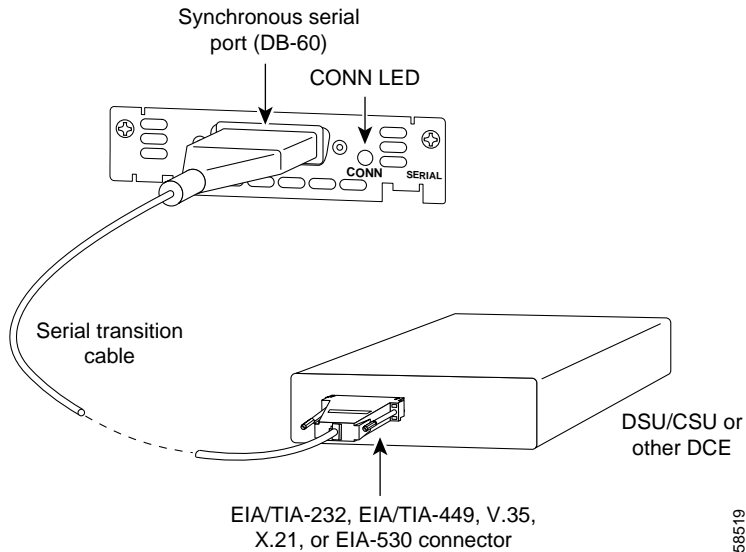
After you install the two-port A/S serial card, use the appropriate serial cable to connect the serial port on the card to one of the following types of equipment (see [Figure 4-5](#)):

- Synchronous modem
- DSU/CSU
- Other DCE, if connecting to a digital WAN line

To connect either the 1- or two-port serial card, follow these steps:

Procedure

- Step 1** Power of the Catalyst 4224.
- Step 2** Connect one end of the appropriate serial cable to a DB-60 port on the card, as shown in [Figure 4-5](#).
- Step 3** Connect the other end of the cable to the appropriate type of equipment, as shown in [Figure 4-5](#).

Figure 4-5 Connecting a 1-Port Serial Card (WIC-1T)

Step 4 Power on the Catalyst 4224.

Step 5 Verify that the CONN LED goes on, indicating that the serial port on the card detects the WAN serial connection.

Table 4-4 describes the serial WAN interface card LED.

Table 4-4 Serial WAN Interface Card LED

LED	Description
CONN	Green indicates that the serial port detects the WAN serial connection.

Voice Interface Cards

This section describes how to connect the following voice interface cards:

- [Connecting the Two-Port FXS Voice Interface Cards, page 4-14](#)
- [Connecting the Eight-Port RJ21 FXS Voice Interface Cards, page 4-16](#)

- [Connecting the Two-Port ISDN BRI Cards, page 4-23](#)
- [Connecting the Two-Port ISDN BRI Cards, page 4-23](#)

Connecting the Two-Port FXS Voice Interface Cards

This section describes how to connect and verify the status of the two-port Foreign Exchange Station (FXS) voice interface card (VIC-2FXS or VIC-2FXS-EU).

Setting the Jumpers on the Two-Port FXS Card

The two-port FXS voice interface card has two jumper headers (W3 and W4) that you can use to set loop-start or ground-start mode. One jumper configures each FXS port. The default setting is loop start. In the default setting, jumpers are placed over positions 2 and 3 of headers W3 and W4.

Most modern central office (CO) equipment, such as the DMS-100 and 5ESS switches, provides the calling party control (CPC) and Ring on Seize (RoS) features on loop-start lines. CPC provides faster disconnection, and RoS minimizes glare (collision of inbound and outbound calls on the same interface). If your CO does not provide these features on loop-start wires, you may want to configure the FXS card for ground-start operation instead by moving the jumpers to positions 1 and 2.

For proper operation, you must configure both jumpers identically. In most cases, the jumper setting should have little or no effect on operation.



Note

Jumper settings apply only to VIC-2FXS.

Connecting the Two-Port FXS Card

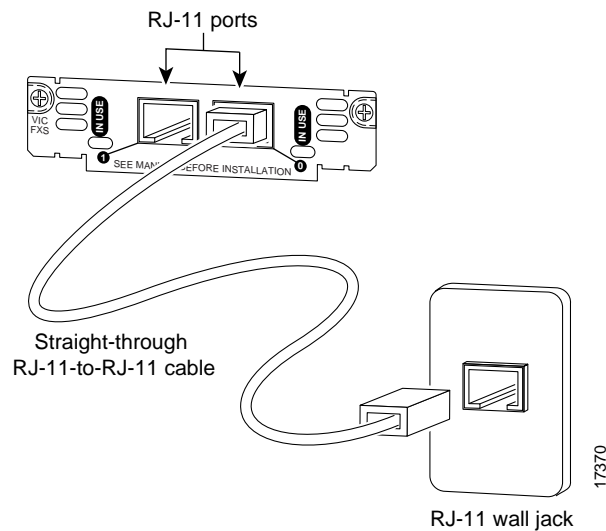
Use a standard RJ-11 modular telephone cable to connect the two-port FXS card to the PSTN or PBX through a telephone jack.

To connect the two-port FXS card, follow these steps:

Procedure

-
- Step 1 Power off the Catalyst 4224.
 - Step 2 Connect one end of the cable to one of the RJ-11 ports of the card, as shown in [Figure 4-6](#).
 - Step 3 Connect the other end of the cable to the RJ-11 wall jack, as shown in [Figure 4-6](#).

Figure 4-6 Connecting a Two-Port FXS Card (VIC-2FXS)



- Step 4 Power on the Catalyst 4224.
 - Step 5 Check that the LED is green.
-

[Table 4-5](#) describes the FXS voice interface card LED.

Table 4-5 FXS Voice Interface Card LED

LED	Description
IN USE	Green indicates that an off-hook has been detected. Off indicates that an on-hook has been detected.

The VIC-2FXS-EU voice interface card is intended for use in Europe. In countries where PSTNs do not use RJ-11 wall jacks, use a suitable adapter to convert the plug on an RJ-11 modular cable to the type of wall jack connector that is used in your country. These adapters are not sold by Cisco Systems but are available from other vendors.

**Caution**

Connect only an FXS interface that is approved for use in your country to the PSTN. Otherwise, connect the FXS interface only to a PBX.

Connecting the Eight-Port RJ21 FXS Voice Interface Cards

This section describes how to connect and verify the status of an eight-port RJ21 FXS module (WS-U4604-8FXS).

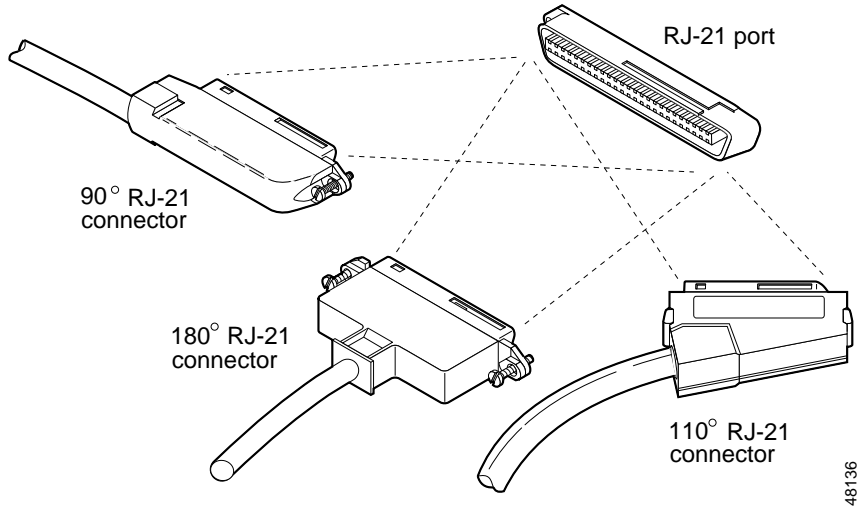
This section describes the following topics:

- [RJ-21 Connectors, page 4-16](#)
- [Connecting the Eight-Port RJ21 FXS Module, page 4-18](#)

RJ-21 Connectors

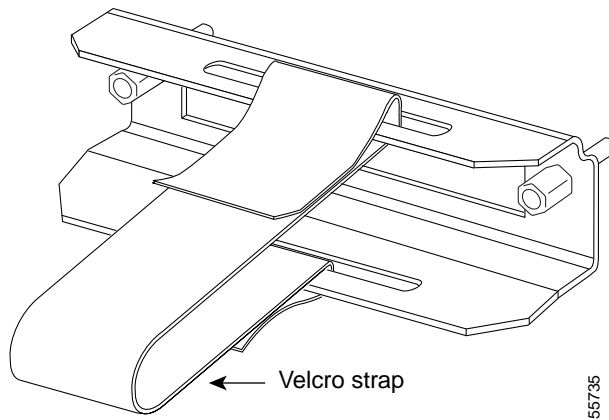
[Figure 4-7](#) shows examples of the RJ-21 telco connector for the RJ-21 port on the eight-port FXS module. The connectors are available in three cable-to-connector orientations: 90 degrees, 110 degrees, and 180 degrees.

Figure 4-7 *RJ-21 Category 5 Telco Interface Cable Connectors*



Because 90-degree RJ-21 connectors have only one screw, they require additional support to hold one side of the connector to the module. Cisco supplies a bracket and a velcro strap in the accessory kit (see [Figure 4-8](#)) for this purpose.

Figure 4-8 *Bracket and Velcro Strap for the RJ-21 Category 5 Telco Interface Cable Connector*



To attach the bracket to the eight-port FXS module, follow these steps:

Procedure

- Step 1** Remove the two screws from the eight-port FXS module front panel with a flat-blade screwdriver.
 - Step 2** Align the screws on the bracket with the holes on the eight-port FXS module, and then tighten them.
 - Step 3** Align the screw on the 90 degrees RJ-21 connector with the appropriate screw top on the bracket, and then tighten the screw.
 - Step 4** Attach the velcro strap as illustrated in [Figure 4-9](#).
-

Connecting the Eight-Port RJ21 FXS Module

Use a standard RJ-21 Category 5 telco connector and cable to connect the eight-port FXS module jack to the breakout box.

To connect the eight-port RJ21 FXS module, follow these steps:

Procedure

- Step 1** Power off the Catalyst 4224.
 - Step 2** Connect one end of the RJ-21 cable to a telco RJ-21, as shown in [Figure 4-9](#).
 - Step 3** Connect the other end of the cable to the breakout box or patch panel, as shown in [Figure 4-9](#).
 - Step 4** Power off the Catalyst 4224.
 - Step 5** Verify that the HDA LED is green. This LED indicates that Cisco IOS is running.
-



Caution

Do not directly connect Octel voice mail servers to the eight-port FXS module. You must first connect the servers to a patch panel. Every alternate output port on the Octel voice mail server is a pair of grounds. (The ring-tip pairs are not defined as port 0, port 1, and so

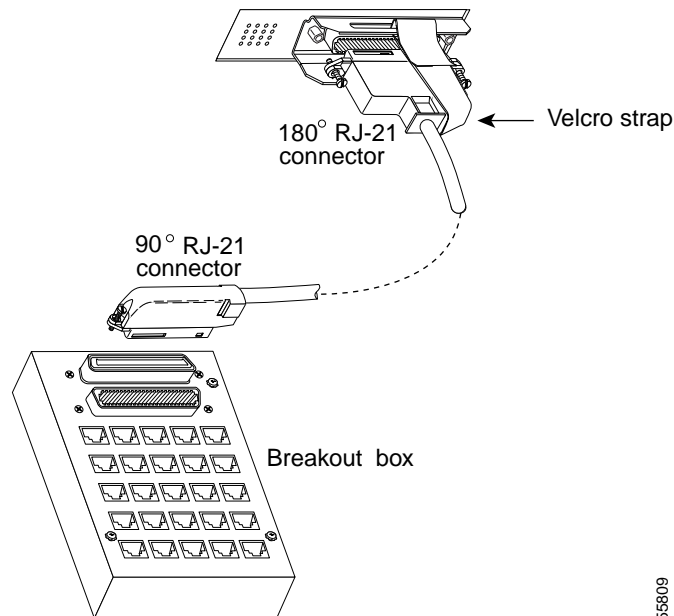
on. Instead, they are defined as port 0, ground/ground, port 1, ground/ground, and so on.) Connecting these grounds directly to the FXS module results in shorting every alternate port on the module to ground.



Warning

If the symbol of suitability with an overlaid cross appears above a port, you must not connect the port to a public network that follows the European Union standards. Connecting the port to this type of public network can cause severe injury or damage your router.

Figure 4-9 Connecting an Eight-Port RJ21 FXS Module (WS-U4604-8FXS) to a Breakout Box



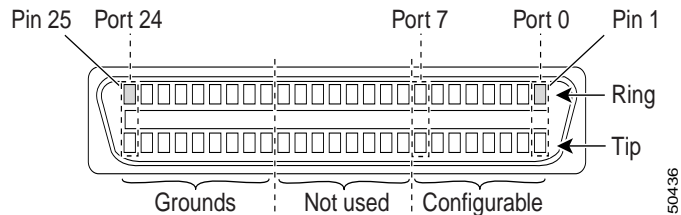
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Table 4-6 describes the eight-port RJ21 FXS module link LED.

Table 4-6 Eight-Port RJ21 FXS Module Link LED

LED	Description
Link	Green indicates that the telephone or fax machine is off-hook. Off indicates that the port is not active (connected device is on-hook) or that the link is not connected

Figure 4-10 shows the pinout convention for the telco RJ-21 (tip and ring on 25 pairs). The top row is ring, the bottom row is tip. For the eight-port FXS module, only the eight pairs to the right are used. The middle set of eight pairs is shorted together but not to ground.

Figure 4-10 Pinout Convention for the Telco RJ-21

See [Table B-3](#) in [Appendix B, “Connector and Cable Specifications,”](#) for a mapping of the RJ-21 pinouts for the eight-port FXS module connector.

Connecting the Two-Port FXO Voice Interface Cards

This section describes how to connect and verify the status of the two-port FXO voice interface cards (VIC-2FXO, VIC-2FXO-EU).

Setting the Jumpers on the Two-Port FXO Card

The two-port FXO voice interface card includes two jumper headers (W3 and W4) that you can use to set loop-start or ground-start mode. One jumper configures each FXO port. The default setting is loop start. In the default setting, jumpers are placed over positions 2 and 3 of headers W3 and W4.

Updated modern CO equipment, such as the DMS-100 and 5ESS switches, provides the CPC and RoS features on loop-start lines. CPC provides faster disconnection, and RoS minimizes glare (collision of inbound and outbound calls on the same interface). If your CO does not provide these features on loop-start lines, you may want to configure the FXO card for ground-start operation instead by moving the jumpers to positions 1 and 2.

For proper operation, you must configure both jumpers identically. In most cases, the jumper setting should have little or no effect on operation.

**Note**

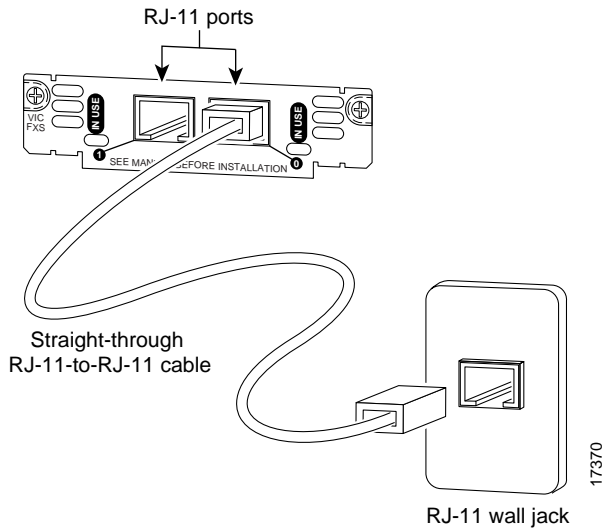
This jumper setting does not apply to VIC-2FXO-EU.

Connecting the Two-Port FXO Card

Use a standard RJ-11 modular telephone cable to connect the two-port FXO card to the PSTN or PBX through a telephone jack. To connect the two-port FXO card, follow these steps:

Procedure

- Step 1** Power off the Catalyst 4224.
- Step 2** Connect one end of the cable to one of the RJ-11 ports of the card, as shown in [Figure 4-11](#).
- Step 3** Connect the other end of the cable to the RJ-11 wall jack, as shown in [Figure 4-11](#).

Figure 4-11 Connecting a Two-Port FXO Card (VIC-2FXO)

- Step 4** Power on the Catalyst 4224.
- Step 5** Check that the IN USE LED is green, indicating that the line is in use.

Table 4-7 describes the FXO voice interface card LED.

Table 4-7 FXO Voice Interface Card LED

LED	Description
IN USE	Green indicates that the line is in use.

The VIC-2FXO-EU voice interface card is intended for use in Europe. In countries where PSTNs do not use RJ-11 wall jacks, use a suitable adapter to convert the plug on an RJ-11 modular cable to the type of wall outlet connector that is used in your country. These adapters are not sold by Cisco Systems but are available from other vendors.

**Caution**

Connect only an FXO interface that is approved for use in your country to the PSTN. Otherwise, connect the FXO interface only to a PBX. Connections from the PBX to the PSTN are permitted.

Connecting the Two-Port ISDN BRI Cards

This section describes how to connect and verify the status of the two-port ISDN BRI cards (VIC-2BRI-S/T-TE).

Use the straight through RJ-48C-to-RJ-48C cable that shipped with your Catalyst 4224.

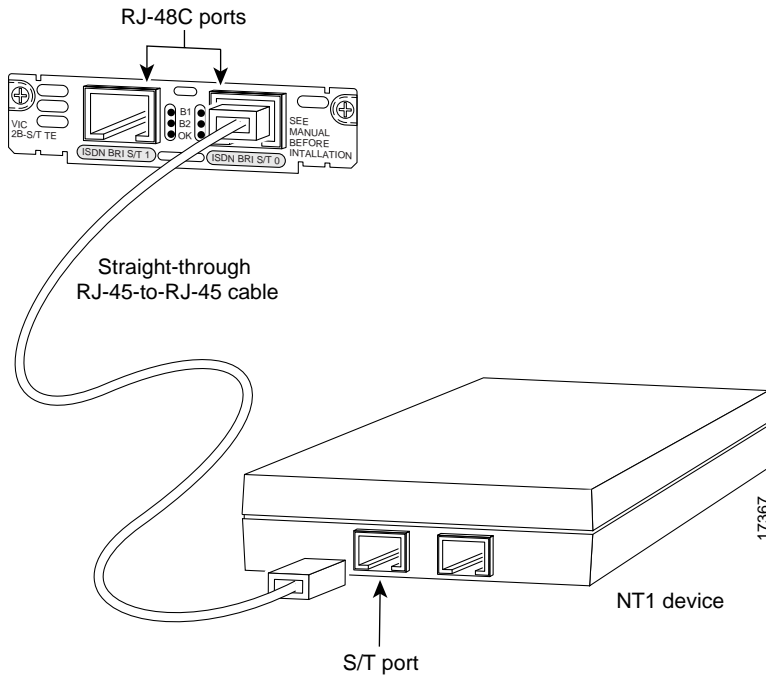
To connect the two-port ISDN BRI card, follow these steps:

Procedure

- Step 1** Power off the Catalyst 4224.
- Step 2** Connect one end of the cable to one of the RJ-48C ports of the card, as shown in [Figure 4-12](#).
- Step 3** Connect the other end of the cable to one of the RJ-48C S/T ports on an NT1 device, as shown in [Figure 4-12](#).

**Caution**

To prevent damage to the switch, be sure to connect the cable to the BRI connector only. Do not connect the cable to any other RJ-48C connector.

Figure 4-12 Connecting a Two-Port ISDN BRI Card (VIC-2B-S/T TE)

- Step 4** Power on the Catalyst 4224.
- Step 5** Check that the OK LED is green, indicating that the card is connected to an ISDN network.

[Table 4-8](#) describes the ISDN BRI voice interface card LEDs.

Table 4-8 ISDN BRI Voice Interface Card LEDs

LED	Description
B1	Green indicates that the call is active on the B1 channel.
B2	Green indicates that the call is active on the B2 channel.
OK	Green indicates that the interface card is connected to an ISDN network. This LED is on during normal operation.

T1/E1 Multiflex Voice/WAN Interface Cards

This section describes how to connect the following interface cards:

- [Connecting the One-Port Multiflex Trunk Interface Cards, page 4-25](#)
- [Connecting the Two-Port Multiflex Trunk Interface Cards, page 4-27](#)

Connecting the One-Port Multiflex Trunk Interface Cards

This section describes how to connect and verify the status of the one-port multiflex trunk interface cards (VWIC-1MFT-T1, VWIC-1MFT-E1, or VWIC-1MFT-G703).

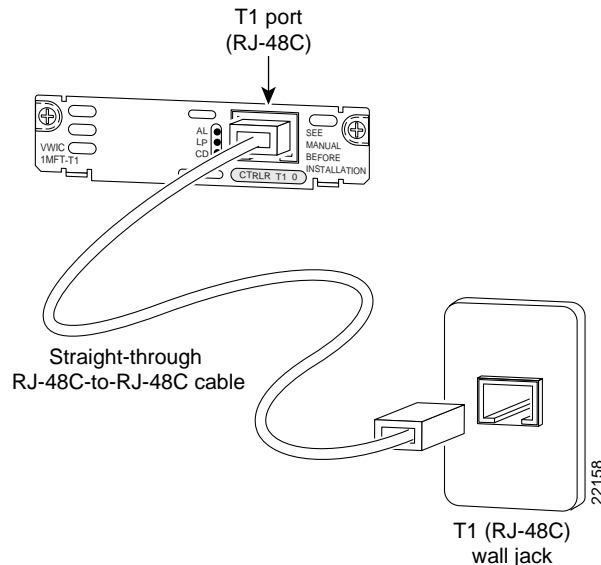
Use the straight-through RJ-48C-to-RJ-48C cable that shipped with the Catalyst 4224.

To connect the one-port multiflex trunk interface card, follow these steps:

Procedure

-
- Step 1** Power off the Catalyst 4224.
- Step 2** Connect one end of the cable to the RJ-48C port of the card, as shown in [Figure 4-13](#).
- Step 3** Connect the other end of the cable to the RJ-48C wall jack at your site, as shown in [Figure 4-13](#).

Figure 4-13 Connecting a One-Port Multiflex Trunk Interface Card (VVIC-1MFT-T1)



- Step 4** Power on the Catalyst 4224.
- Step 5** Verify that the CD LED is green, indicating that the card's internal DSU/CSU is communicating with the DSU/CSU at the T1 or E1 service provider's CO.
-

Table 4-9 describes the one-port multiflex trunk interface card LEDs.

Table 4-9 One-Port Multiflex Trunk Interface Card LEDs

LED	Description
AL	Yellow indicates that there is a local or remote alarm state. This LED is off during normal operation.
LP	Yellow indicates that a loopback or line state has been detected or has been manually set by the user. This LED is off during normal operation.
CD	Green indicates that a carrier has been detected and that the internal DSU/CSU in the card is communicating with another DSU/CSU. This LED is on during normal operation.

Connecting the Two-Port Multiflex Trunk Interface Cards

This section describes how to connect and verify the status of the two-port multiflex trunk interface cards (VWIC-2MFT-T1, VWIC-2MFT-E1, VWIC-2MFT-T1-DI, VWIC-2MFT-E1-DI, or VWIC-2MFT-G703).

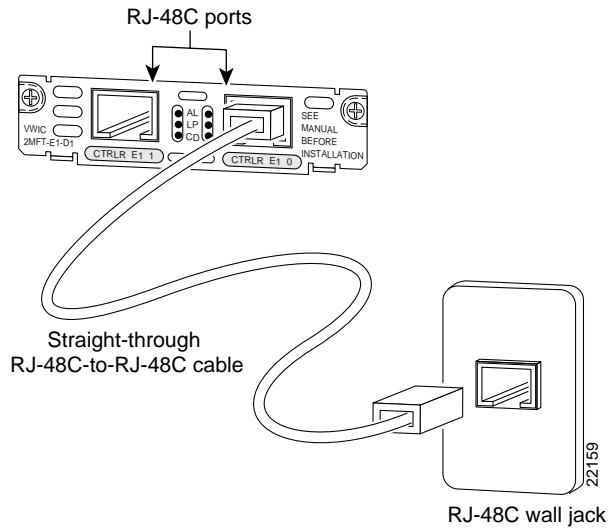
Use the straight-through RJ-48C-to-RJ-48C cable that shipped with the Catalyst 4224.

To connect the two-port multiflex trunk interface card, follow these steps:

Procedure

- Step 1** Power on the Catalyst 4224.
- Step 2** Connect one end of the cable to one of the RJ-48C ports of the card, as shown in [Figure 4-14](#).
- Step 3** Connect the other end of the cable to the T1 or E1 (RJ-48C) wall jack at your site, as shown in [Figure 4-14](#).

Figure 4-14 Connecting a Two-Port Multiflex Trunk Interface Card (VWIC-2MFT-E1-D1)



- Step 4** Turn on power to the switch.
- Step 5** Verify that the CD LED is green, indicating that the card's internal DSU/CSU is communicating with the DSU/CSU at the T1 or E1 service provider CO.
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Table 4-10 describes the two-port multiflex interface card LEDs.

Table 4-10 two-Port Multiflex Trunk Interface Card LEDs

LED	Description
AL	Yellow indicates that there is a local or remote alarm state. This LED is off during normal operation.
LP	Yellow indicates that a loopback or line state has been detected or has been manually set by the user. This LED is off during normal operation.
CD	Green indicates that a carrier has been detected and that the internal DSU/CSU in the card is communicating with another DSU/CSU. This LED is on during normal operation.

