Connecting Cisco Analog Modem Network Modules to the Network

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This guide describes how to connect Cisco Analog Modem network modules to your network. It contains the following sections:

8- and 16-Port Analog Modem Network Modules

The following analog modem network modules originate or terminate analog telephone transmissions through RJ-11 modular jacks:

- 8-port analog modem network module (NM-8AM) (see Figure 1)
- 16-port analog modem network module (NM-16AM) (see Figure 2)

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Figure 1 8-Port Analog Modem Network Module

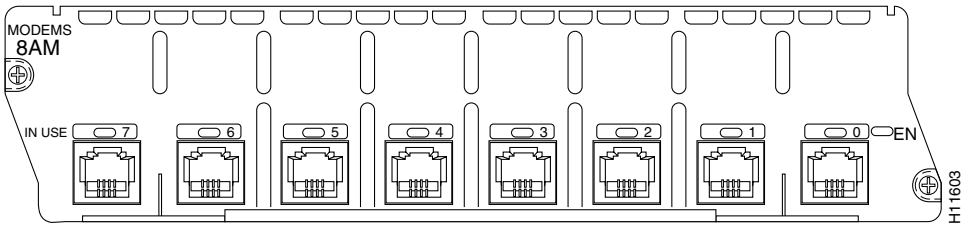
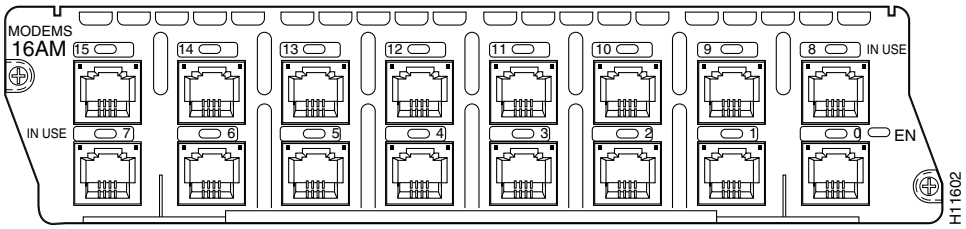


Figure 2 16-Port Analog Modem Network Module



The following warning applies in Australia:

Warning **This equipment will be inoperable when main power fails.**

The following warning applies in New Zealand:

Warning **This equipment does not fully meet Telecom's impedance requirements. Performance limitations may occur when used in conjunction with some parts of the network. Telecom will accept no responsibility should difficulties arise in such circumstances.**

Network Protocols Supported

The analog modems described in this chapter support the following protocols:

- All standard data rates from 300 bps to 33.6 kbps (V.34*bis*)
- V.42*bis* and Microcom Network Protocol (MNP) 5 data compression
- V.42, Link Access Procedure for Modems (LAPM), and MNP 2 to 4 error correction
- MNP 10 for high performance under all line conditions
- MNP 10EC for high performance in analog cellular environments

8- and 16-Port Analog Modem Network Modules, Version 2

The following analog modem network modules originate or terminate analog telephone transmissions through RJ-11 modular jacks:

- 8-port analog modem network module (NM-8AM-V2) (see Figure 3)

- 16-port analog modem network module (NM-16AM-V2) (see Figure 4)

Caution To comply with the Telcordia GR-1089 NEBS standard for electromagnetic compatibility and safety, connect the 16-port analog modem network module (NM-16AM-V2) only to intra-building or non-exposed wiring or cabling. The intrabuilding cable must be shielded and the shield must be grounded at both ends.

Figure 3 8-Port Analog Modem Network Module (NM-8AM-V2)

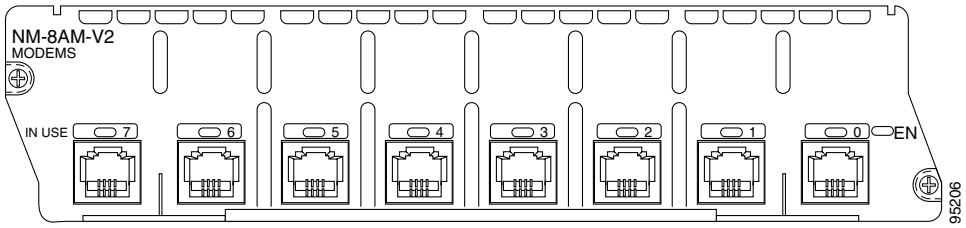
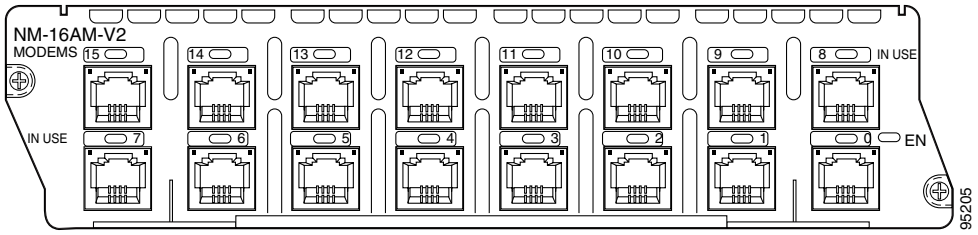


Figure 4 16-Port Analog Modem Network Module (NM-16AM-V2)



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Network Protocols Supported

The analog modems described in this chapter support these protocols:

- Standardized modem protocols
  - ITU-T V.90
  - V.92 Quick Connect
  - ITU-T V.34bis
  - ITU-T V.34

  - ITU-T V.34+ up to 33,600 bps
  - ITU-T V.32*bis*
  - ITU-T V.32
  - ITU-T V.32 turbo up to 19,200 bps
  - ITU-T V.22*bis* (with V.54 loopback)
  - ITU-T V.22 A/B
  - ITU-T V.23 at 75 and 1200 bps
  - ITU-T V.21 at 300 bps
  - BELL 103 and 212a
- Standardized fax protocols
  - ITU-T V.17
  - ITU-T V.29
  - ITU-T V.27ter
  - ITU-T V.21 channel 2
  - EIA 578 Class 2
  - Group 3 fax class 1 and class 2
- Standardized modem error correction and compression
  - MNP 2 – 4
  - ITU-T V.42 Link Access Procedure for Modems (LAPM)
  - Microcom Network Protocol (MNP) 5
  - V.42bis (with 4-K dictionaries)
  - ITU-T V.44

Interface Numbering

Cisco IOS software identifies each modem uniquely by its slot number and port number.

Some Cisco IOS configuration commands identify asynchronous ports by an interface number (or a line number, which is the same as the interface number). The interface number of a port on an 8- or 16-port analog modem network module is related to the slot number where the module is installed and the number of the port in the module.

Ports in the 8- and 16-port analog modem network modules are numbered in the same pattern as slot numbers, beginning at 0 at the lower right and continuing from right to left and (in the 16-port module) from bottom to top.

The interface number of a port is determined in the following way:

interface-number = (32 x *slot-number*) + *port-number* + 1

For example, modem port 12 in slot 1 corresponds to interface number (32 x 1) + 12 + 1 = 45. This is also the line number for the port. Port 12 in slot 1 is always assigned interface number 45, regardless of whether the module in slot 0 is an 8-port analog modem network module, a 16-port analog modem module, or some other kind of module entirely, or even whether there is a network module in slot 0 at all. If you move the module from slot 1 to a different slot, however, its interface numbers change.

Table 1 shows the range of interface numbers available for each type of analog modem network module in each router slot. (Interface 0 is automatically assigned to the console.)

Table 1 16- and 32-Port Analog Module Interface Numbering

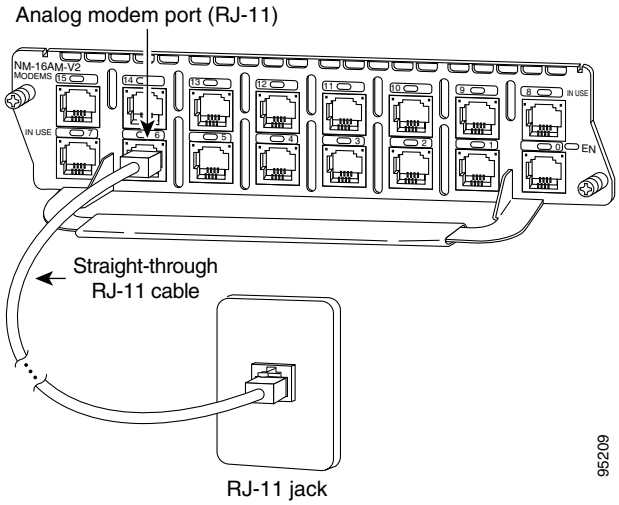
Slot Number	Interface Numbers (8-Port Module)	Interface Numbers (16-Port Module)
0	1–8	1–16
1	33–40	33–48
2	65–72	65–80
3	97–104	97–112
4	129–136	129–144
5	161–168	161–176
6	193–200	193–208

Connecting the Modules to the Telephone Network

Each analog modem network module provides 8 or 16 RJ-11 jacks for standard modular cables. These ports are color-coded pink. Cables are not provided with the network module.

To establish an analog connection, use a straight-through RJ-11 modular cable to connect the jack to a wall telephone outlet. (See Figure 5.)

Figure 5 Connecting an Analog Modem Network Module



Analog Modem Network Module LEDs

All network modules have an enable (EN) LED. This LED indicates that the module has passed its self-tests and is available.

Each modem in the module has an in use (IN USE) LED that lights when the modem is off-hook. (See Figure 6 and Figure 7.)

Figure 6 8-Port Analog Modem Network Module LEDs

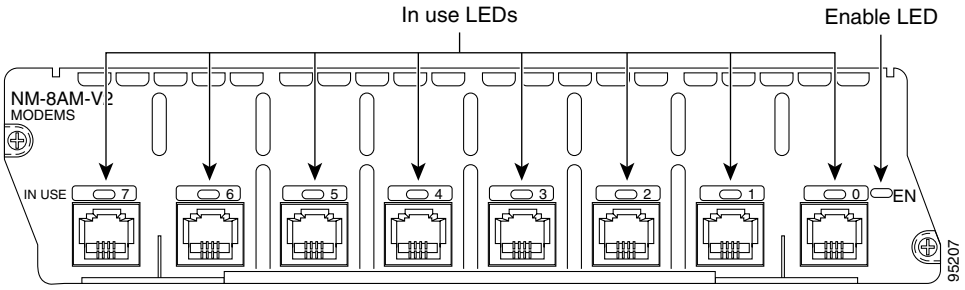
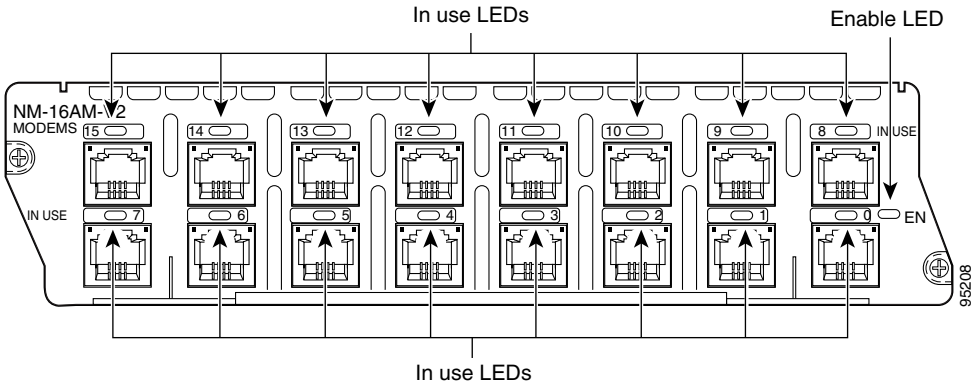


Figure 7 16-Port Analog Modem Network Module LEDs



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