

# Asynchronous Terminal Server Interface Modules for Cisco 4000 Series Integrated Services Routers

## Product overview

Asynchronous interface modules provide high-density terminal server functionality to Cisco® 4000 Series Integrated Services Routers (ISRs). Up to 200 terminal server connections can be supported on a single platform—eight more than are supported on the Cisco ISR G2.

Asynchronous interface modules are offered as both a Network Interface Module (NIM) and a high-density Service Module (SM) (Figure 1).

Table 1 lists the asynchronous NIM and SM SKUs.

**Table 1.** Cisco asynchronous interface modules for 4000 Series ISRs

| SKU             | Description              | Supported interface |
|-----------------|--------------------------|---------------------|
| <b>NIM-16A</b>  | 16-Port Async Serial NIM | RS-232              |
| <b>NIM-24A</b>  | 24-Port Async Serial NIM | RS-232              |
| <b>SM-X-64A</b> | 64-Port Async Serial SM  | RS-232              |

**Figure 1.** Asynchronous interface modules for Cisco 4000 Series ISRs



## Applications

These modules provide highly flexible connections that allow access to EIA-232 ports across a LAN or WAN.

The asynchronous interface modules for the 4000 Series ISRs are specifically designed for terminal server use. This capability allows for out-of-band management of console ports, giving the network operator full console access to a network of remote devices from a central location.

The asynchronous interface modules for the Cisco 4000 Series ISRs do not support Serial Line Internet Protocol (SLIP) or Point-to-Point Protocol (PPP). Asynchronous routing and data encapsulation features are thus not supported.

## Platform support

The NIM-16A and NIM-24A are supported in the NIM slots of all 4000 Series ISR platforms, whereas the SM-X-64A is supported only on 4000 Series platforms with an SM-X slot.

Table 2 lists the platforms that support each asynchronous interface module type.

**Table 2.** Platform support

| Module          | Supporting platforms                     |
|-----------------|------------------------------------------|
| <b>NIM-16A</b>  | Cisco 4221, 4321, 4331, 4351, 4431, 4451 |
| <b>NIM-24A</b>  | Cisco 4221, 4321, 4331, 4351, 4431, 4451 |
| <b>SM-X-64A</b> | Cisco 4331, 4351, 4451                   |

The number of asynchronous interface modules supported on each platform is governed only by the number of available slots. A maximum terminal server port count of 200 is achieved in the 4351 and 4451 ISRs by combining three NIM-24A modules with two SM-X-64A modules.

Table 3 lists the maximum number of asynchronous interface modules per platform.

**Table 3.** Maximum number of asynchronous interface modules per ISR

| Platform                | NIM-16A             | NIM-24A             | Maximum NIMs        | Maximum SM-X-64A |
|-------------------------|---------------------|---------------------|---------------------|------------------|
| <b>Cisco 4221, 4321</b> | 2                   | 2                   | 2                   | Not supported    |
| <b>Cisco 4331</b>       | 2 (3 <sup>*</sup> ) | 2 (3 <sup>*</sup> ) | 2 (3 <sup>*</sup> ) | 1                |
| <b>Cisco 4351, 4451</b> | 3 (5 <sup>*</sup> ) | 3 (5 <sup>*</sup> ) | 3 (5 <sup>*</sup> ) | 2                |
| <b>Cisco 4431</b>       | 3                   | 3                   | 3                   | Not supported    |

<sup>\*</sup> When using SM-X-NIM-ADPTR. One 16- or 24-port module is supported per adapter. The Cisco 4331 ISR supports one adapter. The Cisco 4351 and 4451 ISRs support two adapters. The maximum number of SM-X-64A modules in this table assumes that no SM-X-NIM-ADPTR is being used for NIMs.

## Software requirements

Table 4 lists the minimum Cisco IOS<sup>®</sup> Software release required for each module.

**Table 4.** Minimum Cisco IOS Software release

| Module          | Minimum Cisco IOS Software release | Cisco IOS XE feature set |
|-----------------|------------------------------------|--------------------------|
| <b>NIM-16A</b>  | 16.3.1                             | IP Base and up           |
| <b>NIM-24A</b>  | 16.3.1                             | IP Base and up           |
| <b>SM-X-64A</b> | 16.6.1                             | IP Base and up           |

## Connectors and cabling

Asynchronous interface modules are connected to RS-232 ports on network devices with what is commonly called an "Octal cable." An Octal cable is an 8-port asynchronous cable consisting of an 8-port high-density connector fanning out into eight individual cables, each with an RJ-45 connector. Optional RJ-45- to DB-25 modular adapters are required when a conversion from RJ-45 to DB-25 is needed.

The 8-port connector is identical to the connector type used on the previous ISR platforms, and the asynchronous interface modules will thus support the use of the previous-generation asynchronous cable type CAB-HD8-ASYNC.

Table 5 lists the high-density 8-port EIA-232 asynchronous cables supported on the asynchronous interface modules.

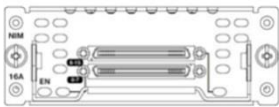
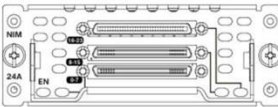
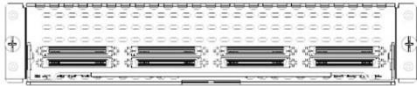
**Table 5.** Cables supported on the asynchronous interface modules

| Cable SKU            | Description                                                                           |
|----------------------|---------------------------------------------------------------------------------------|
| <b>CAB-HD8-ASYNC</b> | Old generation for ISR G1 and G2                                                      |
| <b>CAB-ASYNC-8</b>   | New generation; same connector and pin-out as CAB-HD8-ASYNC, but with slimmer housing |

Due to the compact connector placement on the NIM-24A, only the new cable type CAB-ASYNC-8 with slimmer housing is supported in the lower and middle sockets. See Table 6.

Table 6 lists the cables supported by each module.

**Table 6.** Cables supported by modules

| NIM-16A                                                                           | NIM-24A                                                                           | SM-X-64A                                                                            |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |  |
| Upper socket: CAB-HD8-ASYNC or CAB-ASYNC-8                                        | Upper socket: CAB-ASYNC-8 only                                                    | Upper sockets: CAB-HD8-ASYNC or CAB-ASYNC-8                                         |
| —                                                                                 | Middle socket: CAB-ASYNC-8 only                                                   | —                                                                                   |
| Lower socket: CAB-HD8-ASYNC or CAB-ASYNC-8                                        | Lower socket: CAB-HD8-ASYNC or CAB-ASYNC-8                                        | Lower sockets: CAB-HD8-ASYNC or CAB-ASYNC-8                                         |

## Connection rate

9600 baud is the generally recommended connection rate for all terminal server modules. Higher connection rates can be used for a low number of simultaneous connections.

Table 7 lists the recommended connection rate per module type.

**Table 7.** Recommended connection rates

| Baud rate     | NIM-16A and NIM-24A                                    | SM-X-64A                                               |
|---------------|--------------------------------------------------------|--------------------------------------------------------|
| <b>9600</b>   | Recommended                                            | Recommended                                            |
| <b>115200</b> | Use only with a low number of simultaneous connections | Use only with a low number of simultaneous connections |
| <b>230400</b> | Not recommended                                        | Not recommended                                        |

## Supported command-line interface

When an asynchronous interface module is inserted into the router, Cisco IOS Software will automatically create an asynchronous interface based on the slot number. However, since only terminal server service is supported, any eventual configuration of network protocols will have no effect.

## Common specifications

The specifications listed here are common to all serial and asynchronous modules.

### Agency approvals:

- CAN/CSA 22.2 No. 60950-1-07, Second Edition (Canada)
- EN 60950-1: 2006 (European Union)
- UL 60950-1 (United States)
- IEC 60950-1: 2005 (international)

### Immunity:

- CISPR24
- EN 300386
- EN55024
- KN35
- TCVN 7317

### Emissions:

- FCC Part 15 Class A
- ICES-003 Class A
- EN55032 Class A
- CISPR32 Class A
- AS/NZS CISPR32
- VCCI Class A
- EN 300386
- EN61000-3-3
- EN61000-3-2
- KN 32: 2015
- TCVN 7189

### Physical specifications:

- Single-wide NIM and SM-X modules, no slot restrictions
- Dimensions (NIM modules) (H x W x D): 1.25 x 3.5 x 6.7 in. / 32 x 89 x 172 mm
- Dimensions (SM-X-64A) (H x W x D): 1.58 x 8.1 x 9.2 in. / 40 x 206 x 233 mm

### Environmental specifications:

- Operating temperature: 32° to 104°F (0° to 40°C)
- Storage temperature: -4° to 149°F (-20° to 65°C)
- Relative humidity: 10 to 90 percent, noncondensing

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### For more information

For more information about Cisco Services, visit <https://www.cisco.com/go/services>.

For more information about Cisco 4000 Series ISRs, visit: <https://www.cisco.com/c/en/us/products/routers/4000-series-integrated-services-routers-isr/index.html>.

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