

Feature Support

Cisco IOS software is packaged in feature sets that consist of software images that support specific platforms. The feature sets available for a specific platform depend on which Cisco IOS software images are included in a release. Each feature set contains specific Cisco IOS features.



Caution

Cisco IOS images with strong encryption (including, but not limited to 168-bit [3DES] data encryption feature sets) are subject to U.S. government export controls and have limited distribution. Strong encryption images to be installed outside the United States are likely to require an export license. Customer orders may be denied or subject to delay because of U.S. government regulations. When applicable, the purchaser/user must obtain local import and use authorizations for all encryption strengths. Please contact your sales representative or distributor for more information, or send an e-mail to export@cisco.com.

Feature-to-image mapping is available through Cisco Feature Navigator. Cisco Feature Navigator is a web-based tool that enables you to determine which Cisco IOS software images support a specific set of features and which features are supported in a specific Cisco IOS image. You can search by feature or by feature set (software image). You can compare Cisco IOS software releases side-by-side to display both the features unique to each software release and the features that the releases have in common.

Cisco Feature Navigator is updated regularly when major Cisco IOS software releases and technology releases occur. For the most current information, go to the Cisco Feature Navigator home page at the following URL:

www.cisco.com/go/cfn

For help with Cisco Feature Navigator, see the help information at the following URL:

http://www.cisco.com/web/applicat/CFNTOOLS/Help_Docs/help/cfn_support.html

Determining the Software Images (Feature Sets) That Support a Specific Feature

To determine which software images (feature sets) in a Cisco IOS release support a specific feature, go to the [Cisco Feature Navigator home page](#) and perform the following steps.

- Step 1** From the Cisco Feature Navigator home page, click **Research Features**.
- Step 2** Select your software type or leave the field as “All”.
- Step 3** To find a feature, you can search by either Feature or Technology (select the appropriate button). If you select Search by Feature, you can further filter your search by using the Filter By text box.
- Step 4** Choose a feature from the Available Features text box, and click the **Add** button to add the feature to the Selected Features text box.



Note

To learn more about a feature in the list, click the **View Desc** button in the Available Features text box.

Repeat this step to add features. A maximum of 20 features can be chosen for a single search.

- Step 5** Click **Continue** when you are finished choosing features.

- Step 6** In the Release/Platform Tree area, select either your release (from the Train-Release list) or your platform (from the Platform list).
- Step 7** The “Search Result” table will list all the software images (feature sets) that support the features that you chose.



Note You can download your results into an Excel spreadsheet by clicking on the Download Excel button.

Determining the Features Supported in a Specific Software Image (Feature Set)

To determine which features are supported in a specific software image (feature set), go to the [Cisco Feature Navigator home page](#) and perform the following steps.

- Step 1** From the Cisco Feature Navigator home page, click **Research Software**.
- Step 2** Select your software type from the drop-down list and chose the **Release** button in the “Search By” area.
- Step 3** From the Major Release drop-down list, chose the appropriate major release.
- Step 4** From the Release drop-down list, choose the appropriate maintenance release.
- Step 5** From the Platform drop-down list, choose the appropriate hardware platform.
- Step 6** From the Feature Set drop-down list, choose the appropriate feature set. The Image Details area will provide details on the specific image. The Available Features area will list all the features that are supported by the feature set (software image) that you chose.



Note To learn more about a feature in the list, click the **View Desc** button in the Available Features text box.

Memory Recommendations

To determine memory recommendations for software images (feature sets) in your Cisco IOS release, go to the [Cisco Feature Navigator home page](#) and perform the following steps.

- Step 1** From the Cisco Feature Navigator home page, click **Research Software**.
- Step 2** Select your software type from the drop-down list and choose the **Release** button in the “Search By” area.
- Step 3** From the Major Release drop-down list, choose the appropriate major release.
- Step 4** From the Release drop-down list, choose the appropriate maintenance release.
- Step 5** From the Platform drop-down list, choose the appropriate hardware platform.
- Step 6** From the Feature Set drop-down list, choose the appropriate feature set.

- Step 7** The Image Details area will provide details on the specific image including the DRAM and flash memory recommendations for each image. The Available Features area will list all the features that are supported by the feature set (software image) that you chose.
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Platform-Specific Information

This section describes the platform-specific information for the Cisco platforms supported by Cisco IOS Release 15.0M. Each section includes memory requirements and supported features. Additional information is provided when applicable.

This information is provided for the platforms described in the following sections:

- [Cisco 800 Series Routers, page 7](#)
- [Cisco 1800 Series Routers \(Fixed Configuration and Modular\), page 8](#)
- [Cisco 1900 Series Integrated Services Routers, page 13](#)
- [Cisco 2800 Series Integrated Services Routers, page 14](#)
- [Cisco 2900 Series Integrated Services Routers, page 24](#)
- [Cisco 3200 Series Rugged Integrated Services Routers, page 25](#)
- [Cisco 3800 Series Integrated Services Routers, page 27](#)
- [Cisco 3900 Series Integrated Services Routers, page 46](#)
- [Cisco 7000 Series Routers, page 47](#)
- [Cisco AS5350XM Universal Gateways, page 48](#)
- [Cisco AS5400XM Universal Gateways, page 49](#)
- [Cisco IAD2430 Series Integrated Access Devices, page 50](#)
- [Cisco IAD2801 Series Integrated Access Devices, page 53](#)
- [Cisco VG200 Series Analog Voice Gateways, page 54](#)
- [Cisco VGD 1T3 Voice Gateways, page 55](#)

Cisco 800 Series Routers

This section contains the following sections with information that is specific to the Cisco 800 series routers:

- [Memory Recommendations, page 7](#)
- [Supported Hardware, page 8](#)
- [Feature Support, page 8](#)

Memory Recommendations

For memory recommendations for the Cisco 800 series routers in Cisco IOS Release 15.0M, see the [“Memory Recommendations” section on page 6](#).

Supported Hardware

Cisco IOS Release 15.0M supports the following Cisco 800 series routers:

- Cisco 861
- Cisco 870 (Cisco 871, Cisco 876, Cisco 877, Cisco 878)
- Cisco 881 (Cisco 881, Cisco IAD881, Cisco SRST881)
- Cisco 886 (Cisco IAD886, Cisco SRST886)
- Cisco 887 (Cisco 887, Cisco IAD887, Cisco SRST887)
- Cisco 888 (Cisco 888, Cisco IAD888, Cisco SRST888)
- Cisco 891
- Cisco 892

For detailed descriptions of the new hardware features, see the [“New and Changed Information” section on page 57](#).

For additional information about supported hardware for this platform and release, go to the Cisco Feature Navigator home page at the following URL:

<http://www.cisco.com/go/cfn>

Feature Support

For feature support in Cisco IOS Release 15.0M, see the [“Feature Support” section on page 5](#).

Cisco 1800 Series Routers (Fixed Configuration and Modular)

This section contains the following sections with information that is specific to the Cisco 1800 series routers:

- [Memory Recommendations, page 8](#)
- [Supported Hardware, page 8](#)
- [Feature Support, page 13](#)

Memory Recommendations

For memory recommendations for the Cisco 1800 series routers in Cisco IOS Release 15.0M, see the [“Memory Recommendations” section on page 6](#).

Supported Hardware

Cisco IOS Release 15.0M supports the following Cisco 1800 series routers:

- Cisco 1801, Cisco 1802, Cisco 1803, and Cisco 1805, wireless and nonwireless
- Cisco 1811 and Cisco 1812, wireless (fixed configuration)
- Cisco 1811 and Cisco 1812, without wireless (fixed configuration)
- Cisco 1841 (modular)

- Cisco 1841C (The Cisco 1841C router is supported in Cisco IOS Release 15.0(1)M2 and later releases.)
- Cisco 1861 (integrated services)

For detailed descriptions of the new hardware features, see the “[New and Changed Information](#)” section on page 57.

For additional information about supported hardware for this platform and release, go to the Cisco Feature Navigator home page at the following URL:

<http://www.cisco.com/go/cfn>

Cisco 1801 Routers

The Cisco 1801 router has the following hardware components:

- One Fast Ethernet port
- One ADSL over POTS port
- One ISDN-BRI S/T port
- Eight Fast Ethernet Switch ports

Cisco 1801W Routers

The Cisco 1801W router has the following hardware components:

- One Fast Ethernet port
- One ADSL over POTS port
- One ISDN-BRI S/T port
- Eight Fast Ethernet Switch ports
- IEEE 802.11a and 802.11b/g wireless

Cisco 1802 Routers

The Cisco 1802 router has the following hardware components:

- One Fast Ethernet port
- One ADSL over ISDN port
- One ISDN-BRI S/T port
- Eight Fast Ethernet Switch ports

Cisco 1802W Routers

The Cisco 1802W router has the following hardware components:

- One Fast Ethernet port
- One ADSL over ISDN port
- One ISDN-BRI S/T port
- Eight Fast Ethernet Switch ports
- IEEE 802.11a and 802.11b/g wireless

Cisco 1803 Routers

The Cisco 1803 router has the following hardware components:

- One Fast Ethernet port
- One G.SHDSL port
- One ISDN-BRI S/T port
- Eight Fast Ethernet Switch ports

Cisco 1803W Routers

The Cisco 1803W router has the following hardware components:

- One Fast Ethernet port
- One G.SHDSL port
- One ISDN-BRI S/T port
- Eight Fast Ethernet Switch ports
- IEEE 802.11a and 802.11b/g wireless

Cisco 1805 Routers

The Cisco 1805 router has the following hardware components:

- Two onboard Fast Ethernet ports
- Four-port 10/100BASE-T managed switches
- Onboard hardware encryption
- Auxiliary port

Cisco 1811 Routers

The Cisco 1811 router has the following hardware components:

- Two Fast Ethernet ports
- One V.92 modem port
- Eight Fast Ethernet switch ports
- Two Universal Serial Bus (USB) connectors

Cisco 1812 Routers

The Cisco 1812 router has the following hardware components:

- Two Fast Ethernet ports
- One ISDN-BRI S/T port
- Eight Fast Ethernet switch ports
- Two USB connectors

Cisco 1841 router

The Cisco 1841 router supports any combination of one or two of the following WAN interface cards (WICs) or multiflex voice/WAN interface cards (VWICs) (data only), which are shared with the Cisco 1700, Cisco 2600, and Cisco 3600 series routers:

- WIC-1T: one-port high-speed serial (synchronous/asynchronous)
- WIC-2T: two-port high-speed serial (synchronous/asynchronous)
- WIC-2A/S: two-port low-speed serial (synchronous/asynchronous) (up to 128 kb/s)
- WIC-1ADSL: one-port ADSL
- WIC-1ADSL-I-DG: one-port ADSLoISDN WIC
- WIC-1ADSL-DG: one-port ADSLoPOTS WIC with dying gasp
- WIC-1B-S/T-V3: one-port ISDN WIC (dial and leased line)
- WIC-1B-U-V2: one-port ISDN BRI NT-1 WIC for the Cisco 1700, 1800, 2600, 3600, and 3700 series
- WIC-1DSU-56K4: one-port integrated 56/64-kb/s 4-wire DSU/CSU
- WIC-1DSU-T1-V2: updated one-port T1/fractional T1 DSU/CSU WIC
- WIC-1SHDSL: one-port G.SHDSL
- WIC-1SHDSL-V2
- WIC-1AM: one-port analog modem
- WIC-2AM: two-port analog modem
- HWIC-4A/S: four low-speed sync/async serial ports
- HWIC-4ESW: four-port 10/100 Ethernet switch interface cards
- HWIC-8A/S-RS232: eight low-speed sync/async serial ports, EIA-232 only
- HWIC-8A: eight async EIA-232 serial ports
- HWIC-AP-G
- HWIC-AP-AG

The following T1/E1 multiflex VWICs are also supported on the Cisco 1841 for data applications only:

- VWIC-1MFT-E1: one-port RJ-48 multiflex trunk (E1)
- VWIC-2MFT-E1: two-port RJ-48 multiflex trunk (E1)
- VWIC-1MFT-G703: one-port RJ-48 multiflex trunk (G.703)
- VWIC-2MFT-G703: two-port RJ-48 multiflex trunk (G.703)
- VWIC-1MFT-T1: one-port RJ-48 multiflex trunk (T1)
- VWIC-2MFT-T1: two-port RJ-48 multiflex trunk (T1)
- VWIC-2MFT-E1-DI: two-port RJ-48 multiflex trunk (E1) (with drop and insert)
- VWIC-2MFT-T1-DI: two-port RJ-48 multiflex trunk (T1) (with drop and insert)
- VWIC2-1MFT-T1/E1: 1-port T1/E1 voice/WAN with drop and insert (D&I)
- VWIC2-2MFT-T1/E1: 2-port T1/E1 voice/WAN with drop and insert (D&I)
- VWIC2-1MFT-G703: 1-port T1/E1 voice/WAN with drop and insert (D&I) and unstructured E1 (G703)

- VWIC2-2MFT-G703: 2-port T1/E1 voice/WAN with drop and insert (D&I) and unstructured E1 (G703)

AIM:

- AIM-VPN/BPII-PLUS: DES/3DES/AES VPN Encryption/Compression card
- AIM-VPN/SSL-1: Encryption module support

USB flash:

- MEMUSB-64FT
- MEMUSB-128FT
- MEMUSB-256FT

Cisco 1841C Routers

The Cisco 1841C router supports only the following modules:

- AIM-VPN/SSL-1: Encryption module support
- HWIC-1ADSL: 1 ADSL port
- HWIC-1FE: 1-port 10/100 routed-port HWIC
- HWIC-2FE: 2-port 10/100 routed-port HWIC
- HWIC-1GE-SFP: 1-SFP slot GigE HWIC
- HWIC-16A: 16-port async HWIC
- HWIC-1T-C: 1-port serial high-speed WIC
- HWIC-2T-C: 2-port serial high-speed WIC
- HWIC-4T: 4-port serial HWIC
- HWIC-2A/S: 2-port async/sync serial high-speed WIC
- HWIC-4A/S: 4-port async/sync serial HWIC
- HWIC-8A: 8-port async HWIC
- HWIC-8A/S-232: 8-port async/sync serial HWIC, EIA-232
- HWIC-3G-HSPA: 3G WWAN HWIC-HSPA/UMTS/EDGE/GPRS
- HWIC-4ESW-C: 4-port single-wide 10/100BASET Ethernet switch HWIC
- VWIC2-1MFT-G703-C: 1-port T1/E1 voice/WAN with drop and insert (D&I) and unstructured E1 (G703)
- VWIC2-2MFT-G703-C: 2-port T1/E1 voice/WAN with drop and insert (D&I) and unstructured E1 (G703)
- WIC-1AM-V2: 1-port analog modem WIC
- WIC-2AM-V2: 2-port analog modem WIC

Cisco 1861 Routers

The Cisco 1861 router has the following software components:

- Cisco Unified Communications Manager Express (Cisco Unified CME)
- Cisco Unity Express
- Security

- Cisco IOS Firewall
- Cisco Secure VPN

Feature Support

For feature support in Cisco IOS Release 15.0M, see the [“Feature Support” section on page 5](#).

Cisco 1900 Series Integrated Services Routers

This section contains the following sections with information that is specific to the Cisco 1900 series integrated services routers:

- [Introduction, page 13](#)
- [Memory Recommendations, page 13](#)
- [Supported Hardware, page 13](#)
- [Feature Support, page 14](#)

Introduction

The Cisco 1900 series integrated services routers platforms are future-enabled with multicore CPUs, Gigabit Ethernet switching with enhanced POE, and new energy monitoring and control capabilities while enhancing overall system performance. Additionally, a new Cisco IOS Software Universal image and Services Ready Engine module enables you to decouple the deployment of hardware and software, providing a stable technology foundation that can quickly adapt to evolving network requirements. The Cisco 1900 series integrated services routers offer embedded hardware encryption acceleration, optional firewall, intrusion prevention, and application services. In addition, the platforms support the industry’s widest range of wired and wireless connectivity options such as T1/E1, xDSL, 3G, and GE. The Cisco 1941W offers integration of IEEE 802.11n access point that is backward-compatible with IEEE 802.11a/b/g access points.

Memory Recommendations

For memory recommendations for the Cisco 1941 integrated services routers in Cisco IOS Release 15.0M, see the [“Memory Recommendations” section on page 6](#).

Supported Hardware

Cisco IOS Release 15.0M supports the following Cisco 1900 series integrated services routers:

- Cisco 1941
- Cisco 1941W

For detailed descriptions of the new hardware features, see the [“New and Changed Information” section on page 57](#).

For additional information about supported hardware for this platform and release, go to the Cisco Feature Navigator home page at the following URL:

<http://www.cisco.com/go/cfn>

For supported modules on the Cisco 1900 series integrated service routers, see the following document:

http://www.cisco.com/en/US/products/ps10538/products_relevant_interfaces_and_modules.html

Feature Support

For feature support in Cisco IOS Release 15.0M, see the [“Feature Support” section on page 5](#).

Cisco 2800 Series Integrated Services Routers

This section contains the following sections with information that is specific to the Cisco 2800 series integrated services routers:

- [Introduction, page 14](#)
- [Memory Recommendations, page 14](#)
- [Supported Hardware, page 15](#)
- [Feature Support, page 24](#)

Introduction

Cisco IOS Release 15.0M supports the Cisco 2800 series integrated services routers.

The Cisco 2800 series integrated services routers comprise the Cisco 2801, Cisco 2811, Cisco 2821, and Cisco 2851 routers. These routers differ as follows:

- Cisco 2801 routers support two HWIC/WIC/VIC/VWIC slots capable of supporting double-wide HWICs, one WIC/VWIC/VIC slot, one VWIC/VIC (voice only) slot, two Advanced Integration Modules (AIMs), two packet voice data modules (PVDMs), two Fast Ethernet connections, and 16 ports of IP phone power output.
- Cisco 2811 routers support one single network module enhanced (NME), four single or two double high-speed WAN interface cards (HWICs), two AIMs, two PVDMs, two Fast Ethernet connections, and 24 ports of IP phone power output.
- In Cisco 2821 routers, the network module slot adds support for a single network module enhanced extended (NME-X), and an additional slot supports an extension voice module (EVM). Three PVDMs are supported, the LAN ports support two Gigabit Ethernet ports, and 36 ports of IP phone power output are available.
- In Cisco 2851 routers, the network module slot adds support for network module double-wide (NMD) and network module enhanced extended double-wide (NME-XD), and the IP phone power output is increased to 48 ports.

A high density extension module (HDEM) operates in the EVM slot on the Cisco 2821 and Cisco 2851 routers. The EVM slot supports additional voice services and density without consuming the network module slot on those routers.

Memory Recommendations

For memory recommendations for the Cisco 2800 series integrated services routers in Cisco IOS Release 15.0M, see the [“Memory Recommendations” section on page 6](#).



Note

The minimum DRAM to run c2801-adventerprisek9-mz in Cisco IOS Release 15.0M is 192 MB.

Supported Hardware

Cisco IOS Release 15.0M supports the following Cisco 2800 series integrated services routers:

- Cisco 2801
- Cisco 2801C (The Cisco 2801C router is supported in Cisco IOS Release 15.0(1)M2 and later releases.)
- Cisco 2811
- Cisco 2811C (The Cisco 2811C router is supported in Cisco IOS Release 15.0(1)M2 and later releases.)
- Cisco 2821
- Cisco 2821C (The Cisco 2821C router is supported in Cisco IOS Release 15.0(1)M2 and later releases.)
- Cisco 2851

For detailed descriptions of the new hardware features, see the [“New and Changed Information” section on page 57](#).

For additional information about supported hardware for this platform and release, go to the Cisco Feature Navigator home page at the following URL:

<http://www.cisco.com/go/cfn>

[Table 1](#) lists the supported interfaces for the Cisco 2800 series routers for Cisco IOS Release 15.0M.

Table 1 Supported Modules and Interface Cards for the Cisco 2800 Series Integrated Services Routers

Network Module	Product Description	Supported Platforms
Ethernet Switching Network Modules		
NM-16ESW	16-port 10/100 Cisco EtherSwitch network module	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
NM-16ESW-C	16-port 10/100 Cisco EtherSwitch network module	Cisco 2801C, Cisco 2811C, Cisco 2821C
NM-16ESW-1GIG	16-port 10/100 Cisco EtherSwitch network module with 1 Gigabit Ethernet (1000BASE-T) port	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
NM-16ESW-1GIG-C	16-port 10/100 Cisco EtherSwitch network module with 1 Gigabit Ethernet (1000BASE-T) port	Cisco 2801C, Cisco 2811C, Cisco 2821C
NM-16ESW-PWR	16-port 10/100 Cisco EtherSwitch network module with in-line power support	Cisco 2811, Cisco 2821, Cisco 2851
NM-16ESW-PWR-1GIG	16-port 10/100 Cisco EtherSwitch network module with in-line power and Gigabit Ethernet	Cisco 2811, Cisco 2821, Cisco 2851
NMD-36ESW	36-port 10/100 Cisco EtherSwitch high-density services module (HDSM)	Cisco 2851
NMD-36ESW-2GIG	36-port 10/100 Cisco EtherSwitch HDSM with 1 Gigabit Ethernet (1000BASE-T) port	Cisco 2851
NMD-36ESW-PWR	36-port 10/100 Cisco EtherSwitch HDSM with in-line power support	Cisco 2851

Table 1 Supported Modules and Interface Cards for the Cisco 2800 Series Integrated Services Routers (continued)

Network Module	Product Description	Supported Platforms
NMD-36ESW-PWR-2G	36-port 10/100 Cisco EtherSwitch HDSM with in-line power and Gigabit Ethernet	Cisco 2851
NME-16ES-1G-P	One 16-port 10/100 Cisco EtherSwitch service module with 802.3af, 1 10/100/1000 port, and IP base	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
NME-X-23ES-1G-P	One 23-port 10/100 Cisco EtherSwitch service module with 802.3af, 1 10/100/1000 port w/ 802.3af, and IP base	Cisco 2821, Cisco 2821C, Cisco 2851
NME-XD-24ES-1S-P	One 24-port 10/100 Cisco EtherSwitch service module with 802.3af, 1 SFP, Cisco StackWise connectors, and IP base	Cisco 2851
NME-XD-48ES-2S-P	One 48-port 10/100 Cisco EtherSwitch service module with 802.3af, 2 SFPs, and IP base	Cisco 2851
Serial Connectivity Network Modules		
NM-1T3/E3	1-port clear-channel T3/E3 network module	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
NM-1HSSI	1-port HSSI network module	Cisco 2811, Cisco 2821, Cisco 2851
NM-4A/S	4-port asynch/synch serial network module	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
NM-8A/S	8-port asynch/synch serial network module	Cisco 2811, Cisco 2821, Cisco 2851
NM-16A/S	16-port asynch/synch serial network module	Cisco 2811, Cisco 2821, Cisco 2851
NM-16A	16-port asynch serial network module	Cisco 2811, Cisco 2821, Cisco 2851
NM-32A	32-port asynch serial network module	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
Channelized T1/E1 and ISDN Network Modules		
NM-1CE1T1-PRI	1-port Channelized E1/T1/ISDN PRI network module	Cisco 2811, Cisco 2821, Cisco 2851
NM-2CE1T1-PRI	2-port Channelized E1/T1/ISDN PRI network module	Cisco 2811, Cisco 2821, Cisco 2851
NM-4B-S/T	4-port ISDN BRI network module (S/T interface)	Cisco 2811, Cisco 2821, Cisco 2851
NM-4B-U	4-port ISDN BRI network module with integrated Network Termination 1 (NT1) (U interface)	Cisco 2811, Cisco 2821, Cisco 2851
NM-8B-S/T	8-port ISDN BRI network module (S/T interface)	Cisco 2811, Cisco 2821, Cisco 2851
NM-8B-U	8-port ISDN BRI network module with integrated NT1 (U interface)	Cisco 2811, Cisco 2821, Cisco 2851

Table 1 Supported Modules and Interface Cards for the Cisco 2800 Series Integrated Services Routers (continued)

Network Module	Product Description	Supported Platforms
ATM Network Modules		
NM-1A-T3	1-port DS-3 ATM network module	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
NM-1A-E3	1-port E# ATM network module	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
Analog Dialup and Remote Access Network Modules		
NM-8AM-V2	8-port analog modem network module with v.92	Cisco 2811, Cisco 2821, Cisco 2851
NM-16AM-V2	16-port analog modem network module with v.92	Cisco 2811, Cisco 2821, Cisco 2851
Voice Network Modules and Accessories		
NM-HD-1V	1-slot IP communications voice and fax network module	Cisco 2811, Cisco 2821, Cisco 2851
NM-HD-2V	2-slot IP communications enhanced voice and fax network module	Cisco 2811, Cisco 2821, Cisco 2851
NM-HD-2VE	2-slot IP communications enhanced voice and fax network module	Cisco 2811, Cisco 2821, Cisco 2851
NM-HDA-4FXS	High-density analog voice and fax network module with 4 FXS slots	Cisco 2811, Cisco 2821, Cisco 2851
NM-HDV2	IP communications high-density voice and fax network module	Cisco 2811, Cisco 2821, Cisco 2851
NM-HDV2-1T1/E1	1-port T1/E1 IP communications high-density voice and fax network module	Cisco 2811, Cisco 2821, Cisco 2851
NM-HDV2-2T1/E1	2-port T1/E1 IP communications high-density voice and fax network module	Cisco 2811, Cisco 2821, Cisco 2851
NM-HDV=	High-density voice/fax network module (single VIC slot)	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
NM-HDV-1T1-12	1-port 12-channel T1 voice and fax network module	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
NM-HDV-1T1-24	1-port 24-channel T1 voice and fax network module	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
NM-HDV-1T1-24E	Single-port 24-enhanced-channel T1 voice and fax network module	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
NM-HDV-2T1-48	2-port 48-channel T1 voice and fax network module	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851

Table 1 Supported Modules and Interface Cards for the Cisco 2800 Series Integrated Services Routers (continued)

Network Module	Product Description	Supported Platforms
NM-HDV-1E1-12	1-port 12-channel E1 voice and fax network module	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
NM-HDV-1E1-30	1-port 30-channel E1 voice and fax network module	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
NM-HDV-1E1-30E	1-port 30-enhanced-channel E1 voice and fax network module	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
NM-HDV-2E1-60	2-port 60-channel E1 voice and fax network module	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
NM-HDV-1J1-30	1-port 30-channel J1 high-density voice network module	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
NM-HDV-1J1-30E	1-port 30-enhanced-channel J1 high-density voice network module	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
NM-HDV-FARM-C36	36-port transcoding and conferencing DSP farm	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
NM-HDV-FARM-C54	54-port transcoding and conferencing DSP farm	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
NM-HDV-FARM-C90	90-port transcoding and conferencing DSP farm	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
Application Network Modules		
NM-CE-BP-40G-K9	Cisco content engine network module basic performance, 40-GB IDE hard disk	Cisco 2811, Cisco 2821, Cisco 2851
NM-CE-BP-80G-K9	Cisco content engine network module basic performance, 80-GB IDE hard disk	Cisco 2811, Cisco 2821, Cisco 2851
NM-CE-BP-SCSI-K9	Cisco content engine network module basic performance, Small Computer System Interface (SCSI) controller	Cisco 2811, Cisco 2821, Cisco 2851
NM-CIDS-K9	Cisco IDS network module	Cisco 2811, Cisco 2821, Cisco 2851
NM-CUE	Cisco Unity Express voice-mail network module	Cisco 2811, Cisco 2821, Cisco 2851
NM-NAM	Cisco 2600, 3660, 3700 series network analysis module	Cisco 2811, Cisco 2821, Cisco 2851
Alarm Monitoring and Control Network Modules and Accessories		
NM-AIC-64	Alarm monitoring and control network module	Cisco 2811, Cisco 2821, Cisco 2851

Table 1 Supported Modules and Interface Cards for the Cisco 2800 Series Integrated Services Routers (continued)

Network Module	Product Description	Supported Platforms
Circuit Emulation over IP (CEoIP) Network Modules		
NM-CEM-4SER	4-port serial CEoIP network module	Cisco 2811, Cisco 2821, Cisco 2851
NM-CEM-T4E1	4-port T1/E1 CEoIP network module	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
Extension Voice Module		
EVM-HD-8FXS/DID	High-density voice/fax extension module-8FXS/DID	Cisco 2821, Cisco 2851
Interface-Card Support		
Access Point HWIC		
HWIC-AP-AG	Supports IEEE 802.11a/b/g and has two radios for simultaneous operation in the 2.4 GHz and 5 GHz bands supporting up to 108 Mbps speeds	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
HWIC-AP-G	Supports IEEE 802.11b/g and has a single radio that operates in the 2.4 GHz band supporting up to 54 Mbps speeds	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
DSL HWIC		
HWIC-1ADSL	1 ADSL port	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
Ethernet Switching HWICs		
HWIC-4ESW	4-port single-wide 10/100BASE-T Ethernet switch HWIC	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
HWIC-4ESW-C	4-port single-wide 10/100BASE-T Ethernet switch HWIC	Cisco 2801C, Cisco 2811C, Cisco 2821C
HWIC-D-9ESW	9-port double-wide 10/100BASE-T Ethernet switch HWIC	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
HWIC-D-9ESW-C	9-port double-wide 10/100BASE-T Ethernet switch HWIC	Cisco 2801C, Cisco 2811C, Cisco 2821C
HWIC-4ESW-POE	4-port Ethernet switch HWIC, power over Ethernet capable	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
HWIC-D-9-ESW-POE	9-port Ethernet switch HWIC, power over Ethernet capable	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
Gigabit Ethernet HWICs		
HWIC-1GE-SFP		Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
Serial WICs and HWICs		

Table 1 Supported Modules and Interface Cards for the Cisco 2800 Series Integrated Services Routers (continued)

Network Module	Product Description	Supported Platforms
WIC-1T	1-port high-speed serial WIC	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
WIC-2T	2-port high-speed serial WIC	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
WIC-2A/S	2-port asynchronous/synchronous serial WIC	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
HWIC-1T-C	1 high-speed serial port	Cisco 2801C, Cisco 2811C, Cisco 2821C
HWIC-2T-C	2 high-speed serial ports	Cisco 2801C, Cisco 2811C, Cisco 2821C
HWIC-4T	4 high-speed serial ports	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
HWIC-4T1/E1	4 high-speed T1/E1 serial ports	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
HWIC-4A/S	4 low-speed synchronous/asynchronous serial ports	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
HWIC-8A/S-232	8 low-speed synchronous/async serial ports, EIA-232 only	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
HWIC-8A	8 async EIA-232 serial ports	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
HWIC-16A	16 async EIA-232 serial ports	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
CSU/DSU WICs		
WIC-1DSU-T1-V2	1-port T1/Fractional-T1 DSU/CSU WIC	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
WIC-1DSU-56K4	1-port 4-wire 56-/64-kb/s DSU/CSU WIC	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851

Table 1 Supported Modules and Interface Cards for the Cisco 2800 Series Integrated Services Routers (continued)

Network Module	Product Description	Supported Platforms
ISDN BRI WICs		
WIC-1B-U-V2	1-port ISDN BRI with integrated NT1 (U interface)	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
WIC-1B-S/T-V3	1-port ISDN BRI with S/T interface	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
DSL WAN Interface Cards		
WIC-1ADSL	1-port asymmetric DSL (ADSL) over POTS service WIC	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
WIC-1ADSL-DG	1-port ADSL over basic telephone service with dying gasp WIC	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
WIC-1ADSL-1-DG	1-port ADSL over ISDN with dying gasp WIC	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
WIC-1SHDSL	1-port G.SHDSL WIC (2-wire only)	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
WIC-1SHDSL-V2	1-port G.SHDSL WIC (2- or 4-wire)	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
Analog Modem WICs		
WIC-1AM	1-port analog modem WIC	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
WIC-2AM	2-port analog modem WIC	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
WIC-1AM-V2	1-port analog modem WIC	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
WIC-2AM-V2	2-port analog modem WIC	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
T1, E1, and G.703 Multiflex Trunk Voice Cards and WICs		
VWIC-1MFT-T1	1-port RJ-48 multiflex trunk-T1	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
VWIC-2MFT-T1	2-port RJ-48 multiflex trunk-T1	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
VWIC-2MFT-T1-DI	2-port RJ-48 multiflex trunk-T1 with drop and insert	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
VWIC-1MFT-E1	1-port RJ-48 multiflex trunk-E1	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
VWIC-1MFT-G703	1-port RJ-48 multiflex trunk-G.703	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
VWIC-2MFT-E1	2-port RJ-48 multiflex trunk-E1	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851

Table 1 Supported Modules and Interface Cards for the Cisco 2800 Series Integrated Services Routers (continued)

Network Module	Product Description	Supported Platforms
VWIC-2MFT-E1-DI	2-port RJ-48 multiflex trunk-E1 with drop and insert	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
VWIC-2MFT-G703	2-port RJ-48 multiflex trunk-G.703	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
VWIC2-1MFT-T1/E1	1-port T1/E1 multiflex trunk VWIC	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
VWIC2-2MFT-T1/E1	2-port T1/E1 multiflex trunk VWIC	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
VWIC2-1MFT-G703	1-port G.703 multiflex trunk VWIC	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
VWIC2-1MFT-G703-C	1-port G.703-C multiflex trunk VWIC	Cisco 2801C, Cisco 2811C, Cisco 2821C
VWIC2-2MFT-G703	2-port G.703 multiflex trunk VWIC	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
VWIC-2MFT-G703-C	2-port G.703-C multiflex trunk VWIC	Cisco 2801C, Cisco 2811C, Cisco 2821C
EC-MFT-32	32-channel multiflex trunk dedicated echo cancellation module (ECAN modules)	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
EC-MFT-64	64-channel multiflex trunk dedicated echo cancellation module (ECAN modules)	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
VICs		
VIC-1J1	1-port digital VIC 1J1 for Japan	Cisco 2811, Cisco 2821, Cisco 2851
VIC-2DID	2-port DID voice and fax interface card	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
VIC-4FXS/DID	4-port FXS or DID VIC	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
VIC2-2FXS	2-port VIC-FXS	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
VIC3-2E/M	2-port E&M voice and fax interface card	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
VIC3-2FXS/DID	2-port FXS and DID voice and fax interface card	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
VIC3-2FXS-E/DID	2-port FXS enhanced and DID voice and fax interface card	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851

Table 1 Supported Modules and Interface Cards for the Cisco 2800 Series Integrated Services Routers (continued)

Network Module	Product Description	Supported Platforms
VIC3-4FXS/DID	4-port FXS and DID voice and fax interface card	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
Interface-Card Support		
VIC2-2FXO	2-port VIC-FXO (universal)	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
VIC2-4FXO	4-port VIC-FXO (universal)	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
VIC2-2E/M	2-port VIC-E&M	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
VIC2-2BRI-NT/TE	2-port VIC card-BRI (NT and TE)	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
Advanced Integration Modules		
AIM-ATM	High-performance ATM SAR AIM	Cisco 2811, Cisco 2821, Cisco 2851
AIM-COMPR2-V2	Data compression AIM	Cisco 2811, Cisco 2821, Cisco 2851
AIM-CUE	Cisco Unity Express voice-mail AIM	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
AIM-VPN/EPII-PLUS	Enhanced-performance DES, 3DES, AES, and compression VPN encryption AIM	Cisco 2801, Cisco 2811, Cisco 2821, Cisco 2851
AIM-VPN/SSL-2	Encryption module support	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
Digital Modem Network Modules		
PVDM2-12DM	12-port digital modem module	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
PVDM2-24DM	24-port digital modem module	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
PVDM2-36DM	36-port digital modem module	Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
DSP (PVDM) Support on Motherboard Slots		

Table 1 Supported Modules and Interface Cards for the Cisco 2800 Series Integrated Services Routers (continued)

Network Module	Product Description	Supported Platforms
PVDM2-8	8-channel fax and voice DSP module	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
PVDM2-16	16-channel fax and voice DSP module	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
PVDM2-32	32-channel fax and voice DSP module	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
PVDM2-48	48-channel fax and voice DSP module	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
PVDM2-64	64-channel fax and voice DSP module	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851
USB Memory Options		
MEMUSB-64FT	64 MB USB flash token	Cisco 1800, Cisco 2800, Cisco 3800 series platforms
MEMUSB-128FT	128 MB USB flash token	Cisco 1800, Cisco 2800, Cisco 3800 series platforms
MEMUSB-256FT	256 MB USB flash token	Cisco 1800, Cisco 2800, Cisco 3800 series platforms
Wireless WAN HWIC		
HWIC-3G-HSPA	Wireless 3G HSPA WAN	Cisco 2801, Cisco 2801C, Cisco 2811, Cisco 2811C, Cisco 2821, Cisco 2821C, Cisco 2851

Feature Support

For feature support in Cisco IOS Release 15.0M, see the [“Feature Support” section on page 5](#).

Cisco 2900 Series Integrated Services Routers

This section contains the following sections with information that is specific to the Cisco 2900 series integrated services routers:

- [Introduction, page 25](#)
- [Memory Recommendations, page 25](#)

- [Supported Hardware, page 25](#)
- [Feature Support, page 25](#)

Introduction

The Cisco 2900 series integrated services routers are future-enabled with multicore CPUs, and support for high-capacity digital signal processors (DSPs) with a video-ready media engine, in addition to a rich set of audio features, future-enhanced video capabilities, high-powered service modules with improved availability, Gigabit Ethernet switching with enhanced POE, and new energy monitoring and control capabilities while enhancing overall system performance. Additionally, a new Cisco IOS Software Universal image and Services Ready Engine module enable you to decouple the deployment of hardware and software, providing a flexible technology foundation that can quickly adapt to evolving network requirements.

Memory Recommendations

For memory recommendations for the Cisco 2900 series integrated services routers in Cisco IOS Release 15.0M, see the [“Memory Recommendations” section on page 6](#).

Supported Hardware

Cisco IOS Release 15.0M supports the following Cisco 2900 series integrated services routers:

- Cisco 2901
- Cisco 2911
- Cisco 2921
- Cisco 2951

For detailed descriptions of the new hardware features, see the [“New and Changed Information” section on page 57](#).

For additional information about supported hardware for this platform and release, go to the Cisco Feature Navigator home page at the following URL:

<http://www.cisco.com/go/cfn>

For supported modules on the Cisco 2900 series integrated services routers, see the following document:

http://www.cisco.com/en/US/products/ps10537/products_relevant_interfaces_and_modules.html

Feature Support

For feature support in Cisco IOS Release 15.0M, see the [“Feature Support” section on page 5](#).

Cisco 3200 Series Rugged Integrated Services Routers

This section contains the following sections with information that is specific to the Cisco 3200 series rugged integrated services routers (ISR):

- [Introduction, page 26](#)
- [Memory Recommendations, page 26](#)

- [Supported Hardware, page 26](#)
- [Feature Support, page 27](#)

Introduction

The Cisco 3200 series rugged integrated services routers (formerly named the Cisco 3200 series of wireless and mobile access routers) offer secure data, voice, and video communications across a wide range of different wireless and wired networks. These routers deliver always-on IP connectivity for networks in motion. They support Cisco IOS mobile networks and enable these networks to hide IP roaming from local IP nodes. This, in turn, enables IP hosts on a mobile network to connect transparently to the parent network while a router is in motion. The Cisco 3200 series rugged ISRs are highly ruggedized, can be installed in harsh environments with the proper enclosure, and are intended to be mounted in a vehicle.

For detailed information about the Cisco 3200 series routers, see the documents at the following location:

http://www.cisco.com/univercd/cc/td/doc/product/access/mar_3200/index.htm

Memory Recommendations

For memory recommendations for the Cisco 3200 series integrated services routers in Cisco IOS Release 15.0M, see the “[Memory Recommendations](#)” section on page 6.

Supported Hardware

Cisco IOS Release 15.0M supports the following Cisco 3200 series ISRs:

- Cisco 3220 is a preconfigured model designed for volume deployments in public safety and transportation with one WMIC as an optional bundle.
- Cisco 3250 is a fully configurable model designed for defense customers and command and control vehicles with interface card combinations that allow for more numerous serial or FE port combinations.
- Cisco 3270 is designed to provide wired and wireless network connectivity in harsh environments, such as police cars, military vehicles, trains, airborne vehicles, and outdoor locations that are exposed to the elements.

For detailed descriptions of the new hardware features, see the “[New and Changed Information](#)” section on page 57.

For additional information about supported hardware for this platform and release, go to the Cisco Feature Navigator home page at the following URL:

<http://www.cisco.com/go/cfn>

The following Cisco cards are supported on the Cisco 3200 series ISRs:

- The Mobile Access Router Card (MARC), which includes the host processor, memory, one 10/100 Fast Ethernet port, one console port, and one auxiliary port.
- The Serial Mobile Interface Card (SMIC), which supports either two or four synchronous/asynchronous serial ports.
- The Fast Ethernet Switch Mobile Interface Card (FESMIC), which supports either two or four autosensing switched ports and LEDs.

- The 2.4-GHz Wireless Mobile Interface Card (WMIC), which provides one autosensing 10/100 Fast Ethernet port, an 802.11b/g radio, and connectors for tricolor LEDs.
- The 4.9-GHz Wireless Mobile Interface Card (WMIC), which provides one autosensing 10/100 Fast Ethernet port, a 4.9-GHz radio, and connectors for tricolor LEDs

Feature Support

For feature support in Cisco IOS Release 15.0M, see the [“Feature Support” section on page 5](#).

Cisco 3800 Series Integrated Services Routers

This section contains the following sections with information that is specific to the Cisco 3800 series integrated services routers:

- [Introduction, page 27](#)
- [Memory Recommendations, page 28](#)
- [Supported Hardware, page 28](#)
- [Feature Support, page 46](#)

Introduction

Cisco 3800 series integrated services routers are part of a generation of routers that incorporate high-performance integrated data, voice, video, and Virtual Private Network (VPN) capability. They are designed for branch office installations that need integrated low-density switching, security, voice, IP telephony, video, content networking, and concurrent applications.

The Cisco 3825 router and the Cisco 3845 router have the following features:

- Two built-in 1000BASE-T Gigabit Ethernet ports with RJ-45 connectors for shielded twisted pair. One of these ports provides a slot for an optional small-form-factor pluggable (SFP) module.
- Hardware-based VPN encryption acceleration.
- Modular design that enables you to add a wide variety of LAN and WAN ports with interchangeable network modules and interface cards.

The Cisco 3825 router provides two slots for network modules. The lower network module slot of this router can hold a single-wide or extended single-wide network module. The upper slot of the Cisco 3825 router can hold a single-wide, extended single-wide, double-wide, or extended double-wide network module.

The Cisco 3845 router provides four slots for network modules. Each slot can hold a single-wide or extended single-wide network module. Slots can be combined in pairs to hold a double-wide or extended double-wide network module.

The Cisco 3825 router and the Cisco 3845 router each provide four interface card slots. Each slot can hold a single-wide WAN interface card (WIC), voice interface card (VIC), voice/data T1/E1 WAN interface card (VWIC), or high-speed WAN interface card (HWIC). Slots can be combined in pairs to hold a double-wide HWIC.

Advanced integration modules (AIMs) and packet voice data modules (PVDMs) install into connectors on the router motherboard. AIMs provide hardware-based support for additional features. PVDMs are digital signal processor (DSP) SIMMs that provide voice support. The Cisco 3825 router and the Cisco 3845 router can each accommodate two AIMs and four PVDMs.

For detailed information about the Cisco 3800 series of routers, see the documents at the following location:

http://www.cisco.com/en/US/products/ps5855/tsd_products_support_series_home.html

Memory Recommendations

For memory recommendations for the Cisco 3800 series integrated services routers in Cisco IOS Release 15.0M, see the “[Memory Recommendations](#)” section on page 6.

Supported Hardware

Cisco IOS Release 15.0M supports the following Cisco 3800 series integrated services routers:

- Cisco 3825
- Cisco 3825C (The Cisco 3825C router is supported in Cisco IOS Release 15.0(1)M3 and later releases.)
- Cisco 3825-NOVPN
- Cisco 3845
- Cisco 3845C (The Cisco 3845C router is supported in Cisco IOS Release 15.0(1)M3 and later releases.)
- Cisco 3845-NOVPN

For detailed descriptions of the new hardware features, see the “[New and Changed Information](#)” section on page 57.

For additional information about supported hardware for this platform and release, go to the Cisco Feature Navigator home page at the following URL:

<http://www.cisco.com/go/cfn>

Table 2 summarizes typical WAN, LAN, and voice connections for the Cisco 3800 series routers for Cisco IOS Release 15.0M.

Table 2 WAN, LAN, and Voice Connections for the Cisco 3800 Series Integrated Services Routers

Port or Connection	Port Type	Connected To
Ethernet	RJ-45	Ethernet switch
T1/E1 WAN xCE1T1-PRI	RJ-48C RJ-48S	T1 or E1 network External T1 CSU or other T1 equipment
T3/DS3/E3 WAN	BNC connector	T3 network, CSU/DSU, or other T3/DS3 equipment
Cisco serial	60-pin D-sub	CSU/DSU and serial network or equipment
Cisco Smart serial	Cisco Smart compact connector	CSU/DSU and serial network or equipment
ADSL	RJ-11C/CA11A	Network demarcation device for the service provider's DSL interface
SHDSL	RJ-11C/CA11A RJ-14	Network demarcation device for the service provider's DSL interface
T1/E1 digital voice	RJ-48C/CA81A	Digital PBX, ISDN network, CSU/DSU

Table 2 WAN, LAN, and Voice Connections for the Cisco 3800 Series Integrated Services Routers

Port or Connection	Port Type	Connected To
Analog voice FXS	RJ-11	Telephone, fax
Analog voice FXO	RJ-11	Central office, analog PBX
Analog voice E&M	RJ-45	Analog PBX
BRI S/T WAN (external NT1)	RJ-45/CB-1D	NT1 device or private integrated network exchange (PINX)
BRI U WAN (built-in NT1)	RJ-49C/CA-A11	ISDN network
BRI NT/TE (built-in NT1)	RJ-45	ISDN terminal equipment and ISDN network
56/64-kb/s CSU/DSU	8-pin modular	RJ-48S interface in a subrate device or network
T1/FT1 CSU/DSU	8-pin modular	RJ-48C interface
Gigabit Ethernet SFP, optical	LC	1000BASE-SX, -LX, -LH, -ZX, -CWDM

Table 3 lists the supported interfaces for the Cisco 3800 series routers for Cisco IOS Release 15.0M.

Table 3 Supported Interfaces for the Cisco 3800 Series Integrated Services Routers

Network Module, WIC, VWIC, VIC, AIM, or PVDM	Product Description	Supported Platforms
3G Wireless WAN Modules		
HWIC-3G-HSPA	3GWWAN HWIC-HSPA/UMTS/EDGE/GPRS-850/900/1800/1900/2100 MHz	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
Ethernet Routed-Port Network Modules		
NM-1-FE-FX-V2	1-port 10/100BASE-FX Single Mode Fiber Fast Ethernet network module	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
NM-1GE	1-port Cisco Gigabit Ethernet network module	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
NM-2FE2W-V2	2-port 10/100 Ethernet 12=WIC-slot network module (updated version)	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN

Table 3 Supported Interfaces for the Cisco 3800 Series Integrated Services Routers (continued)

Network Module, WIC, VWIC, VIC, AIM, or PVDM	Product Description	Supported Platforms
Ethernet Switching and LAN Modules		
NM-16ESW	16-port 10/100 Cisco EtherSwitch network module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-16ESW-C	16-port 10/100 Cisco EtherSwitch network module	Cisco 3825C, Cisco 3845C
NM-16ESW-1GIG	16-port 10/100 Cisco EtherSwitch network module with 1 Gigabit Ethernet (1000BASE-T) port	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-16ESW-1GIG-C	16-port 10/100 Cisco EtherSwitch network module with 1 Gigabit Ethernet (1000BASE-T) port	Cisco 3825C, Cisco 3845C
NM-16ESW-PWR	16-port 10/100 Cisco EtherSwitch network module with in-line power support	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-16ESW-PWR-1GIG	16-port 10/100 Cisco EtherSwitch network module with in-line power and Gigabit Ethernet	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NMD-36ESW	36-port 10/100 Cisco EtherSwitch high-density services module (HDSM)	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NMD-36ESW-2GIG	36-port 10/100 Cisco EtherSwitch HDSM with 1 Gigabit Ethernet (1000BASE-T) port	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NMD-36ESW-PWR	36-port 10/100 Cisco EtherSwitch HDSM with in-line power support	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NMD-36ESW-PWR-2G	36-port 10/100 Cisco EtherSwitch HDSM with in-line power and Gigabit Ethernet	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NME-16ES-1G	1 16-port 10/100 EtherSwitch Service Module, 1 10/100/1000 port, and IP Services	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
NME-16ES-1G-P	1 16-port 10/100 Cisco EtherSwitch service module with 802.3af, 1 10/100/1000 port, and IP base	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN

Table 3 Supported Interfaces for the Cisco 3800 Series Integrated Services Routers (continued)

Network Module, WIC, VWIC, VIC, AIM, or PVDM	Product Description	Supported Platforms
NME-X-23ES-1G	1 23-port 10/100 Cisco EtherSwitch service module with 802.3af, 1 10/100/1000 port w/ 802.3af, and IP base	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
NME-X-23ES-1G-P	1 23-port 10/100 Cisco EtherSwitch service module with 802.3af, 1 10/100/1000 port w/ 802.3af, and IP base	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NME-XD-24ES-1S-P	1 24-port 10/100 Cisco EtherSwitch service module with 802.3af, 1 SFP, Cisco StackWise connectors, and IP base	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NME-XD-48ES-2S-P	1 48-port 10/100 Cisco EtherSwitch service module with 802.3af, 2 SFPs, and IP base	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
HWIC-4ESW	4-port single-wide 10/100BASE-T Ethernet switch HWIC	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
HWIC-4ESW-C	4-port single-wide 10/100BASE-T Ethernet switch HWIC	Cisco 3825C, Cisco 3845C
HWIC-D-9ESW	(8+1)-port double-wide 10/100BASE-T Ethernet switch HWIC	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
HWIC-D-9ESW-C	9-port double-wide 10/100BASE-T Ethernet switch HWIC	Cisco 3825C, Cisco 3845C
HWIC-4ESW-POE	4-port single-wide 10/100BASE-T Ethernet switch HWIC with integrated in-line power daughter card (802.3af capable)	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
HWIC-D-9ESW-POE	(8+1)-port double-wide 10/100BASE-T Ethernet switch HWIC with integrated in-line power daughter card (802.3af capable)	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
ILPM4	In-line power daughter card for the HWIC-4ESW with 802.3af capability	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
ILPM8	In-line power daughter card for the HWIC-9ESW with 802.3af capability	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN

Table 3 Supported Interfaces for the Cisco 3800 Series Integrated Services Routers (continued)

Network Module, WIC, VWIC, VIC, AIM, or PVDM	Product Description	Supported Platforms
LAN and WIC Combination Network Modules		
NM-1FE1R2W	1 10/100 Ethernet network module with 1 4/16 Token-Ring 2 WAN card slot	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-1FE2W	1 10/100 Ethernet network module with 2 WAN card slots	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-1FE2W-V2	1 10/100 Ethernet network module with 2 WAN card slots	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-2FE2W	2 10/100 Ethernet network modules with 2 WAN card slots	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-2FE2W-V2	2-port 10/100 Ethernet network module with 2 WAN card slots	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-2W	Network module with 2 WAN card slots (no LAN)	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
Serial Connectivity Network Modules		
NM-1HSSI	1-port High-Speed Serial Interface (HSSI) network module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-1T3/E3	1-port clear-channel T3/E3 network module	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
NM-2W	2-WIC-slot network module (no LAN)	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
NM-4A/S	4-port asynchronous/synchronous serial network module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN

Table 3 *Supported Interfaces for the Cisco 3800 Series Integrated Services Routers (continued)*

Network Module, WIC, VWIC, VIC, AIM, or PVDM	Product Description	Supported Platforms
NM-4T	4-port synchronous serial network module	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
NM-8A/S	8-port asynchronous/synchronous serial network module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-16A	16-port asynchronous serial network module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-16A/S	16-port asynchronous/synchronous serial network module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-32A	32-port asynchronous serial network module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
Channelized T1/E1 and ISDN Network Modules		
NM-1CE1T1-PRI	1-port channelized E1/T1/ISDN PRI network module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-2CE1T1-PRI	2-port channelized E1/T1/ISDN PRI network module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-4B-S/T	4-port ISDN BRI network module (S/T interface)	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-4B-U	4-port ISDN BRI network module with integrated NT1 (U interface)	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN

Table 3 *Supported Interfaces for the Cisco 3800 Series Integrated Services Routers (continued)*

Network Module, WIC, VWIC, VIC, AIM, or PVDM	Product Description	Supported Platforms
NM-8B-S/T	8-port ISDN BRI network module (S/T interface)	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-8B-U	8-port ISDN BRI network module with integrated NT1 (U interface)	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
ATM Network Modules		
NM-1A-E3	1-port E3 ATM network module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-1A-OC3-POM	1-port ATM OC-3 network module with a single pluggable optical module slot	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
NM-1A-T3	1-port DS3 ATM network module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-1A-T3/E3	1-port T3/E3 ATM network module	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
NM-4E1-IMA	4-port E1 ATM network module with IMA	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-4T1-IMA	4-port T1 ATM network module with IMA	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-8E1-IMA	8-port E1 ATM network module with IMA	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN

Table 3 Supported Interfaces for the Cisco 3800 Series Integrated Services Routers (continued)

Network Module, WIC, VWIC, VIC, AIM, or PVDM	Product Description	Supported Platforms
NM-8T1-IMA	8-port T1 ATM network module with IMA	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
Analog Dialup and Remote Access Network Modules		
NM-8AM-V2	8-port analog modem network module with v.92	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-16AM-V2	16-port analog modem network module with v.92	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
Analog and ISDN Basic Rate Voice Network Modules and Accessories		
NM-HD-1V	1-slot IP communications voice and fax network module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-HD-2V	2-slot IP communications voice and fax network module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-HD-2VE	2-slot IP communications enhanced voice and fax network module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-HDA-4FXS	High-density analog voice and fax network module with 4 FXSs	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
EM-HDA-4FXO	4-port FXO voice and fax expansion module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
EM-HDA-8FXS	8-port FXS voice and fax expansion module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
EVM-HD-8FXS/DID	High-density analog and digital extension module for voice and fax-8 FXS/DID	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN

Table 3 Supported Interfaces for the Cisco 3800 Series Integrated Services Routers (continued)

Network Module, WIC, VWIC, VIC, AIM, or PVDM	Product Description	Supported Platforms
EM-HDA-8FXS	8-port voice and fax expansion module-FXS	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
EM-4BRI-NT/TE	4-port voice and fax expansion module-BRI (NT and TE)	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
EM-HDA-6FXO	6-port voice and fax expansion module-FXO	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
EM-HDA-3FXS/4FXO	7-port voice and fax expansion module-3FXS/4FXO	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
High-Density Voice Network Modules and Accessories		
NM-HDV2	IP communications high-density voice and fax network module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-HDV2-1T1/E1	1-port T1/E1 IP communications high-density voice and fax network module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-HDV2-2T1/E1	2-port T1/E1 IP communications high-density voice and fax network module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-HDV-1T1-12	1-port 12-channel T1 voice and fax network module; bundle: NM-HDV with 1 VWIC-1MFT-T1 and 1 PVDM2	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-HDV-1T1-24	1-port 24-channel T1 voice and fax network module; bundle: NM-HDV with 1 VWIC-1MFT-T1 and 2 PVDM2s	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-HDV-1T1-24E	1-port 24-enhanced channel T1 voice and fax network module; bundle: NM-HDV with 1 VWIC-1MFT-T1 and 2 PVDM2s	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN

Table 3 *Supported Interfaces for the Cisco 3800 Series Integrated Services Routers (continued)*

Network Module, WIC, VWIC, VIC, AIM, or PVDM	Product Description	Supported Platforms
NM-HDV-2T1-48	2-port 48-channel T1 voice and fax network module; bundle: NM-HDV with 1 VWIC-2MFT-T1-DI and 4 PVDM2s	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-HDV-1E1-12	1-port 12-channel E1 voice and fax network module; bundle: NM-HDV with 1 VWIC-1MFT-E1 and 1 PVDM2	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-HDV-1E1-30	1-port 30-channel E1 voice and fax network module; bundle: NM-HDV with 1 VWIC-1MFT-E1 and 3 PVDM2s	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-HDV-1E1-30E	1-port 30-enhanced-channel E1 voice and fax network module, bundle; NM-HDV with 1 VWIC-1MFT-E1 and 5 PVDM2s	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-HDV-2E1-60	2-port 60-channel E1 voice and fax network module; bundle: NM-HDV with 1 VWIC-2MFT-E1-DI and 5 PVDM2s	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-HDV-1J1-30	1-port 30-channel J1 high-density voice network module; bundle: NM-HDV with 3 PVDM2s and 1 VIC-1J1	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-HDV-1J1-30E	1-port 30-enhanced-channel J1 high-density voice network module; bundle: NM-HDV with 5 PVDM2s and 1 VIC-1J1	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-HDV-FARM-C36	Network module 36-port DSP farm bundle HDV transcoding and conferencing DSP farm equipped with 2 DSP single in-line memory modules (SIMMs)	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-HDV-FARM-C54	Network module 54-port DSP farm bundle HDV transcoding and conferencing DSP farm equipped with 3 DSP SIMMs	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-HDV-FARM-C90	Network module 90-port DSP farm bundle HDV transcoding and conferencing DSP farm equipped with 5 DSP SIMMs	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN

Table 3 Supported Interfaces for the Cisco 3800 Series Integrated Services Routers (continued)

Network Module, WIC, VWIC, VIC, AIM, or PVDM	Product Description	Supported Platforms
Application Network Modules		
NM-CE-BP-40G-K9	Cisco Content Engine Network Module, basic performance, 40-GB IDE hard disk, 256-MB DRAM	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-CE-BP-80G-K9	Cisco Content Engine Network Module, basic performance, 80-GB IDE hard disk, 512-MB DRAM	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-CE-BP-SCSI-K9	Cisco Content Engine Network Module, basic performance, Small Computer System Interface (SCSI) controller (requires external SCSI disk array)	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-CIDS	Cisco IDS network module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-NAM	Cisco network analysis module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NME-APPRE-502-K9	Application Runtime Engine (1 GB RAM, 120 GB HDD)	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
NME-IPS-K9	Cisco IPS network module	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
NME-WAE-302-K9	Cisco Wide Area Application Services (WAAS) module with 80 GB hard disk and 512 MB memory	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
NME-WAE-502-K9	Cisco Wide Area Application Services (WAAS) module with 120 GB hard disk and 1 GB memory	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
Alarm Monitoring and Control Network Modules and Accessories		
NM-AIC-64	Alarm monitoring and control network module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN

Table 3 *Supported Interfaces for the Cisco 3800 Series Integrated Services Routers (continued)*

Network Module, WIC, VWIC, VIC, AIM, or PVDM	Product Description	Supported Platforms
Circuit Emulation over IP (CEoIP) Network Modules		
NM-CEM-4SER	4-port serial circuit emulation over IP network module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
NM-CEM-4TE1	4-port T1/E1 circuit emulation over IP network module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
Serial WICs and HWICs		
HWIC-1T-C	1-port C-series serial high-speed WAN	Cisco 3825C, Cisco 3845C
HWIC-2A/S	2-port synchronous/asynchronous serial port	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
HWIC-2T-C	2-port C-series serial high-speed WAN	Cisco 3825C, Cisco 3845C
HWIC-4A/S	4 low-speed synchronous/asynchronous serial ports	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
HWIC-4T	4 high-speed serial ports	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
HWIC-8A	8 asynchronous EIA-232 serial ports	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
HWIC-8A/S-232	8 low-speed synchronous/asynchronous serial ports, EIA-232 only	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
HWIC-16A	16 asynchronous EIA-232 serial ports	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
WIC-1T	1-port high-speed serial WIC	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
WIC-2A/S	2-port asynchronous/synchronous serial WIC	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN

Table 3 Supported Interfaces for the Cisco 3800 Series Integrated Services Routers (continued)

Network Module, WIC, VWIC, VIC, AIM, or PVDM	Product Description	Supported Platforms
WIC-2T	2-port high-speed serial WIC	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
Channel Service Unit/Data Service Unit (CSU/DSU) WICs		
WIC-1DSU-T1-V2	1-port T1/Fractional-T1 DSU/CSU WIC	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
WIC-1DSU-56K4	1-port 4-wire 56-/64-kb/s CSU/DSU WIC	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
ISDN BRI WICs		
WIC-1B-S/T-V3	1-port ISDN BRI WIC for dial and lease line	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
WIC-1B-U-V2	1-port ISDN BRI with integrated NT1 (U interface)	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
DSL WICs		
HWIC-1ADSL	1-port ADSLoPOTS	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
WIC-1ADSL	1-port ADSL over basic telephone service WIC	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
WIC-1ADSL-DG	1-port ADSL over basic telephone service with dying-gasp WIC	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
WIC-1ADSL-I-DG	1-port ADSL over ISDN with dying-gasp WIC	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN

Table 3 *Supported Interfaces for the Cisco 3800 Series Integrated Services Routers (continued)*

Network Module, WIC, VWIC, VIC, AIM, or PVDM	Product Description	Supported Platforms
WIC-1SHDSL	1-port G.SHDSL WIC (two-wire only)	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
WIC-1SHDSL-V2	1-port G.SHDSL WIC (two- or four-wire)	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
Analog Modem WICs		
WIC-1AM	1-port analog modem WIC	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
WIC-1AM-V2	1-port analog modem (updated version)	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
WIC-2AM	2-port analog modem WIC	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
WIC-2AM-V2	2-port analog modem (updated version)	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
T1, E1, and G.703 Multiflex Trunk VWICs and WICs		
HWIC-1CE1T1-PRI	1-port channelized T1/E1 and PRI	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
HWIC-2CE1T1-PRI	2-port channelized T1/E1 and PRI	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
HWIC-4T1/E1	4-port clear channel T1/E1	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
NM-8CE1T1-PRI	8-port channelized T1/E1 and PRI	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN

Table 3 Supported Interfaces for the Cisco 3800 Series Integrated Services Routers (continued)

Network Module, WIC, VWIC, VIC, AIM, or PVDM	Product Description	Supported Platforms
VWIC-1MFT-T1	1-port RJ-48 multiflex trunk-T1	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
VWIC-2MFT-T1	2-port RJ-48 multiflex trunk-T1	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
VWIC-2MFT-T1-DI	2-port RJ-48 multiflex trunk-T1 with drop and insert	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
VWIC-1MFT-E1	1-port RJ-48 multiflex trunk-E1	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
VWIC-1MFT-G703	1-port RJ-48 multiflex trunk-G.703	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPNs
VWIC-2MFT-E1	2-port RJ-48 multiflex trunk-E1	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
VWIC-2MFT-E1-DI	2-port RJ-48 multiflex trunk-E1 with drop and insert	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
VWIC-2MFT-G703	2-port RJ-48 multiflex trunk-G.703	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
VWIC2-1MFT-G703	1-port G.703 multiflex trunk VWIC	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
VWIC2-1MFT-G703-C	1-port E1 only C-series voice/WAN with drop and insert unstructured E1 (G703)	Cisco 3825C, Cisco 3845C
VWIC2-2MFT-G703	2-port G.703 multiflex trunk VWIC	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
VWIC2-2MFT-G703-C	2-port E1 only C-Series Voice/WAN with drop and insert unstructured E1 (G703)	Cisco 3825C, Cisco 3845C

Table 3 *Supported Interfaces for the Cisco 3800 Series Integrated Services Routers (continued)*

Network Module, WIC, VWIC, VIC, AIM, or PVDM	Product Description	Supported Platforms
Digital Modem Packet Voice/Data Modules		
PVDM2-12DM	12-port digital modem module	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
PVDM2-24DM	24-port digital modem module	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
PVDM2-36DM	36-port digital modem module	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
Packet Voice/Data Modules		
PVDM2-8	8-channel fax and voice DSP module	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
PVDM2-16	16-channel fax and voice DSP module	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
PVDM2-32	32-channel fax and voice DSP module	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
PVDM2-48	48-channel fax and voice DSP module	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
PVDM2-64	64-channel fax and voice DSP module	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
VICs		
EVM-HD-8FXS/DID	High density voice/fax extension module—8 FXS/DID	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
VIC-1J1	1-port digital voice interface card (J1) for Japan	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN

Table 3 Supported Interfaces for the Cisco 3800 Series Integrated Services Routers (continued)

Network Module, WIC, VWIC, VIC, AIM, or PVDM	Product Description	Supported Platforms
VIC-2DID	2-port DID voice and fax interface card	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
VIC-4FXS/DID	4-port FXS or DID VIC	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
VIC2-2BRI-NT/TE	2-port VIC-BRI (NT and TE)	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
VIC2-2E/M	2-port VIC E&M	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
VIC2-2FXO	2-port VIC-FXO (universal)	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
VIC2-2FXS	2-port VIC-FXS	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
VIC2-4FXO	4-port VIC-FXO (universal)	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
VIC3-2E/M	2-port E&M voice/fax interface card	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
VIC3-2FXS/DID	2-port FXS and DID voice/fax interface card	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
VIC3-2FXS-E/DID	2-port FXS enhanced and DID voice/fax interface card	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
VIC3-4FXS/DID	4-port FXS and DID voice/fax interface card	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN

Table 3 *Supported Interfaces for the Cisco 3800 Series Integrated Services Routers (continued)*

Network Module, WIC, VWIC, VIC, AIM, or PVDM	Product Description	Supported Platforms
Echo Cancellation Modules		
EC-MFT-32	32-channel multiflex trunk dedicated ECAN module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
EC-MFT-64	64-channel multiflex trunk dedicated ECAN module	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
Gigabit Ethernet High-Speed WICs		
HWIC-1FE	1-port Fast Ethernet	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
HWIC-1GE-SFP	Cisco Gigabit Ethernet high-speed interface card	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
HWIC-2FE	2-port Fast Ethernet	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
Access Point HWIC		
HWIC-AP-AG		Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
HWIC-AP-G		Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
AIMs		
AIM-ATM	High-performance ATM segmentation and reassembly (SAR) AIM	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
AIM-COMP4	Data-compression AIM	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
AIM-CUE	Cisco Unity Express voice-mail AIM	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN

Table 3 Supported Interfaces for the Cisco 3800 Series Integrated Services Routers (continued)

Network Module, WIC, VWIC, VIC, AIM, or PVDM	Product Description	Supported Platforms
AIM-VPN/EPII-PLUS	Enhanced-performance DES, 3DES, AES, and compression VPN encryption AIM for the Cisco 3825	Cisco 3825
AIM-VPN/HPII-PLUS	Enhanced-performance DES, 3DES, AES, and compression VPN encryption AIM for the Cisco 3845	Cisco 3845
AIM-VPN/SSL-3	Encryption module support	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
USB Memory Options		
MEMUSB-64FT	64-MB USB flash token	Cisco 3825, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845-NOVPN
MEMUSB-128FT	128-MB USB flash token	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN
MEMUSB-256FT	256-MB USB flash token	Cisco 3825, Cisco 3825C, Cisco 3825-NOVPN, Cisco 3845, Cisco 3845C, Cisco 3845-NOVPN

Feature Support

For feature support in Cisco IOS Release 15.0M, see the [“Feature Support” section on page 5](#).

Cisco 3900 Series Integrated Services Routers

This section contains the following sections with information that is specific to the Cisco 3900 series integrated services routers:

- [Introduction, page 46](#)
- [Memory Recommendations, page 47](#)
- [Supported Hardware, page 47](#)
- [Feature Support, page 47](#)

Introduction

The Cisco 3900 series integrated services routers are future-enabled with support for new high-capacity digital signal processors for future enhanced video capabilities, high powered service modules with improved availability, multicore CPUs, Gigabit Ethernet switching with enhanced POE, and new energy visibility and control capabilities while enhancing overall system performance. Additionally, a new Cisco IOS Software Universal image and Services Ready Engine module enable you to decouple the

deployment of hardware and software, providing a flexible technology foundation that can quickly adapt to evolving network requirements. The Cisco 3900 series integrated services routers offer embedded hardware encryption acceleration, voice- and video-capable DSP slots, optional firewall, intrusion prevention, call processing, voice mail, and application services. In addition, the platform supports the industry's widest range of wired and wireless connectivity options such as T1/E1, T3/E3, xDSL, and Copper and Fiber GE.

Memory Recommendations

For memory recommendations for the Cisco 3900 series integrated services routers in Cisco IOS Release 15.0M, see the [“Memory Recommendations” section on page 6](#).

Supported Hardware

Cisco IOS Release 15.0M supports the following Cisco 3900 series integrated services routers:

- Cisco 3925
- Cisco 3945

For detailed descriptions of the new hardware features, see the [“New and Changed Information” section on page 57](#).

For additional information about supported hardware for this platform and release, go to the Cisco Feature Navigator home page at the following URL:

<http://www.cisco.com/go/cfn>

For supported modules on the Cisco 3900 series integrated service routers, see the following document:

http://www.cisco.com/en/US/products/ps10536/products_relevant_interfaces_and_modules.html

Feature Support

For feature support in Cisco IOS Release 15.0M, see the [“Feature Support” section on page 5](#).

Cisco 7000 Series Routers

This section contains the following sections with information that is specific to the Cisco 7000 series router:

- [Memory Recommendations, page 47](#)
- [Supported Hardware, page 48](#)
- [Feature Support, page 5](#)

Memory Recommendations

For memory recommendations for the Cisco 7000 series routers in Cisco IOS Release 15.0M, see the [“Memory Recommendations” section on page 6](#).



Note

The required memory for the Cisco 7200 series routers has been changed from 256 MB to 512 MB in Cisco IOS Release 15.0(1)M.

Supported Hardware

Cisco IOS Release 15.0M supports the following Cisco 7000 series routers:

- Cisco 7200 routers
- Cisco 7200 Network Processing Engine (NPE-G1, NPE-G2)
- Cisco 7200 Network Processing Engine NPE-400
- Cisco 7201 routers
- Cisco 7301 routers

For detailed descriptions of the new hardware features, see the “[New and Changed Information](#)” section on page 57.

For additional information about supported hardware for this platform and release, go to the Cisco Feature Navigator home page at the following URL:

<http://www.cisco.com/go/cfn>

Feature Support

For feature support in Cisco IOS Release 15.0M, see the “[Feature Support](#)” section on page 5.

Cisco AS5350XM Universal Gateways

This section contains the following sections with information that is specific to the Cisco AS5350XM universal gateways:

- [Introduction](#), page 48
- [Memory Recommendations](#), page 48
- [Supported Hardware](#), page 48
- [Feature Support](#), page 49

Introduction

The Cisco AS5350XM universal gateway is the only one-rack unit, two-, four-, or eight-PRI gateway that provides universal services—data, voice, and fax services on any service, any port. The Cisco AS5350XM offers high performance and high reliability in a compact, modular design. This platform is suited for Internet service providers (ISPs) and enterprises that require universal services.

Memory Recommendations

For memory recommendations for the Cisco AS5350XM universal gateway in Cisco IOS Release 15.0M, see the “[Memory Recommendations](#)” section on page 6.

Supported Hardware

Cisco IOS Release 15.0M supports the Cisco AS5350XM universal gateways.

For detailed descriptions of the new hardware features, see the “[New and Changed Information](#)” section on page 57.

For additional information about supported hardware for this platform and release, go to the Cisco Feature Navigator home page at the following URL:

<http://www.cisco.com/go/cfn>

Table 4 lists the supported interfaces for the Cisco AS5350XM universal gateways.

Table 4 Supported Interfaces for the Cisco AS5350XM Universal Gateways

Interfaces and Dial Feature Cards	Product Description
Dial Feature Cards	AS535-DFC-60NP
	AS535-DFC-108NP
	AS535-DFC-CT3
	2 PRI DFC, 4 PRI DFC, 8 PRI DFC
Dial-Only Dial Feature Card	Modem calls, ISDN digital calls, V.110 data calls, and V.120 data calls
LAN Interfaces	Fast Ethernet 10/100BASE-T (RJ-45)
	Gigabit Ethernet 10/100/1000BASE-T (RJ-45)
Trunk/Backhaul Interface Options	CT3 DFC
	2PRI CT1/CE1 DFC, 4PRI CT1/CE1 DFC, 8PRI CT1/CE1 DFC
	Two 8-MB serial ports

Feature Support

For feature support in Cisco IOS Release 15.0M, see the “Feature Support” section on page 5.

Cisco AS5400XM Universal Gateways

This section contains the following sections with information that is specific to the Cisco AS5400XM universal gateways:

- [Introduction, page 49](#)
- [Memory Recommendations, page 50](#)
- [Supported Hardware, page 50](#)
- [Feature Support, page 50](#)

Introduction

The Cisco AS5400XM universal gateway is a two-rack unit, 8-, 12-, or 16-T1/E1, 1-CT3 gateway that provides universal port data, voice, and fax services on any port at any time. The Cisco AS5400XM offers high performance and high reliability in a compact, modular design. This platform is intended for Internet service providers (ISPs) and enterprises that require innovative universal services.

Memory Recommendations

For memory recommendations for the Cisco AS5400XM universal gateways in Cisco IOS Release 15.0M, see the “[Memory Recommendations](#)” section on page 6.

Supported Hardware

Cisco IOS Release 15.0M supports the Cisco AS5400XM universal gateways.

For detailed descriptions of the new hardware features, see the “[New and Changed Information](#)” section on page 57.

For additional information about supported hardware for this platform and release, go to the Cisco Feature Navigator home page at the following URL:

<http://www.cisco.com/go/cfn>

Table 5 lists the supported interfaces for the Cisco AS5400XM universal gateways for Cisco IOS Release 15.0M.

Table 5 *Supported Interfaces for the Cisco AS5400XM Universal Gateways*

Interfaces and Dial Feature Cards	Product Description
Dial Feature Cards	AS54-DFC-CT3
	AS54-DFC-60NP
	AS54-DFC-108NP
	2 PRI DFC, 4 PRI DFC, 8 PRI DFC
Dial-Only Dial Feature Card	Modem calls, ISDN digital calls, V.110 data calls, and V.120 data calls
LAN Interfaces	Fast Ethernet 10/100BASE-T (RJ-45)
	Gigabit Ethernet 10/100/1000BASE-T (RJ-45)
Trunk/Backhaul Interface Options	2PRI CT1/CE1 DFC, 4PRI CT1/CE1 DFC, 8PRI CT1/CE1 DFC
	CT3 DFC
	2 serial ports on the motherboard

Feature Support

For feature support in Cisco IOS Release 15.0M, see the “[Feature Support](#)” section on page 5.

Cisco IAD2430 Series Integrated Access Devices

This section contains the following sections with information that is specific to the Cisco IAD2430 series integrated access devices:

- [Introduction, page 51](#)
- [Memory Recommendations, page 51](#)

- [Supported Hardware, page 51](#)
- [Feature Support, page 53](#)

Introduction

The Cisco IAD2430 is an integrated voice and data services platform for service providers, building on the Cisco IAD2420 series IAD. The Cisco IAD2430 series offers software functionality such as MGCP SRST used to accelerate the migration from TDM to VoIP. The Cisco IAD2430 series harnesses the maturity of the Cisco IAD2420 series software and enhances functionality by providing more capabilities such as denser interfaces (up to 24 FXS or up to 2 voice and 2 data T1s), encryption, and DC power backup while maintaining its 1RU form factor for space saving service provider- managed services deployment.

Memory Recommendations

For memory recommendations for the Cisco IAD2430 series integrated access devices in Cisco IOS Release 15.0M, see the [“Memory Recommendations” section on page 6](#).

Supported Hardware

Cisco IOS Release 15.0M supports the following Cisco IAD2430 series integrated access devices:

- Cisco IAD2430
- Cisco IAD2431
- Cisco IAD2432
- Cisco IAD2435

For detailed descriptions of the new hardware features, see the [“New and Changed Information” section on page 57](#).

For additional information about supported hardware for this platform and release, go to the Cisco Feature Navigator home page at the following URL:

<http://www.cisco.com/go/cfn>

Each Cisco IAD2430 series integrated access device is preconfigured for one WAN port. The WAN port can be an FE or T1/E1 port. When the platform has two T1/E1 ports, one can be used as a DSU port and the other can be used as a digital voice port for connection to a PBX.

[Table 6](#) lists the supported interfaces for the Cisco IAD2430 series integrated access devices.

Table 6 *Supported Interfaces on the Cisco IAD2430 Series Integrated Access Devices*

Interface and Port	Product Description	Supported IAD2430 Models
10/100BASE-T Fast Ethernet port	All Cisco IAD2430 series models have two 10/100BASE-T Fast Ethernet ports except for Cisco2431-8FXS IAD, which has one.	All
Console and auxiliary ports	One EIA/TIA-32 asynchronous serial port for connection to a console. One EIA/TIA-32 asynchronous serial port for connection to a modem.	All

Table 6 Supported Interfaces on the Cisco IAD2430 Series Integrated Access Devices (continued)

Interface and Port	Product Description	Supported IAD2430 Models
Console and auxiliary ports	Dual-purpose single EIA/TIA-32 asynchronous serial port for connection to a console or modem.	IAD2435-8FXS
Analog FXS voice ports over RJ-21 connector	One 8-line or 16-line analog or 24-line FXS interface (loop-start or ground-start) for connection to analog phones, key systems, or PBXs.	<ul style="list-style-type: none"> • IAD2430-24FXS: 24 ports • IAD2431-8FXS: 8 ports • IAD2431-16FXS: 16 ports • IAD2432-24FXS: 24 ports • IAD2435-8FXS
VIC2-4FX0	All models support one VIC slot, except for Cisco IAD2430-24FXS IAD, which supports none.	<ul style="list-style-type: none"> • IAD2431-8FXS • IAD2431-16FXS • IAD2431-1T1E1 • IAD2432-24FXS
T1/E1 Port	Two or one T1 ports for WAN connection or with channel-associated signaling (CAS) for connection to a digital PBX, except for Cisco IAD2430-24FXS IAD, which supports none. E1 ports are not supported.	<ul style="list-style-type: none"> • IAD2431-8FXS: 1 port • IAD2431-16FXS: 1 port • IAD2431-1T1E1: 2 ports • IAD2432-24FXS: 2 ports
WIC-2T	<p>All models support one WIC slot, except for Cisco IAD2430-24FXS IAD, which supports none. The supported WICs are WIC-2T and WIC-1DSU-T1.</p> <p>One 2T port (balanced, per ANSI T1.403) for connection to a WAN or carrier network or for a serial connection</p>	<ul style="list-style-type: none"> • IAD2431-8FXS • IAD2431-16FXS • IAD2431-1T1E1 • IAD2432-24FXS
WIC-1DSU-T1	One DSU port for connection to a WAN or carrier network.	<ul style="list-style-type: none"> • IAD2431-8FXS • IAD2431-16FXS • IAD2431-1T1E1 • IAD2432-24FXS
External compact flash card	An external compact flash card is supported on all models.	All

The supported WICs and VICs are:

- VIC2-2FX0
- VIC2-2FXS
- VIC-4FXS/DID
- VIC2-2BRI-NT/TE
- WIC-1T
- WIC-1ADSL
- WIC-1SHDSL
- WIC-1ADSL-DG

- WIC-1SHDSL-V2
- VWIC-2MFT-T1
- VWIC-2MFT-E1

Feature Support

For feature support in Cisco IOS Release 15.0M, see the [“Feature Support” section on page 5](#).

Cisco IAD2801 Series Integrated Access Devices

This section contains the following sections with information that is specific to the Cisco IAD2801 series integrated access devices:

- [Introduction, page 53](#)
- [Memory Recommendations, page 53](#)
- [Supported Hardware, page 53](#)
- [Feature Support, page 54](#)

Introduction

The following Cisco IAD2801 models are supported:

- IAD2801-2BRI-A/K9—Fixed configuration router, with integrated PVDM2-8, HWIC-1ADSL, and 1 VIC2-2BRI-NT/TE-P, 2 Fast Ethernet connections, and 1 factory-configurable HWIC slot.
- IAD2801-4BRI-A/K9—Fixed configuration router, with integrated PVDM2-16, HWIC-1ADSL, and 2 VIC2-2BRI-NT/TE-P, 2 Fast Ethernet connections, and 1 factory-configurable HWIC slot.
- IAD2801-4BRI-S/K9—Fixed configuration router, with integrated PVDM2-16, HWIC-4SHDSL, and 2 VIC2-2BRI-NT/TE-P, 2 Fast Ethernet connections, and 1 factory-configurable HWIC slot.
- IAD2801-4BRI-S/K9- Fixed configuration router, with integrated PVDM2-16, HWIC-4SHDSL.

The following cards are supported in the factory-configurable HWIC slot on all models:

- HWIC-4ESW
- HWIC-AP-AG-E or HWIC-AP-G-E
- VIC-4FXS

Memory Recommendations

For memory recommendations for the Cisco IAD2801 series integrated access devices in Cisco IOS Release 15.0M, see the [“Memory Recommendations” section on page 6](#).

Supported Hardware

Cisco IOS Release 15.0M supports the Cisco IAD2801 series integrated access devices.

For detailed descriptions of the new hardware features, see the [“New and Changed Information” section on page 57](#).

For additional information about supported hardware for this platform and release, go to the Cisco Feature Navigator home page at the following URL:

<http://www.cisco.com/go/cfn>

Feature Support

For feature support in Cisco IOS Release 15.0M, see the “[Feature Support](#)” section on page 5.

Cisco VG200 Series Analog Voice Gateways

This section contains the following sections with information that is specific to the Cisco VG200 and Cisco VG204 analog voice gateways:

- [Introduction, page 54](#)
- [Memory Recommendations, page 54](#)
- [Supported Hardware, page 54](#)
- [Feature Support, page 54](#)

Introduction

The Cisco VG200 voice gateways are analog voice gateways for use in the service provider, commercial and enterprise markets. The Cisco VG200 voice gateways provide 2-, 4-, and 24-FXS analog voice interfaces to connect to analog phones, fax machines and analog voice modems.

Memory Recommendations

For memory recommendations for the Cisco VG202 and VG204 voice gateways in Cisco IOS Release 15.0M, see the “[Memory Recommendations](#)” section on page 6.

Supported Hardware

Cisco IOS Release 15.1T supports the following Cisco VG200 series analog voice gateways:

- Cisco VG202
- Cisco VG204
- Cisco VG224

For detailed descriptions of the new hardware features, see the “[New and Changed Information](#)” section on page 57.

For additional information about supported hardware for this platform and release, go to the Cisco Feature Navigator home page at the following URL:

<http://www.cisco.com/go/cfn>

Feature Support

For feature support in Cisco IOS Release 15.0M, see the “[Feature Support](#)” section on page 5.

Cisco VGD 1T3 Voice Gateways

This section contains the following sections with information that is specific to the Cisco VG224 analog gateways:

- [Introduction, page 55](#)
- [Memory Recommendations, page 55](#)
- [Supported Hardware, page 55](#)
- [Feature Support, page 55](#)

Introduction

The Cisco VGD 1T3 is a high-density voice gateway with up to one Channelized T3 (CT3) of VoIP capacity with support for Cisco Unified Communications Manager and Cisco Voice Portal applications with Media Gateway Control Protocol (MGCP). The Cisco VGD 1T3 voice gateway offers unparalleled capacity in only two rack units (RUs) and provides voice and fax services.

Memory Recommendations

For memory recommendations for the Cisco VGD-1T#224 analog gateway in Cisco IOS Release 15.0M, see the [“Memory Recommendations” section on page 6](#).

Supported Hardware

Cisco IOS Release 15.0M supports the Cisco VGD 1T3 platform.

For detailed descriptions of the new hardware features, see the [“New and Changed Information” section on page 57](#).

For additional information about supported hardware for this platform and release, go to the Cisco Feature Navigator home page at the following URL:

<http://www.cisco.com/go/cfn>

Feature Support

For feature support in Cisco IOS Release 15.0M, see the [“Feature Support” section on page 5](#).

