



Release Notes for Cisco AS5800 Universal Access Servers for Cisco IOS Release 12.1

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Note

You can find the most current Cisco IOS documentation on Cisco Connection Online (CCO). These electronic documents may contain updates and modifications made after the hardcopy documents were printed.

These release notes for Cisco AS5800 universal access servers support Cisco IOS Release 12.1(6). These release notes are updated to describe new memory requirements, hardware support, software platform deferrals, and changes to the microcode or modem code and related documents.

For a list of the software caveats that apply to Cisco IOS Release 12.1, see *Caveats for Cisco IOS Release 12.1* that accompanies these release notes. The caveats document is updated for every maintenance release and is located on Cisco Connection Online (CCO) and the Documentation CD-ROM.

Use these release notes with *Cross-Platform Release Notes for Cisco IOS Release 12.1* on CCO and the Documentation CD-ROM.

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Introduction

The Cisco AS5800 access server is a high-density, Integrated Services Digital Network (ISDN), and modem Wide Area Network (WAN) aggregation systems that provide digital and analog call termination. They are intended to be used as a service provider dial point-of-presence (POP) or centralized enterprise dial gateway. The Cisco AS5800 consists of a dial shelf and one or two router shelves:

- The Cisco DS5814 (dial shelf) has 14 slots and can support 1 or 2 dial shelf controller cards and up to 12 feature cards to provide full analog modem, and ISDN coverage. Analog calls are terminated by a feature card that is loaded with integrated modems.

ISDN calls are terminated onboard the trunk card on High-Level Data Link Control (HDLC) controllers. The E1 trunk, T1 trunk, and the CT3 trunk cards include channel service units (CSUs) and have either 12 E1 ports, 12 T1 ports, or 28 T1 ports (within the CT3 trunk) that can operate as Primary Rate Interfaces (PRIs), inter-machine trunks (IMTs), or channelized interfaces in any combination. The specific trunk card limitations are described in Table 2, Part 1.



Note T1 and E1 cards are not supported in the same box.

- The Cisco RS7206VXR (router shelf) contains a network processing engine, an I/O controller, and the egress interfaces, such as High-Speed Serial Interface (HSSI), Fast Ethernet (FE), Gigabit Ethernet (GE), and Asynchronous Transfer Mode (ATM), and supports either 280W AC-input or 280W DC-input redundant power. The router shelf also may contain one or two dial shelf interconnect port adapters each with a single RJ-45 receptacle, which is used to connect the router shelf to the Cisco 5814 dial shelf. The interconnect port adapter connects directly to the dial shelf controller card on the dial shelf via a Cisco-proprietary cable, customized with jack screws to secure the connection. You must use this specially designed cable that ships with your interconnect port adapter. Each router shelf can only be connected to one dial shelf controller card. If the dial shelf configured in split mode, it must be connected to two separate router shelves.



Note The router shelf is only supported for routing data to and from the dial shelf. The router should not be used with multiple port adapter interfaces to route LAN traffic between multiple networks.

The AC-input power shelf is an optional component of the Cisco AS5800 and is used to convert AC-input power into DC-output power for the DC-powered Cisco 5814 dial shelf. The AC-input power shelf contains two AC-input power supplies.

The AC-input to DC-output connection supplies –48V DC-output power to the dial shelf power entry modules (PEMs). The PEMs receive the –48V and transmit power to the filter module. Power flows through the filter module to the backplane, where it is distributed to the dial shelf controller card(s) and feature cards.

The AC-input power shelf includes two 2,000 W, AC-input power supplies that plug into a common power backplane in the AC-input power shelf. A single AC-input power supply is capable of powering a fully configured Cisco 5814 dial shelf. The second power supply provides full redundancy.

Cisco AS5800/Voice Gateway

The Cisco AS5800/Voice Gateway enables highly scalable deployment of toll-quality voice and fax services over data networks. Enhanced with Cisco's IOS software and Service Node (SN) capabilities, the Cisco AS5800 supports features such as prepaid and postpaid calling card, 800 call redirect, voice activated dialing, and voice and fax mail.

The Cisco AS5800 is specifically designed to meet the demands of large service providers such as Post, Telephone, and Telegraphs (PTTs), regional bell operating companies (RBOCs), inter-exchange carriers (IXCs), and large Internet telephony service providers (ITSPs). The physical architecture of the Cisco AS5800 product enhances reliability, availability, and serviceability. Critical features to dial POP administrators include minimizing downtime, service costs, and time to deployment.

The Cisco AS5800 supports up to 2016 ports in a single system, thus offering the highest concentration of VoIP Digital Signal Processors (DSPs) available in a single voice gateway. The Cisco AS5800 offers breakthrough voice quality, density, and scalability, while continuing to provide the rich set of access, VoIP, and QoS services that are part of Cisco IOS software.

For more information on the Cisco AS5800, refer to the *Cisco AS5800 Universal Access Server Software Installation and Configuration Guide* (DOC-5800-SICG) or the *Cisco AS5800 Universal Access Server Hardware Installation Guide* (DOC-5800-HICG) that shipped with your system.

For information on new features and Cisco IOS commands supported by Cisco IOS Release 12.1, see the "New and Changed Information" section on page 13 and "Related Documentation" section on page 16.

System Requirements

This section describes the system requirements for Cisco IOS Release 12.1:

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Memory Requirements

Memory requirements for the Cisco AS5800 are presented in Table 1.

Table 1 Memory Requirements for the Cisco AS5800

System Components	Feature Set	Image Name	Software Image	Flash Memory Required	DRAM Memory Required
Cisco AS5800	IP Standard	IP Plus	c5800-p4-mz	16 MB	128 MB
Dial Shelf: Cisco 5814		IP Plus	dsc-c5800-mz	8 MB	32 MB ¹
Cisco AS5800	Service Provider Standard	Service Provider IPsec 56	c5800-p456i-mz	16 MB	128 MB

1. Cisco IOS Release 12.1(6) may be used with the older RS7206 (NPE-200 based) router shelf as long as the shelf has 128M of DRAM installed.

Hardware Supported

Cisco IOS Release 12.1 supports the Cisco AS5800:

- Cisco DS5814
- Cisco RS7206
- Cisco RS7206 VXR

For detailed descriptions of the new hardware features, see the “New and Changed Information” section on page 13. Table 2, Parts 1 and 2 detail the supported interfaces, cards, options, NPE support, and port adapters.

Table 2, Part 1 Supported Hardware for the Cisco AS5800

Interfaces, Cards, Options, and Support	Description
Interfaces	12-port T1 or E1 termination card
	1- port channelized T3 (CT3) termination card
Modem Cards	72-port modem card (HMM) ¹
	144-port modem card (DMM) ²
	324-port modem card (UPC)
Voice Feature Cards (VFCs) ³	96-port voice card (96VOX)
	192-port voice card (192VOX)
	192-port medium complexity voice card (192-MC-VOX)
	336-port medium complexity voice card (336-MC-VOX)
Dial Shelf	DS5814 Dial Shelf
	Dial Shelf Controller (DSC) card

Table 2, Part 1 Supported Hardware for the Cisco AS5800 (continued)

Interfaces, Cards, Options, and Support	Description
Optional AC-input Power Shelves	Two AC-input power supplies
Router Shelf Support	<p>RS7206VXR (NPE-300 based) Router Shelf</p> <p>RS7206 (NPE-200 based) Router Shelf</p> <p>With any Cisco AS5800 software image, the maximum hardware configuration with an RS7206 is one CT3 or two T1/E1 trunk cards and three UPCs, five DMMs or 10 HMMs for a maximum of 28 24 T1 / 24 E1 controllers and 720 modems.</p> <p>If a larger configuration is desired, a second RS7206 router shelf can be configured in split-shelf mode, or a single RS7206 VXR may be used to support up to 1344 modem sessions. Configurations above 1344 modem sessions require two RS7206VXR router shelves in split-shelf mode.</p> <p>The Cisco AS5800/Voice Gateway can support 672 voice calls per RS7206VXR router shelf. 1344 voice calls require two RS7206VXR router shelves configured in split-shelf mode. RS7206 router shelves do not support voice services.</p>

1. 72-port modem card requires 32M DRAM.
2. 144-port modem card requires 64M DRAM.
3. High-complexity voice cards (with codecs G.723.1, G.728, or G.729) require greater resources to perform complex coding and decoding that results in Voice-handling capacity reduction. Medium-complexity voice cards (with codecs G.711, G.726, or G.729a) can manage twice the number of Voice channels than high-complexity voice cards can.

Table 2, Part 2 Supported Hardware for the Cisco AS5800

Router Shelf	Port Adapter	Description
RS7206 Router Shelf	PA-100VG	Single-Port 100 VG Port Adapter
	PA-12E/2FE	Dual-Wide Ethernet-switch Port Adapter
	PA-1C-E	1-Port ESCON Channel Port Adapter
	PA-2CE1/PRI-120	2-Port Channelized E1/PRI Port Adapter, 120 ohm
	PA-2CE1/PRI-75	2-Port Channelized E1/PRI Port Adapter, 75 ohm
	PA-2CT1/PRI	2-Port Channelized T1/PRI Port Adapter
	PA-2E3	2-Port E3 Serial Port Adapter with E3 DSU
	PA-2FEISL-FX	2-Port Fast Ethernet/ISL 100BaseTx Port Adapter
	PA-2FEISL-TX	2-Port Fast Ethernet/ISL 100BaseFx Port Adapter
	PA-2H	Port Adapter, 2-Port HSSI
	PA-4B-U	4-Port BRI Port Adapter, U Interface
	PA-4E	Port Adapter, 4-Port Ethernet,10BT
	PA-4R	Port Adapter, 4-Port Token Ring (Older Hermon Based)
	PA-4R-DTR	Port Adapter, 4-Port Token Ring (Hawkeye Based)
	PA-4R-FDX	Port Adapter, 4 Port Token Ring 4/16Mbps, Full Duplex
	PA-4T+	Port Adapter, 4-Port Serial,5IN1
PA-5EFL	Port Adapter, 5-Port Ethernet,10FL	

Table 2, Part 2 Supported Hardware for the Cisco AS5800 (continued)

Router Shelf	Port Adapter	Description
RS7206 Router Shelf (continued)	PA-8B-S/T	8-Port BRI Port Adapter, S/T Interface
	PA-8E	Port Adapter, 8-Port Ethernet, 10BT
	PA-8T-232	Port Adapter, 8-Port Serial, 232
	PA-8T-V35	Port Adapter, 8-Port Serial, V.35
	PA-8T-X21	Port Adapter, 8-Port Serial, X.21
	PA-A1-OC3MM	1-Port ATM OC3 Multi-Mode Port Adapter
	PA-A1-OC3SM	1-Port ATM OC3 Single Mode Intermediate Reach Port Adapter
	PA-A2-4E1XC-E3ATM	CES Port Adapter E3/E1 120 ohms
	PA-A2-4E1XC-OC3SM	CES OC3 Port Adapter 4E1 Ports 120 ohms
	PA-A2-4T1C-OC3SM	ATM CES Port Adapter, 4T1 CES Ports and 1 OC3 ATM SM Port
	PA-A2-4T1C-T3ATM	ATM CES Port Adapter, 4T1 CES Ports and 1 T3 ATM Port
	PA-A3-E3	1-Port ATM Enhanced E3 Port Adapter
	PA-A3-OC3MM	1-Port ATM Enhanced OC3c/STM1 Multi-Mode
	PA-A3-OC3SMI	1-Port ATM Enhanced OC3c/STM1 Single Mode
	PA-A3-OC3SML	1-Port ATM Enhanced OC3c/STM1 Single Mode
	PA-A3-T3	1-Port ATM Enhanced DS3 Port Adapter
	PA-CT3/4T1	Channelized DS3 Port Adapter with 4 T1
	PA-E3	1-Port E3 Serial Port Adapter with E3 DSU
	PA-F/FD-MM	Port Adapter, 1-Port FDDI Full Duplex Multi-Mode
	PA-F/FD-SM	Port Adapter, 1-Port FDDI Full Duplex Single-Mode
	PA-FE-FX	Port Adapter, 1-Port FE, 100FX
	PA-FE-TX	Port Adapter, 1-Port FE, 100TX
	PA-F-MM	Port Adapter, 1-Port FDDI Multi-Mode
	PA-F-SM	Port Adapter, 1-Port FDDI Single Mode
	PA-H	Port Adapter, 1-Port HSSI
	PA-MC-8E1/120	8-Port Multichannel E1 Port Adapter
	PA-POS-OC3MM	1-Port Packet/SONET OC3c/STM1 Multi-Mode Port Adapter
	PA-POS-OC3SMI	1-Port Packet/SONET OC3c/STM1 Single Mode (IR) Port Adapter
	PA-POS-OC3SML	1-Port Packet/SONET OC3c/STM1 Single Mode (LR) Port Adapter
	PA-T3	1-Port T3 Serial Port Adapter with T3 DSUs
	PA-T3+	1-Port T3 Serial Port Adapter Enhanced
	SA-COMP/1	Service Adapter, Compression (64 VCs Stac)
	SA-COMP/4	Service Adapter, Compression (256 VCs Stac)

Table 2, Part 2 Supported Hardware for the Cisco AS5800 (continued)

Router Shelf	Port Adapter	Description
RS7206VXR Router Shelf	PA-100VG	Single Port 100VG Port Adapter
	PA-12E/2FE	Dual-Wide Ethernet-Switch Port Adapter
	PA-1C-E	1-Port ESCON Channel Port Adapter
	PA-2E3	2-Port E3 Serial Port Adapter with E3 DSU
	PA-2FEISL-FX	2-Port Fast Ethernet/ISL 100BaseTx Port Adapter
	PA-2FEISL-TX	2-Port Fast Ethernet/ISL 100BaseFx Port Adapter
	PA-2H	Port Adapter, 2-Port HSSI
	PA-4B-U	4-Port BRI Port Adapter, U Interface
	PA-4E	Port Adapter, 4-Port Ethernet,10BT
	PA-4R-DTR	Port Adapter, 4-Port Token Ring (Hawkeye Based)
	PA-4T+	Port Adapter, 4-Port Serial,5in1
	PA-5EFL	Port Adapter, 5-Port Ethernet,10FL
	PA-8B-S/T	8-Port BRI Port Adapter, S/T Interface
	PA-8E	Port Adapter, 8-Port Ethernet,10BT
	PA-8T-232	Port Adapter, 8-Port Serial,232
	PA-8T-V35	Port Adapter, 8-Port Serial,V.35
	PA-8T-X21	Port Adapter, 8-Port Serial,X.21
	PA-A1-OC3MM	1-Port ATM OC3 Multi-Mode Port Adapter
	PA-A1-OC3SM	1-Port ATM OC3 Single Mode Intermediate Reach Port Adapter
	PA-A2-4E1XC-E3ATM	CES Port Adapter E3/E1 120 ohms
	PA-A2-4E1XC-OC3SM	CES OC3 Port Adapter 4E1 Ports 120 ohms
	PA-A2-4T1C-OC3SM	ATM CES Port Adapter, 4T1 CES Ports and 1 OC3 ATM SM Port
	PA-A2-4T1C-T3ATM	ATM CES Port Adapter, 4T1 CES Ports and 1 T3 ATM Port
	PA-A3-E3	1-Port ATM Enhanced E3 Port Adapter
	PA-A3-OC3MM	1-Port ATM Enhanced OC3c/STM1 Multi-Mode
	PA-A3-OC3SMI	1-Port ATM Enhanced OC3c/STM1 Single Mode
	PA-A3-OC3SML	1-Port ATM Enhanced OC3c/STM1 Single Mode
	PA-A3-T3	1-Port ATM Enhanced DS3 Port Adapter
	PA-E3	1-Port E3 Serial Port Adapter with E3 DSU
	PA-FE-FX	Port Adapter, 1-Port FE, 100FX
	PA-FE-TX	Port Adapter, 1-Port FE,100TX
	PA-GE	One-Port Gigabit Ethernet PA for 7200VXR
	PA-H	Port Adapter, 1-Port HSSI
	PA-POS-OC3MM	1-Port Packet/SONET OC3c/STM1 Multi-Mode Port Adapter
PA-POS-OC3SMI	1-Port Packet/SONET OC3c/STM1 Single Mode (IR) Port Adapter	
PA-POS-OC3SML	1-Port Packet/SONET OC3c/STM1 Single Mode (LR) Port Adapter	

Table 2, Part 2 Supported Hardware for the Cisco AS5800 (continued)

Router Shelf	Port Adapter	Description
RS7206VXR Router Shelf Continued	PA-T3	1-Port T3 Serial Port Adapter with T3 DSUs
	PA-T3+	1-Port T3 Serial Port Adapter Enhanced

Table 2, Part 3 Supported Hardware for the Cisco AS5800

Router Shelf	Port Adapter	Description
RS7206 Router Shelf	PA-100VG	Single-Port 100 VG Port Adapter
	PA-12E/2FE	Dual-Wide Ethernet-switch Port Adapter
	PA-1C-E	1-Port ESCON Channel Port Adapter
	PA-2CE1/PRI-120	2-Port Channelized E1/PRI Port Adapter, 120 ohm
	PA-2CE1/PRI-75	2-Port Channelized E1/PRI Port Adapter, 75 ohm
	PA-2CT1/PRI	2-Port Channelized T1/PRI Port Adapter
	PA-2E3	2-Port E3 Serial Port Adapter with E3 DSU
	PA-2FEISL-FX	2-Port Fast Ethernet/ISL 100BaseTx Port Adapter
	PA-2FEISL-TX	2-Port Fast Ethernet/ISL 100BaseFx Port Adapter
	PA-2H	Port Adapter, 2-Port HSSI
	PA-4B-U	4-Port BRI Port Adapter, U Interface
	PA-4E	Port Adapter, 4-Port Ethernet,10BT
	PA-4R	Port Adapter, 4-Port Token Ring (Older Hermon Based)
	PA-4R-DTR	Port Adapter, 4-Port Token Ring (Hawkeye Based)
	PA-4R-FDX	Port Adapter, 4 Port Token Ring 4/16Mbps, Full Duplex
	PA-4T+	Port Adapter, 4-Port Serial,5IN1
	PA-5EFL	Port Adapter, 5-Port Ethernet,10FL
	PA-8B-S/T	8-Port BRI Port Adapter, S/T Interface
PA-8E	Port Adapter, 8-Port Ethernet,10BT	

Table 2, Part 3 Supported Hardware for the Cisco AS5800 (continued)

Router Shelf	Port Adapter	Description
RS7206 Router Shelf (continued)	PA-8T-232	Port Adapter, 8-Port Serial,232
	PA-8T-V35	Port Adapter, 8-Port Serial,V.35
	PA-8T-X21	Port Adapter, 8-Port Serial,X.21
	PA-A2-4E1XC-E3ATM	CES Port Adapter E3/E1 120 ohms
	PA-A2-4E1XC-OC3SM	CES OC3 Port Adapter 4E1 Ports 120 ohms
	PA-A2-4T1C-OC3SM	ATM CES Port Adapter, 4T1 CES Ports and 1 OC3 ATM SM Port
	PA-A2-4T1C-T3ATM	ATM CES Port Adapter, 4T1 CES Ports and 1 T3 ATM Port
	PA-A3-E3	1-Port ATM Enhanced E3 Port Adapter
	PA-A3-OC3MM	1-Port ATM Enhanced OC3c/STM1 Multi-Mode
	PA-A3-OC3SMI	1-Port ATM Enhanced OC3c/STM1 Single Mode
	PA-A3-OC3SML	1-Port ATM Enhanced OC3c/STM1 Single Mode
	PA-A3-T3	1-Port ATM Enhanced DS3 Port Adapter
	PA-CT3/4T1	Channelized DS3 Port Adapter with 4 T1
	PA-E3	1 Port E3 Serial Port Adapter with E3 DSU
	PA-F/FD-MM	Port Adapter,1-Port FDDI Full Duplex Multi-Mode
	PA-F/FD-SM	Port Adapter,1-Port FDDI Full Duplex Single-Mode
	PA-FE-FX	Port Adapter,1-Port FE, 100FX
	PA-FE-TX	Port Adapter,1-Port FE,100TX
	PA-F-MM	Port Adapter,1-Port FDDI Multi-Mode
	PA-F-SM	Port Adapter,1-Port FDDI Single Mode
	PA-H	Port Adapter,1-Port HSSI
	PA-POS-OC3MM	1-Port Packet/SONET OC3c/STM1 Multi-Mode Port Adapter
	PA-POS-OC3SMI	1-Port Packet/SONET OC3c/STM1 Single Mode (IR) Port Adapter
	PA-POS-OC3SML	1-Port Packet/SONET OC3c/STM1 Single Mode (LR) Port Adapter
	PA-T3	1-Port T3 Serial Port Adapter with T3 DSUs
	PA-T3+	1-Port T3 Serial Port Adapter Enhanced
	SA-COMP/1	Service Adapter, Compression (64 VCs Stac)
SA-COMP/4	Service Adapter, Compression (256 VCs Stac)	
RS7206VXR Router Shelf	PA-100VG	Single Port 100VG Port Adapter
	PA-12E/2FE	Dual-Wide Ethernet-Switch Port Adapter
	PA-1C-E	1 Port ESCON Channel Port Adapter
	PA-2E3	2 Port E3 Serial Port Adapter with E3 DSU
	PA-2FEISL-FX	2 port Fast Ethernet/ISL 100BaseTx Port Adapter
	PA-2FEISL-TX	2 port Fast Ethernet/ISL 100BaseFx Port Adapter
	PA-2H	Port Adapter, 2-Port HSSI
	PA-4B-U	4 Port BRI Port Adapter, U Interface

Table 2, Part 3 Supported Hardware for the Cisco AS5800 (continued)

Router Shelf	Port Adapter	Description
RS7206VXR Router Shelf (continued)	PA-4E	Port Adapter, 4-Port Ethernet,10BT
	PA-4R-DTR	Port Adapter, 4-Port Token Ring (Hawkeye Based)
	PA-4T+	Port Adapter, 4-Port Serial,5in1
	PA-5EFL	Port Adapter, 5-Port Ethernet,10FL
	PA-8B-S/T	8 Port BRI Port Adapter, S/T Interface
	PA-8E	Port Adapter, 8-Port Ethernet,10BT
	PA-8T-232	Port Adapter, 8-Port Serial,232
	PA-8T-V35	Port Adapter, 8-Port Serial,V.35
	PA-8T-X21	Port Adapter, 8-Port Serial,X.21
	PA-A2-4E1XC-E3ATM	CES Port Adapter E3/E1 120 ohms
	PA-A2-4E1XC-OC3SM	CES OC3 Port Adapter 4E1 Ports 120 ohms
	PA-A2-4T1C-OC3SM	ATM CES Port Adapter, 4T1 CES Ports and 1 OC3 ATM SM Port
	PA-A2-4T1C-T3ATM	ATM CES Port Adapter, 4T1 CES Ports and 1 T3 ATM Port
	PA-A3-E3	1-Port ATM Enhanced E3 Port Adapter
	PA-A3-OC3MM	1-Port ATM Enhanced OC3c/STM1 Multi-Mode
	PA-A3-OC3SMI	1-Port ATM Enhanced OC3c/STM1 Single Mode
	PA-A3-OC3SML	1-Port ATM Enhanced OC3c/STM1 Single Mode
	PA-A3-T3	1-Port ATM Enhanced DS3 Port Adapter
	PA-E3	1 Port E3 Serial Port Adapter with E3 DSU
	PA-FE-FX	Port Adapter, 1-Port FE, 100FX
	PA-FE-TX	Port Adapter, 1-Port FE,100TX
	PA-GE	One-Port Gigabit Ethernet PA for 7200VXR
	PA-H	Port Adapter, 1-Port HSSI
	PA-POS-OC3MM	1-Port Packet/SONET OC3c/STM1 Multi-Mode Port Adapter
	PA-POS-OC3SMI	1-Port Packet/SONET OC3c/STM1 Single Mode (IR) Port Adapter
	PA-POS-OC3SML	1-Port Packet/SONET OC3c/STM1 Single Mode (LR) Port Adapter
	PA-T3	1 Port T3 Serial Port Adapter with T3 DSUs
	PA-T3+	1 Port T3 Serial Port Adapter Enhanced

Determining the Software Version

To determine the version of Cisco IOS software running on your Cisco AS5800, log in to the Cisco AS5800 and enter the **show version EXEC** command:

```
router> show version
Cisco Internetwork Operating System Software
IOS (tm) 12.1 Software (c5800-p4-mz), Version 12.1(6), RELEASE SOFTWARE
```

Upgrading to a New Software Release

For general information about upgrading to a new software release, refer to *Upgrading the Cisco IOS Software Release in Cisco Routers and Modems* located at:

http://www.cisco.com/warp/public/130/upgrade_index.shtml

Microcode and Modem Code Software

Microcode software images are bundled with the system software image—with the exception of the Channel Interface Processor (CIP) microcode (all system software images). Bundling eliminates the need to store separate microcode images. When the router starts, the system software unpacks the microcode software bundle and loads the proper software on all the interface processor boards.

You could have received a later version of modem code than the one bundled with the Cisco IOS software. The modem code in Flash memory is mapped to the modems. Unless you fully understand how Cisco IOS software uses modem code, it is important to keep the factory configuration.

The modem code release notes are on Cisco.com and the Documentation CD-ROM.

On Cisco.com at:

Technical Documents: Access Servers and Access Routers: Access Servers: Cisco AS5800: Configuration Documents for Cisco AS5800: Port Firmware

On the Documentation CD-ROM at:

Cisco Product Documentation: Access Servers and Access Routers: Access Servers: Cisco AS5800: Configuration Documents for Cisco AS5800: Port Firmware

To obtain the latest Cisco IOS software release compatible with Cisco MICA portware, refer to the *Cisco AS5x00 MICA 6-Port and 12-Port Modem Module Portware/Cisco IOS Software Compatibility Matrixes* at

http://www.cisco.com/univercd/cc/td/doc/product/access/acs_serv/5300/sw_conf/sw_ports/compat/mca12prt.htm.

Feature Set Tables

The Cisco IOS software is packaged in feature sets consisting of software images—depending on the platform. Each feature set contains a specific set of 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 United States 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 due to United States government regulations. When applicable, 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.

Table 3 lists the features and feature sets supported by the Cisco AS5800 in Cisco IOS Release 12.1 and uses the following conventions:

- Yes—The feature is supported in the software image.
- No—The feature is not supported in the software image.

**Note**

This feature set table might contain a selected list of features. This table might not be cumulative or list all the features in each image.

Table 3 Feature List by Feature Set for the Cisco AS5800

Features	Software Images by Feature Set	
	IP Plus	IPsec 56
Authentication and Accounting		
Selecting AAA Server Groups Based on DNIS	Yes	Yes
IP Routing		
Asynchronous Serial Traffic over UDP	Yes	Yes
Cisco AS5800/Voice Gateway	Yes	Yes
Easy IP (Phase 2) DHCP Server	Yes	Yes
IP Enhanced IGRP Route Authentication	Yes	Yes
OSPF Point-to-Multipoint Networks with Neighbors	Yes	Yes
Policy Routing Infrastructure Update	Yes	Yes
LAN Support		
CLI String Search	Yes	Yes
Configuring RADIUS for Multiple User Datagram Protocol Ports	Yes	Yes
Dynamic Multiple Encaps for Dial-In over ISDN	Yes	Yes
L2TP Dialout	Yes	Yes
Parse Bookmarks	Yes	Yes
SS7	Yes	Yes
Subnetwork Bandwidth Manager	Yes	Yes
Management		
Cisco IOS File System	Yes	Yes
Dial Shelf Controller Redundancy	Yes	Yes
Entity MIB	Yes	Yes
Process MIB	Yes	Yes
SNMP Version 3	Yes	Yes
Security		
DSC Redundancy	Yes	Yes
Resource Pool Management Server	Yes	Yes
Resource Pool Management with Direct Remote Services	Yes	Yes

Table 3 Feature List by Feature Set for the Cisco AS5800 (continued)

Features	Software Images by Feature Set	
	IP Plus	IPsec 56
WAN Services		
E1 R2 Signaling for AS5800 Access Servers	Yes	Yes
E1 R1 Signaling for AS5800 Access Servers	Yes	Yes
Frame Relay Enhancements for K2 Scalability	Yes	Yes
ISDN Advice of Charge	Yes	Yes
Layer 2 Tunneling Protocol (L2TP)	Yes	Yes

New and Changed Information

The following is a list the new hardware and software feature categories supported by the Cisco AS5800 for Cisco IOS Release 12.1. These categories are broken down by feature in Table 3.

- Authentication and Accounting
- IP Routing
- LAN Support
- Management
- Security
- WAN Services

MIBs

Current MIBs

To download MIB modules, go to the Cisco MIB website on Cisco.com at <http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>.

The Cisco AS5800 support the following MIBs:

- AAA-SESSION-MIB
- AAA-SERVER-MIB
- ATM-MIB
- CALL-TRACKER-MIB
- CISCO-ATM2-MIB
- CISCO-ATM-IF-PHYS-MIB
- CISCO-ATM-SIG-DIAG-MIB
- CISCO-BULK-FILE-MIB
- CISCO-C8500-REDUNDANCY-MIB

- CISCO-CALL-HISTORY-MIB.my
- CISCO-CIRCUIT-INTERFACE-MIB
- CISCO-DIAL-CONTROL-MIB
- CISCO-DSP-MGMT-MIB
- CISCO-ENTITY-MIB
- CISCO-ENTITY-FRU-CONTROL-MIB
- CISCO-ENVMON-MIB.my
- CISCO-FRAME-RELAY-MIB
- CISCO-ISDN-MIB
- CISCO-MEMORY-POOL-MIB.my
- CISCO-MODEM-MGMT-MIB
- CISCO-PING-MIB
- CISCO-POP-MGMT-MIB
- CISCO-QUEUE-MIB.my
- CISCO-SMI.my
- CISCO-TC
- CISCO TOKEN RING MIB
- CISCO-SYSLOG-MIB
- CISCO-VPDN-MGMT-MIB
- DIAL-CONTROL-MIB
- ENTITY-MIB
- EXPRESSION-MIB
- FDDI-SMT73-MIB
- FSIP-MIB
- IF-MIB.mib
- OLD-CISCO-CPU-MIB
- OLD-CISCO-CHASSIS-MIB
- OLD-CISCO-IP-MIB
- OLD-CISCO-MEMORY-MIB
- PROCESS-MIB
- RFC-1212.mib
- RFC-1215.mib
- RFC1155-SMI.mib
- RFC1213-MIB.mib
- RFC1354-MIB.mib
- RFC1406-MIB
- RFC1407-MIB
- RFC1398-MIB

- RTT Mon MIB
- SONET-MIB

Important Information

The following section contains important notes about Cisco IOS Release 12.1(6) that can apply to the Cisco AS5800.

Caveat CSCdr91706 and IOS HTTP Vulnerability

A defect in multiple releases of Cisco IOS software will cause a Cisco router or switch to halt and reload if the IOS HTTP service is enabled, browsing to `http://router-ip/anytext?/` is attempted, and the enable password is supplied when requested. This defect can be exploited to produce a denial of service (DoS) attack.

The vulnerability, identified as Cisco bug ID CSCdr91706, affects virtually all mainstream Cisco routers and switches running Cisco IOS software releases 12.0 through 12.1, inclusive. This is not the same defect as CSCdr36952.

The vulnerability has been corrected and Cisco is making fixed releases available for free to replace all affected IOS releases. Customers are urged to upgrade to releases that are not vulnerable to this defect as shown in detail below.

This vulnerability can only be exploited if the enable password is known or not set.

You are strongly encouraged to read the complete advisory, which is available at <http://www.cisco.com/warp/public/707/ioshttpserverquery-pub.shtml>.

Enhancement to ppp ipcp Command

The **ppp ipcp** command, which supplies Domain Name System (DNS) or Windows Internet Naming Service (WINS) addresses during IP Control Protocol (IPCP) negotiation, has been enhanced with the reject and accept keywords. These keywords allow enabling or disabling support for the Microsoft IPCP extensions defined by RFC 1877.

Caveats

Caveats describe unexpected behavior in Cisco IOS software releases. Severity 1 caveats are the most serious caveats; severity 2 caveats are less serious. Severity 3 caveats are moderate caveats, and only select severity 3 caveats are included in the caveats document.

For information on caveats in Cisco IOS Release 12.1, see *Caveats for Cisco IOS Release 12.1*, which lists severity 1 and 2 caveats and select severity 3 caveats for Cisco IOS Release 12.1 and is located on CCO and the Documentation CD-ROM.

**Note**

If you have an account with CCO, you can use Bug Navigator II to find caveats of any severity for any release. To reach Bug Navigator II, go to CCO and press **Login**. Then go to **Software Center: Cisco IOS Software: Cisco Bugtool Navigator II**. Another option is to go to <http://www.cisco.com/support/bugtools>.

Open Caveats—Release 12.1(6)

The following caveat is open in Cisco IOS Release 12.1(6):

- CSCds10334

An outgoing V.110 call originated from a Cisco AS5800 that is used as a Network Access Solution (NAS) as part of a Signalling System 7 (SS7), has an incorrect encoded intermediate rate of *0x0* in the Low Layer Compatibility IE. The value is incorrect for the speeds 600, 1200, 2400, 4800, 7200, 9600, 12000, 14400 and 19200. There is no workaround.

Related Documentation

The following sections describe the documentation available for the Cisco AS5800. These documents consist of hardware and software installation guides, Cisco IOS configuration and command references, system error messages, and other documents.

Documentation is available as printed manuals or electronic documents.

Use these release notes with these documents:

- Release-Specific Documents, page 16
- Platform-Specific Documents, page 17
- Cisco IOS Software Documentation Set, page 17

Release-Specific Documents

The following documents are specific to Cisco IOS Release 12.1 and are located on CCO and the Documentation CD-ROM:

- *Cross-Platform Release Notes for Cisco IOS Release 12.1*

On CCO at:

Technical Documents: Cisco IOS Software Configuration: Cisco IOS Release 12.1

On the Documentation CD-ROM at:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.1: Release Notes: Cross-Platform Release Notes

- Product bulletins, field notices, and other release-specific documents on CCO at:

Technical Documents

- *Caveats for Cisco IOS Release 12.1*

See *Caveats for Cisco IOS Release 12.1*, which contain caveats applicable to all platforms for all maintenance releases of Cisco IOS Release 12.1.

On CCO at:

Technical Documents: Cisco IOS Software Configuration: Cisco IOS Release 12.1: Caveats

On the Documentation CD-ROM at:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.1: Caveats



Note If you have an account with CCO, you can use Bug Navigator II to find caveats of any severity for any release. To reach Bug Navigator II, go to CCO and press **Login**. Then go to **Software Center: Cisco IOS Software: Cisco Bugtool Navigator II**. Another option is to go to <http://www.cisco.com/support/bugtools>.

Platform-Specific Documents

These documents are available for the Cisco AS5800 on CCO and the Documentation CD-ROM:

- Read Me First—For *Cisco AS5800 Universal Access Server* (includes hardware unpacking and installation and software configuration)
- *Cisco AS5800 Universal Access Server Hardware Installation Guide*
- *Cisco AS5800 Universal Access Server Dial Shelf Card Guide*
- *AS5800 OAM&P Guide*
- *Cisco AS5800 Universal Access Server Regulatory Compliance and Safety Information*
- Cisco IOS Release Notes
- *Cisco IOS Release 11.3 AA New Features*
- *Cisco IOS Release 12.0 T New Features*
- Port Firmware (includes release notes, compatibility matrixes, and AT command sets)
- Router Shelf Support Documentation (includes Cisco 7206 router shelf documentation)
- Cisco 3640 System Controller Support Documentation
- Cisco Access Manager 3.1 Documents

On CCO at:

Technical Documents: Access Servers and Access Routers: Access Servers: Cisco AS5800

On the Documentation CD-ROM at:

Cisco Product Documentation: Access Servers and Access Routers: Access Servers: Cisco AS5800

Cisco IOS Software Documentation Set

The Cisco IOS software documentation set consists of the Cisco IOS configuration guides, Cisco IOS command references, and several other supporting documents that are shipped with your order in electronic form on the Documentation CD-ROM—unless you specifically ordered the printed versions.

Documentation Modules

Each module in the Cisco IOS documentation set consists of two books: a configuration guide and a corresponding command reference. Chapters in a configuration guide describe protocols, configuration tasks, Cisco IOS software functionality, and contain comprehensive configuration examples. Chapters in a command reference provide complete command syntax information. Use each configuration guide with its corresponding command reference.

On CCO and the Documentation CD-ROM, two master hot-linked documents provide information for the Cisco IOS software documentation set.

On CCO at:

Technical Documents: Cisco IOS Software Configuration: Cisco IOS Release 12.1: Configuration Guides and Command References

On the Documentation CD-ROM at:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.1: Configuration Guides and Command References

Cisco IOS Release 12.1 Documentation Set

Table 4 describes the contents of the Cisco IOS Release 12.1 software documentation set for the AS5800, which is available in electronic form and in printed form ordered.

**Note**

You can find the most current Cisco IOS documentation on CCO and the Documentation CD-ROM. These electronic documents may contain updates and modifications made after the hard-copy documents were printed.

On CCO at:

Technical Documents: Cisco IOS Software Configuration: Cisco IOS Release 12.1

On the Documentation CD-ROM at:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.1

Table 4 Cisco IOS Software Release 12.1 Documentation Set

Books	Chapter Topics
<ul style="list-style-type: none"> • <i>Configuration Fundamentals Configuration Guide</i> • <i>Configuration Fundamentals Command Reference</i> 	Configuration Fundamentals Overview Cisco IOS User Interfaces File Management System Management
<ul style="list-style-type: none"> • <i>Bridging and IBM Networking Configuration Guide</i> • <i>Bridging and IBM Networking Command Reference</i> 	Transparent Bridging Source-Route Bridging Token Ring Inter-Switch Link Remote Source-Route Bridging DLSw+ STUN and BSTUN LLC2 and SDLC IBM Network Media Translation DSPU and SNA Service Point SNA Frame Relay Access Support APPN Cisco Database Connection NCIA Client/Server Topologies Cisco Mainframe Channel Connection Airline Product Set
<ul style="list-style-type: none"> • <i>Dial Solutions Configuration Guide</i> • <i>Dial Solutions Command Reference</i> 	X.25 over ISDN Asynchronous Callback, DDR, PPP, SLIP Bandwidth Allocation Control Protocol ISDN Basic Rate Service ISDN Caller ID Callback PPP Callback for DDR Channelized E1 & T1 Dial Backup for Dialer Profiles Dial Backup Using Dialer Watch Dial Backup for Serial Lines Peer-to-Peer DDR with Dialer Profiles DialOut Dial-In Terminal Services Dial-on-Demand Routing (DDR) Dial Backup Dial-Out Modem Pooling Large-Scale Dial Solutions Cost-Control Solutions Virtual Private Dialup Networks Dial Business Solutions and Examples
<ul style="list-style-type: none"> • <i>Cisco IOS Interface Configuration Guide</i> • <i>Cisco IOS Interface Command Reference</i> 	Interface Configuration Overview LAN Interfaces Logical Interfaces Serial Interfaces

Table 4 Cisco IOS Software Release 12.1 Documentation Set (continued)

Books	Chapter Topics
<ul style="list-style-type: none"> • <i>Network Protocols Configuration Guide, Part 1</i> • <i>Network Protocols Command Reference, Part 1</i> 	<ul style="list-style-type: none"> IP Overview IP Addressing and Services IP Routing Protocols
<ul style="list-style-type: none"> • <i>Security Configuration Guide</i> • <i>Security Command Reference</i> 	<ul style="list-style-type: none"> AAA Security Services Security Server Protocols Traffic Filtering and Firewalls IP Security and Encryption Passwords and Privileges Neighbor Router Authentication IP Security Options
<ul style="list-style-type: none"> • <i>Cisco IOS Switching Services Configuration Guide</i> • <i>Cisco IOS Switching Services Command Reference</i> 	<ul style="list-style-type: none"> Switching Services Switching Paths for IP Networks Virtual LAN (VLAN) Switching and Routing
<ul style="list-style-type: none"> • <i>Wide-Area Networking Configuration Guide</i> • <i>Wide-Area Networking Command Reference</i> 	<ul style="list-style-type: none"> Wide-Area Network Overview ATM Frame Relay SMDS X.25 and LAPB
<ul style="list-style-type: none"> • <i>Voice, Video, and Home Applications Configuration Guide</i> • <i>Voice, Video, and Home Applications Command Reference</i> 	<ul style="list-style-type: none"> Voice over IP Voice over Frame Relay Voice over ATM Voice over HDLC Frame Relay-ATM Internetworking Synchronized Clocks Video Support Universal Broadband Features

Table 4 Cisco IOS Software Release 12.1 Documentation Set (continued)

Books	Chapter Topics
<ul style="list-style-type: none"> • <i>Quality of Service Solutions Configuration Guide</i> • <i>Quality of Service Solutions Command Reference</i> 	Policy-Based Routing QoS Policy Propagation via BGP Committed Access Rate Weighted Fair Queueing Custom Queueing Priority Queueing Weighted Random Early Detection Scheduling Signaling RSVP Packet Drop Frame Relay Traffic Shaping Link Fragmentation RTP Header Compression
<ul style="list-style-type: none"> • <i>Cisco IOS Configuration Guide Master Index</i> • <i>Cisco IOS Command Reference Master Index</i> • <i>Cisco IOS Software Command Summary</i> • <i>Dial Solutions Quick Configuration Guide</i> • <i>System Error Messages</i> • <i>Debug Command Reference</i> 	

**Note**

Cisco Management Information Base (MIB) User Quick Reference is no longer published. If you have an account with CCO, you can find the current list of MIBs supported by Cisco. To reach the *Cisco Network Management Toolkit*, go to CCO, press **Login**, and click to **Software Center: Network Mgmt Products: Cisco Network Management Toolkit: Cisco MIB**.

Obtaining Documentation

The following sections provide sources for obtaining documentation from Cisco Systems.

World Wide Web

You can access the most current Cisco documentation on the World Wide Web at the following sites:

- <http://www.cisco.com>
- <http://www-china.cisco.com>
- <http://www-europe.cisco.com>

Documentation CD-ROM

Cisco documentation and additional literature are available in a CD-ROM package, which ships with your product. The Documentation CD-ROM is updated monthly and may be more current than printed documentation. The CD-ROM package is available as a single unit or as an annual subscription.

Ordering Documentation

Cisco documentation is available in the following ways:

- Registered Cisco Direct Customers can order Cisco Product documentation from the Networking Products MarketPlace:
http://www.cisco.com/cgi-bin/order/order_root.pl
- Registered Cisco.com users can order the Documentation CD-ROM through the online Subscription Store:
<http://www.cisco.com/go/subscription>
- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco corporate headquarters (California, USA) at 408 526-7208 or, in North America, by calling 800 553-NETS(6387).

Documentation Feedback

If you are reading Cisco product documentation on the World Wide Web, you can submit technical comments electronically. Click **Feedback** in the toolbar and select **Documentation**. After you complete the form, click **Submit** to send it to Cisco.

You can e-mail your comments to bug-doc@cisco.com.

To submit your comments by mail, for your convenience many documents contain a response card behind the front cover. Otherwise, you can mail your comments to the following address:

Cisco Systems, Inc.
Document Resource Connection
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Obtaining Technical Assistance

Cisco provides Cisco.com as a starting point for all technical assistance. Customers and partners can obtain documentation, troubleshooting tips, and sample configurations from online tools. For Cisco.com registered users, additional troubleshooting tools are available from the TAC website.

Cisco.com

Cisco.com is the foundation of a suite of interactive, networked services that provides immediate, open access to Cisco information and resources at anytime, from anywhere in the world. This highly integrated Internet application is a powerful, easy-to-use tool for doing business with Cisco.

Cisco.com provides a broad range of features and services to help customers and partners streamline business processes and improve productivity. Through Cisco.com, you can find information about Cisco and our networking solutions, services, and programs. In addition, you can resolve technical issues with online technical support, download and test software packages, and order Cisco learning materials and merchandise. Valuable online skill assessment, training, and certification programs are also available.

Customers and partners can self-register on Cisco.com to obtain additional personalized information and services. Registered users can order products, check on the status of an order, access technical support, and view benefits specific to their relationships with Cisco.

To access Cisco.com, go to the following website:

<http://www.cisco.com>

Technical Assistance Center

The Cisco TAC website is available to all customers who need technical assistance with a Cisco product or technology that is under warranty or covered by a maintenance contract.

Contacting TAC by Using the Cisco TAC Website

If you have a priority level 3 (P3) or priority level 4 (P4) problem, contact TAC by going to the TAC website:

<http://www.cisco.com/tac>

P3 and P4 level problems are defined as follows:

- P3—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- P4—You need information or assistance on Cisco product capabilities, product installation, or basic product configuration.

In each of the above cases, use the Cisco TAC website to quickly find answers to your questions.

To register for Cisco.com, go to the following website:

<http://www.cisco.com/register/>

If you cannot resolve your technical issue by using the TAC online resources, Cisco.com registered users can open a case online by using the TAC Case Open tool at the following website:

<http://www.cisco.com/tac/caseopen>

Contacting TAC by Telephone

If you have a priority level 1 (P1) or priority level 2 (P2) problem, contact TAC by telephone and immediately open a case. To obtain a directory of toll-free numbers for your country, go to the following website:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>

P1 and P2 level problems are defined as follows:

- P1—Your production network is down, causing a critical impact to business operations if service is not restored quickly. No workaround is available.
- P2—Your production network is severely degraded, affecting significant aspects of your business operations. No workaround is available.

This document is to be used in conjunction with the documents listed in the “Related Documentation” section on page 16.

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