# Cisco 7500 Series

This chapter provides information on the Cisco 7500 series routers. The information is organized into the following sections:

- Product Overview
- Standard Features
- Options
  - Route Switch Processors
  - Interface Processors
  - Spare Chassis
  - Power Supplies
  - Spare Accessories
  - Software Options

**Note** Documentation for the Cisco 7500 series is available in two forms: on a CD-ROM called Cisco Connection Documentation, Enterprise Series, and printed books. A CD and hard-copy installation documentation ship with each chassis, and a configuration note ships with each component ordered. All configuration notes are available on the CD. Additional CDs and a subscription CD update service are also available.

You can also access Cisco technical documentation on the World Wide Web URL http://www.cisco.com. For more information, see the chapter "Documentation" at the end of the catalog.

### **Product Overview**

The Cisco 7500 series is Cisco's premier high-end platform of multiprotocol routers, which include the Cisco 7505, the Cisco 7507, and the Cisco 7513. These systems combine Cisco Systems' proven software technology with exceptional reliability, availability, serviceability, and performance features to meet the requirements of today's most mission-critical internetworks. The Cisco 7500 series provides information system professionals with the flexibility they need to meet the constantly changing requirements at the core and distribution points of the internetwork.



The Cisco 7505 features a high-speed Cisco Extended Bus (CyBus), and the Cisco 7507 and Cisco 7513 feature dual CyBuses. Network interfaces reside on modular interface processors, which provide a direct connection between the CyBus and the external network. The Cisco 7505 uses the RSP1, and the Cisco 7507 and Cisco 7513 use the RSP2.

The Cisco 7500 series runs the industry-leading networking software, Cisco Internetwork Operating System (Cisco IOS) software. Cisco IOS software assures robust, reliable internetworks by supporting both LAN and WAN protocols, optimizing WAN services, and controlling internetwork access. In addition, Cisco IOS software allows centralized, integrated, and automated installation and management of internetworks.

The Cisco 7500 series offers software feature sets and feature licenses, which allows you to select the package that best meets your needs. You can select from six feature sets, which can be enhanced with additional feature licenses. If requirements change in the future, you can upgrade to a higher level feature set and add another feature license.

The Cisco 7505 contains five slots (one slot for the RSP1, and four slots for interface processors); the Cisco 7507 contains seven slots (two slots for RSPs, and five slots for interface processors); and the Cisco 7513 contains thirteen slots (two slots for RSPs, and eleven slots for interface processors). The interface processor types follow:

- Asynchronous Transfer Mode (ATM) Interface Processor (AIP)\*
- Second-Generation Channel Interface Processor (CIP2)
- Ethernet Interface Processor (EIP)\*
- Fast Ethernet Interface Processor (FEIP)
- FDDI Interface Processor (FIP)\*
- Fast Serial Interface Processor (FSIP)\*
- High-Speed Serial Interface (HSSI) Interface Processor (HIP)
- MultiChannel Interface Processor (MIP)
- Service Provider MultiChannel Interface Processor (SMIP)
- Standard Serial Interface Processor (SSIP)
- Token Ring Interface Processor (TRIP)
- Second-Generation Versatile Interface Processor (VIP2)

\* Older versions of these boards may be eligible for the Investment Protection Program. See the chapter "Interface Processors and Port Adapters for the Cisco 7000 Family."

The reliability, availability, and serviceability features of the Cisco 7500 series include the following:

- Online software reconfiguration—Enables software configuration changes to occur without rebooting or interrupting network applications and services.
- Online insertion and removal—Allows seamless upgrades to higher density and new interface processors without rebooting or taking the system offline. Reduces operator intervention because like interface processors are automatically reconfigured.
- Fast boot—Enables the system to come online quickly (35 seconds is typical) after software upgrades, minimizing impact on the network.





- Environmental monitoring—Alerts you to fluctuations before critical conditions occur, allowing proactive resolution while the system stays online.
- Self-diagnostics and tools—Ensures that modules are operational before going online, eliminating potential network problems.
- Optional dual power supply systems (for Cisco 7507 and Cisco 7513 only)—Extends individual power supplies by load sharing.

Allows you to implement dual sources of primary power. Each supply has its own power cord, eliminating the risks associated with failure of uninterruptable power supply systems or building power.

• Flash memory—Enables fast, reliable software and microcode updates. Allows a single, centralized point of administration, eliminating the need to visit each router site when updating software or microcode.



### Figure 3 Cisco 7505—Front View









Figure 5 Cisco 7507—Front View





Figure 6 Cisco 7507—Interface Processor View





Figure 7 Cisco 7513—Front View





Figure 8 Cisco 7513—Interface Processor View



Characteristics	Cisco 7505	Cisco 7507	Cisco 7513
Supported network interfaces	Ethernet 10BaseT, AUI, and 10BaseFL <sup>1</sup> Fast Ethernet (100BaseT and MII)	Ethernet 10BaseT, AUI, and 10BaseFL <sup>1</sup> Fast Ethernet (100BaseT and MII)	Ethernet 10BaseT, AUI, and 10BaseFL <sup>1</sup> Fast Ethernet (100BaseT and MII)
	Token Ring	Token Ring	Token Ring
	FDDI	FDDI	FDDI
	HSSI	HSSI	HSSI
	Serial	Serial	Serial
	AIM Maltichennel en T1 en E1 lines	AIM Maltishannal an T1 an E1 linna	AIM Multichannel en T1 en E1 lines
	Multichannel on 11 or E1 lines	Multichannel on 11 or E1 lines	Multichannel on 11 of E1 lines
	ISDN PRI	ISDN PKI	ISDN PKI
	IBM channel		
Power supplies	1	22	24
Interface processor slots	4	5	11
Software options—for Cisco	IP routing	IP routing	IP routing
IOS Release 11.1, 11.0	IP/IPX Routing and IBM <sup>4</sup>	IP/IPX Routing and IBM <sup>4</sup>	IP/IPX Routing and IBM <sup>4</sup>
software feature sets <sup>3</sup>	IP/IPX Routing, IBM, and APPN <sup>4</sup>	IP/IPX Routing, IBM, and APPN <sup>4</sup>	IP/IPX Routing, IBM, and APPN <sup>4</sup>
	Desktop and IBM	Desktop and IBM	Desktop and IBM
	Desktop and IBM APPN <sup>5</sup>	Desktop and IBM APPN <sup>5</sup>	Desktop and IBM APPN <sup>5</sup>
	Enterprise and IBM	Enterprise and IBM	Enterprise and IBM
	Enterprise, IBM and APPN	Enterprise, IBM and APPN	Enterprise, IBM and APPN
Software options-for Cisco	IP routing	IP routing	IP routing
IOS Release 11.2	IP and Encryption 40	IP and Encryption 40	IP and Encryption 40
software feature sets <sup>6</sup>	IP and Encryption 56	IP and Encryption 56	IP and Encryption 56
	Desktop	Desktop	Desktop
	Desktop and Encryption 40	Desktop and Encryption 40	Desktop and Encryption 40
	Desktop and Encryption 56	Desktop and Encryption 56	Desktop and Encryption 56
	Enterprise	Enterprise	Enterprise
	Enterprise and Encryption 40	Enterprise nd Encryption 40	Enterprise nd Encryption 40
	Enterprise and Encryption 56	Enterprise and Encryption 56	Enterprise and Encryption 56
	Enterprise and APPN	Enterprise and APPN	Enterprise and APPN
	Enterprise/APPN and Encryption 40	Enterprise/APPN and Encryption 40	Enterprise/APPN and Encryption 40
	Enterprise/APPN and Encryption 56	Enterprise/APPN and Encryption 56	Enterprise/APPN and Encryption 56
		Desktop/IBM/APPN	
PCMCIA Flash memory card	8 MB expandable to 40 MB (8, 16, or 20 MBs per card)	8 MB expandable to 40 MB (8, 16, or 20 MBs per card)	8 MB expandable to 40 MB (8, 16, or 20 MBs per cord)
Processor type	MIPS RISC	MIPS RISC	MIPS RISC
Dimensions (H x W x D)	10.5 x 17.5 x 17.0" (26.67 x 44.45 x	19.25 x 17.5 x 25.1" (48.90 x 44.45	33.75 x 17.5 x 22" (85.73 x 44.45 x 55.88 cm)
	Chassis denth including power cord	Chassis depth including power	Chassis width including rack-mount
	and cable management brackets	cable is 28" (71.12 cm)	flanges is 18.93 in (48.1 cm)
	is 19" (48.26 cm)		Chassis depth including power cord
	15 17 ( <del>1</del> 0.20 cm)		and cable management fixture is
			24  in  (60.96  cm)

### Table 54 Cisco 7500 Series Summary of Features



Characteristics	Cisco 7505	Cisco 7507	Cisco 7513
Weight	Chassis only (including power supply and fan array): 46 lb (20.87 kg) Chassis fully configured with 1 RSP1 and 4 interface processors: 70 lb (31.75 kg)	Chassis only: 76 lb (34.47 kg) Chassis fully configured with 1 RSP2 and 5 interface processors, and 2 power supplies: 143.5 lb (64.63 kg)	Chassis with blower module: ~75 lbs (34.02 kg) Chassis with blower module and one power supply: ~100 lbs (45.36 kg) Chassis with blower module and two power supplies: ~125 lbs (56.7 kg) Chassis with blower module, two power supplies, and all slots filled: ~160 lbs (72.58 kg) Each processor module weighs ~2.5 lbs (1.13 kg)
High-speed backplane	5-slot, one 1.067-gigabits per second (Gbps) CyBus: 4 interface processor slots, and 1 RSP1 slot	7-slot, two 1.067-Gbps CyBuses: 5 interface processor slots, and 2 RSP2 slots	13-slot, two 1.067-Gbps CyBuses: 11 interface processor slots, and 2 RSP2 slots

1. AUI = attachment unit interface.

2. Second power supply is optional.

3. Feature sets can be enhanced with CIP2 support, and/or two feature licenses (WAN packet protocols, interdomain routing, and NetFlow switching).

4. Not available with Cisco IOS Release 11.2.

5. Available with Cisco IOS Release 11.2.

6. Encryption images include the NetFlow switching license.

### Table 55 Cisco 7505 Environmental Specifications

Description Specification		
Power dissipation	600W maximum configuration with AC-input power supply 600W maximum configuration with DC-input power supply	
Heat dissipation	715W (2440 British thermal units [Btus]/hr)	
Power distribution	75 amps (A) maximum @ +5 VDC <sup>1</sup> , 15A maximum @ +12 VDC, 3A maximum @ -12 VDC, 5A maximum @ +24 VDC	
AC-input rating	100 to 240 volts AC (VAC <sup>2</sup> ), wide input with power factor corrector (PFC); 9A maximum @ 100 VAC, 4A maximum @ 240 VAC (at 600W)	
Frequency	50 to 60 Hz	
DC-input rating	<ul> <li>-40 volts DC (VDC) minimum in North America (-56 VDC in European Community)</li> <li>-48 VDC nominal in North America (-60 VDC in European Community)</li> <li>-52 VDC maximum in North America (-72 VDC in European Community)</li> <li>20A maximum @ -48 VDC, and 16A maximum @ -60 VDC</li> </ul>	
DC-input cable	10 AWG <sup>3</sup> ; recommended minimum wire gauge (customer provided)	
DC-input hold-up time	10 milliseconds (ms) of output after the DC input has been interrupted	
Airflow	Side-to-side through the chassis using a variable-speed, 6-fan array	



Description Specification		
Temperature	32 to 104 F (0 to 40 C), operating; -4 to 149 F (-20 to 65 C), nonoperating	
Humidity (noncondensing)	10 to 90% g)	
Agency approvals	Safety: UL 1950, CSA 22.2-No. 950, EN60950, EN41003, AUSTEL TS001, AS/NZS 3260, IEC 801-2, 3, 4, 5, and 6 EMI: FCC Class A, VCCI Class II, and CISPR 22 B (EN 55022) Conducted Emissions	

1. VDC = volts direct current.

2. VAC = volts alternating current.

3. AWG = American Wire Gauge.

### Table 56 Cisco 7507 Environmental Specifications

Description	Specifications
Power supply	700W maximum (AC-input and DC-input power supplies)
Power dissipation	626W maximum configuration, 530W typical with maximum configuration
Heat dissipation	1200W (4100 Btu/hr)
AC current rating	12A maximum @100 VAC <sup>1</sup> , 6A maximum @240 VAC with the chassis fully configured
Input voltage	100 to 240 VAC wide input with power factor corrector (PFC)
Frequency	50 to 60 Hz (hertz) autoranging
DC-input power	1000 watts (W)
DC-input voltage	<ul> <li>-40 volts direct current (VDC<sup>2</sup>) minimum</li> <li>-48 VDC nominal</li> <li>-72 VDC maximum</li> </ul>
DC-input cable	8 AWG <sup>3</sup> wire (customer provided)
DC voltages supplied and steady state maximum current ratings	+5.2V @ 100 amps (A) +12V @ 15A -12V @ 3A +24V @ 5A
DC-input power supply hold-up time specification	10 milliseconds (ms) of output after the input has been interrupted
Airflow	140 cfm (cubic feet per minute) through the system blower
Temperature	32 to 104 F (0 to 40 C), operating; -4 to 149 F (-20 to 65 C), nonoperating
Humidity (noncondensing)	10 to 90%
Agency approvals	Safety: UL 1950, CSA 22.2-950, EN60950, EN41003, AUSTEL TS001, AS/NZS 3260 EMI: FCC Class A, EN55022 Class B, VCCI Class 2

1. VAC = volts alternating current.

2. VDC = volts direct current.

3. AWG = American Wire Gauge.



Description	Specification	
Power dissipation	1200W with a maximum configuration and one AC-input power supply 1200W with a maximum configuration and one DC-input power supply 1700W nominal with a maximum configuration and two AC- or DC-input power supplies	
Heat dissipation	1600W (5461 Btu/hr)	
AC-input voltage and current	100 VAC <sup>1</sup> @ 16 amps (A) maximum <sup>2</sup> wide input with power factor correction (PFC) 240 VAC @ 7A maximum	
Frequency	50 to 60 Hz	
AC-input cable	12 AWG <sup>3</sup> , with three leads, an IEC-320 receptacle on the power supply end, and a country-dependent plug on the power source end	
DC-input voltage and current	-48 VDC <sup>4</sup> nominal, at 35 amps (A) in North America (-60 VDC at 35A in the E.C.)	
DC-input cable	8 AWG recommended minimum, with three conductors rated for at least 194 F (90 C) (customer provided)	
DC voltages supplied and maximum, steady-state current (AC- and DC-input)	+5.2 VDC @ 75 A +12 VDC @ 15A -12 VDC @ 3A +24 VDC @ 5A	
Airflow and noise level	Through chassis by variable-speed blower; 62 to 70 dBA	
Temperature	32 to 104 F (0 to 40 C), operating; -4 to 149 F (-20 to 65 C), nonoperating	
Humidity (noncondensing)	10 to 90%	
Agency approvals	Safety: UL 1950, CSA 22.2-950, EN60950, EN41003, AUSTEL TS001, AS/NZS 3260 EMI: FCC Class A, EN60555-2, EN55022 Class B, VDE 0878 Part 3, 30 Class B Immunity: EN55101/2 (ESD), EN55101/3 (RFI), EN55101/4 (Burst), EN55101/5 (Surge), EN55101/6 (Conducted), IEC77B (AC Disturbance)	

#### **Cisco 7513 Environmental Specifications** Table 57

1. VAC = volts alternating current.

Each AC-input power supply operating at 120 VAC requires a dedicated 20A service and a 20A receptacle.
 AWG = American Wire Gauge.

4. VDC = volts direct current.





# **Standard Features**

The Cisco 7500 series base system includes the following standard features:

- System chassis
- Route Switch Processor
  - MIPS RISC CPU, external clock speed of 50 MHz and an internal clock speed of 100 MHz
  - Console port (male EIA/TIA-232-default DCE mode)
  - Auxiliary port (EIA/TIA-232 DTE)
  - 32-MB DRAM default, upgradeable to 128 MB
  - 128-KB NVRAM
  - 8-MB Flash memory via PCMCIA Flash memory cards, upgradeable to 40 MB
  - Battery backup
  - Real-time calendar clock
- Four slots for interface processors for the Cisco 7505; five slots for interface processors for the Cisco 7507: eleven slots for interface processors for the Cisco 7513
- AC-input or DC-input power supplies
- Power cord (AC-input only)
- Y console and auxiliary cables
- Rack-mounting hardware
- Cable-management bracket (Cisco 7505 and Cisco 7513 only)



## Options

Options for the Cisco 7500 series include interface processors, memory, serial cables, software feature sets, software feature licenses, a second power supply (Cisco 7507 and 7513 only), accessories, and upgrades for the Route Switch Processor.

**Note** For additional options that apply to most systems, refer to the chapters "Cables and Transceivers" or "Power Cords" in Part 7.

### **Route Switch Processors**

The system requires at least one Route Switch Processor (RSP), which can be ordered in three ways: as part of an initial system, as a spare, or as an upgrade. The RSP can be ordered with your choice of 32-, 64-, or 128-MB DRAM and one or two Flash memory cards, which are available in 8-, 16-, or 20-MB densities. The price of an RSP includes 32 MB of DRAM and an 8-MB Flash memory card. For more information about the Flash memory card, see a later section "Flash Memory Cards."



Table 58 lists RSP product numbers, and Table 59 lists RSP DRAM product numbers.

Table 58	<b>Cisco 7500 Series Route Switch Processors</b>

Description	Product Numbers
Cisco 7505 Route Switch Processor (installed in system)	RSP1
Cisco 7505 Route Switch Processor (spare)	RSP1= <sup>1</sup>
Cisco 7507 and Cisco 7513 Route Switch Processor (installed in system)	RSP2
Cisco 7507 and Cisco 7513 Route Switch Processor (spare)	RSP2= <sup>1</sup>
RSP2 spare console cable	CAB-RSP2CON=
RSP2 spare auxiliary cable	CAB-RSP2AUX=

1. By default, spare processors ship with an 8-MB PCMCIA Flash memory card, which is unformatted and does not contain a Cisco IOS software image. The default for many Cisco IOS Release 11.2 feature sets is 16 MB.

#### Table 59 **Cisco 7500 Series Route Switch Processor DRAMs**

Description	Product Numbers	SIMM Quantity	SIMM Size
8-MB DRAM (spare)	MEM-RSP-8M=	2	4-MB SIMMs
16-MB DRAM (spare)	MEM-RSP-16M=	2	8-MB SIMMs
32-MB DRAM (installed in system)	MEM-RSP-32M	2	16-MB SIMMs
32-MB DRAM (spare)	MEM-RSP-32M=	2	16-MB SIMMs
64-MB DRAM (installed in system)	MEM-RSP-64M	2	32-MB SIMMs
64-MB DRAM (spare)	MEM-RSP-64M=	2	32-MB SIMMs
128-MB DRAM (installed in system)	MEM-RSP-128M	4	32-MB SIMMs
128-MB DRAM (spare)	MEM-RSP-128M=	4	32-MB SIMMs

### RSP1

The RSP1 is the main system processor module for the Cisco 7505. It combines all of the routing and high-speed switching functions of the separate Route Processor (RP) and Switch Processor (SP), which are used in Cisco 7000 series routers. Because the RSP1 combines the RP and SP functions, four slots are available for interface processors. The RSP1 contains the CPU and system memory components for the Cisco 7505.

Cisco IOS software images reside in Flash memory, which is located either on the RSP1, in the form of a single in-line memory module (SIMM), or on up to two Flash memory cards. Storing software images in Flash memory enables you to download and boot from upgraded images remotely. This eliminates the need for removal and replacement of ROM devices when updating software. For more information about the RSP1's Flash memory card, see a later section "Flash Memory Cards."



The RSP1 uses a software-controlled configuration register, so it is not necessary to remove the RSP1 to configure jumpers. There are no user-configurable jumpers on the RSP1.

**Note** The RSP1 is only supported on the Cisco 7505.

Table 60 summarizes the memory components of the RSP1.

Type Size Quantity Description DRAM 32 to 2 to 4 8-, 16-, or 32-MB SIMMs (based on maximum DRAM required, 128 MB user configurable) **NVRAM** Nonvolatile EPROM for the system configuration file<sup>1</sup> 128 KB 1 Flash SIMM 8 MB 1 Contains the Cisco IOS BOOT images on the RSP1 (standard) 8, 16, and Flash memory Up to 2 Contains the Cisco IOS images on up to two PCMCIA cards (user  $20 \text{ MB}^2$ card configurable) ROM monitor 256 KB 1 EPROM for the ROM monitor program

 Table 60
 Cisco 7500 Series RSP1 Memory Components

1. A system configuration file is contained in NVRAM, which allows the software to control several system variables. 2. Only Intel Series 2+ Flash memory cards can be used with the RSP1.

### RSP2

The RSP2 is a system processor module for the Cisco 7507 and Cisco 7513. The RSP2 contains the system CPU and system memory components. It maintains and executes the management functions that control the system.

Cisco IOS images reside in Flash memory, which is located either on a SIMM on the RSP2 or on up to two Flash memory cards. Storing Cisco IOS images in Flash memory enables you to download and boot from upgraded images remotely. This eliminates removal and replacement of ROM devices for software updates. (For more information about the RSP2 Flash memory card, see the following section, "Flash Memory Cards.")

**Note** For the high system availability (HSA) feature to operate properly, you need Cisco IOS Release 11.1(4) or later and ROM monitor Version 11.1(2) or later. This Cisco IOS release and ROM version will enable the Cisco 7507 or Cisco 7513 to use the HSA feature, which supports two simultaneous RSP2s. One RSP2 operates as the system *master* and the other RSP2 operates as the system *slave*, which takes over if the master RSP2 fails.

Both RSP2s require the same ROM monitor version, the same Cisco IOS release (Cisco IOS Release 11.1(4) or later), and the same DRAM configuration. If you need to update your ROM monitor, order product number ROMMON-RSP2=. HSA also requires a minimum of 24 MB of DRAM on the RSP2.

Table 61 summarizes memory components of the RSP2.



Туре	Size	Quantity	Description
DRAM	32 to 128 MB	2 to 4	8-, 16-, or 32-MB SIMMs (based on maximum DRAM required, user configurable)
NVRAM	128 KB	1	Nonvolatile EPROM for the system configuration file <sup>1</sup>
Flash SIMM	8 MB	1	Contains the Cisco IOS BOOT images on the RSP2
Flash memory cards	8, 16, and 20 MB <sup>2</sup>	Up to 2	Contains the Cisco IOS images on up to two PCMCIA cards (user configurable)
ROM monitor	256 KB	1	EPROM for the ROM monitor program

 Table 61
 Cisco 7500 Series RSP2 Memory Components

1. A system configuration file is contained in NVRAM, which allows the software to control several system variables.

2. Per Flash memory card. Only Intel Series 2+ Flash memory cards can be used with the RSP1.

### **Flash Memory Cards**

Flash memory cards can be used to store and boot Cisco IOS images and/or system configurations. A Cisco 7500 series router can also be used as a TFTP server, with the Flash card memory used to store other files such as software and microcode images for other systems. Cisco recommends using one card for image storage, and another for configurations. The number of system images that can be stored on the card depends both on the Flash card size and the file size.

The Flash memory card is available in 8-, 16-, or 20-MB densities. The card is an Intel Series 2+ Flash memory card, which conforms with the Personal Computer Memory Card International Association (PCMCIA) format. The Flash memory card that is shipped with the system contains a software image; the same Flash memory card that is ordered as a spare is shipped blank and must be formatted before use. Table 62 provides a description of each Cisco 7500 series Flash memory card along with its corresponding product number.

#### Table 62 Cisco 7500 Series Flash Memory Cards

Description	Product Number
8-MB Flash memory card (default, shipped with RSP)	MEM-RSP-FLC8M
8-MB Flash memory card (spare)	MEM-RSP-FLC8M=1
16-MB Flash memory card (installed in system) <sup>2</sup>	MEM-RSP-FLC16M
16-MB Flash memory card (spare)	MEM-RSP-FLC16M= <sup>1</sup>
20-MB Flash memory card (installed in system)	MEM-RSP-FLC20M
20-MB Flash memory card (spare)	MEM-RSP-FLC20M= <sup>1</sup>

1. Spares are shipped blank and unformatted.

2. The default for many Cisco IOS Release 11.2 feature sets is 16 MB.



### Interface Processors

Interface processors for the Cisco 7500 series are described in the chapter "Interface Processors and Port Adapters for the Cisco 7000 Family."

### **Spare Chassis**

Before you order a spare chassis, read the following sections:

- "Investment Protection Program" in the chapter "Interface Processors and Port Adapters for the Cisco 7000 Family."
- "Verifying Interface Processor Compatibility" in the chapter "Configuration Guidelines for the Cisco 7000 Family."

Table 63 lists spare chassis assemblies.

#### Table 63 Cisco 7500 Series Chassis Assemblies

System <sup>1</sup>	Product Number
Cisco 7505 chassis and AC-input power supply. Includes blower, rack-mount kit, and cable management bracket.	CHAS-7505=
Cisco 7505 chassis and DC-input power supply. Includes blower, rack-mount kit, and cable management bracket.	CHAS-7505-DC=
Cisco 7507 chassis and AC-input power supply. Includes blower and rack-mount kit.	CHAS-7507=
Cisco 7507 chassis and DC-input power supply. Includes blower and rack-mount kit.	CHAS-7507-DC=
Cisco 7513 chassis and AC-input power supply. Includes blower and rack-mount kit.	CHAS-7513=
Cisco 7513 chassis and AC-input power supply. Includes blower and rack-mount kit.	CHAS-7513-DC=

1. Each order must include a software feature set.



### **Power Supplies**

Table 64 provides product numbers for single power supplies ordered as part of an initial system or a spare.

#### Table 64 Cisco 7500 Series Single Power Supplies

Description	Product Numbers
Cisco 7505 AC-input power supply (spare)	PWR/5-AC=1
Cisco 7505 DC-input power supply (installed in system)	PWR/5-DC <sup>1</sup>
Cisco 7505 DC-input power supply (spare)	$PWR/5-DC=^1$
Cisco 7507 AC-input power supply (installed in system, default)	PWR/7 <sup>2</sup>
Cisco 7507 AC-input power supply (spare)	$PWR/7-AC=^2$



Description	Product Numbers
Cisco 7507 DC-input power supply (installed in system)	PWR/7-DC <sup>2</sup>
Cisco 7507 DC-input power supply (spare)	PWR/7-DC= <sup>2</sup>
Cisco 7513 AC-input power supply (installed in system, default)	PWR-7513
Cisco 7513 AC-input power supply (spare)	PWR-7513-AC=
Cisco 7513 DC-input power supply option (installed in system)	PWR-7513-DC
Cisco 7513 DC-input power supply option (spare)	PWR-7513-DC=

1. Same power supply as the Cisco 7010 router and can be used interchangeably.

2. Same power supply as the Cisco 7000 router and can be used interchangeably.

The Cisco 7507 and Cisco 7513 support dual power supplies. (This option is not available for the Cisco 7505.) The optional additional power supply system provides dual load-sharing for protection against system interruption should one power supply system or one source of power fail. Table 65 provides product numbers for dual power supplies that are ordered as part of an initial system.

**Note** Dual power supplies must both be AC-input or DC-input. The routers do not support mixed power supply types.

Description	Product Numbers
Cisco 7507 dual AC-input power supply	PWR/7/2 <sup>1</sup>
Cisco 7507 dual DC-input power supply	PWR/7/2-DC <sup>1</sup>
Cisco 7513 dual AC-input power supply	PWR-7513/2
Cisco 7513 dual DC-input power supply	PWR-7513/2-DC
1.0. 1.1.0. 7000	

#### Table 65 Cisco 7507 and Cisco 7513 Dual Power Supplies

1. Same power supply as the Cisco 7000 series router.

For international spare AC-input power supply orders, Cisco uses country-specific product numbers, which specify the type of power cord to be included in the order. Table 66 provides international spare power supply product numbers.

System	Country	Product Number	
Cisco 7505	Australia	PWR/5-ACA=1	
	Europe	PWR/5-ACE=1	
	Italy	PWR/5-ACI= <sup>1</sup>	
	United Kingdom	PWR/5-ACU=1	
	USA	PWR/5-AC= <sup>1</sup>	

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#### Table 66 Cisco 7500 Series International Spare AC-input Power Supplies

System	Country	Product Number	
Cisco 7507	Australia	PWR/7-ACA= <sup>2</sup>	
	Europe	PWR/7-ACE= <sup>2</sup>	
	Italy	PWR/7-ACI= <sup>2</sup>	
	United Kingdom	PWR/7-ACU= <sup>2</sup>	
	USA	$PWR/7-AC=^2$	
Cisco 7513	Australia	PWR-7513-ACA=	
	Europe	PWR-7513-ACE=	
	Italy	PWR-7513-ACI=	
	United Kingdom	PWR-7513-ACU=	
	USA	PWR-7513-AC=	

1. Same power supply as the Cisco 7010 router and can be used interchangeably.

2. Same power supply as the Cisco 7000 router and can be used interchangeably.

### **Spare Accessories**

Several spare accessories are available for the Cisco 7500 series: a rack-mount kit, cable-management bracket, packing material, fans, air filter, and LED board. Table 67 lists spare accessories.

Product	Description	Cisco 7505 Product Number	Cisco 7507 Product Number	Cisco 7513 Product Number
Rack-mount kit	Standard EIA 19-inch rack-mount kit, spare	ACS/5-RMK=	ACS-RMK=	ACS-RMK=
Cable-management bracket	Cable-management system, spare	ACS/5-CBLM=	_	ACS-7513CBLM=
Spare packaging	Spare packaging material	PKG/5=	PKG/7=	PKG-7513=
Fan assembly	Fan or blower assembly	MAS/5-FAN=	MAS/7-FAN=	MAS-7513FAN=
Air filter	Air filter for fan assembly	-	ACS/7-FILTER=	_
LED board	Spare LED board	_	MAS/7-LED=	_

### Table 67 Cisco 7500 Series Accessories

### Software Options

This section describes Cisco IOS software feature sets for the Cisco 7500 series. With feature sets, you can order software combinations that support your particular application. Optional licenses expand the feature sets by providing WAN packet protocol and interdomain routing. To order, select one feature set (there is no default) and one or both of the optional feature licenses.





With the introduction of Cisco IOS Release 11.2, feature sets have been updated to make it easier to select the exact feature sets you need. Feature set names are simplified and are more consistent across Cisco hardware platforms. In addition, you can add options to the standard feature set offerings. These options provide additional features and value based on the hardware platform selected. Cisco also continues to offer specialized feature sets for key applications.

The Cisco 7500 series offers the following types of feature sets:

- Basic. The basic feature set for the Cisco 7500 series.
- Encryption. The basic feature set, plus 40-bit or 56-bit data encryption. Encryption feature sets include NetFlow Switching.

Cisco IOS images with 40-bit Data Encryption Standard (DES) support may legally be distributed to any party eligible to receive Cisco IOS software. 40-bit DES is not a cryptographically strong solution and should not be used to protect sensitive data.

Cisco IOS images with 56-bit DES are subject to International Traffic in Arms Regulations (ITAR) controls, and have a limited distribution. Images to be installed outside the U.S. require an export license. Orders may be denied or subject to delays due to U.S. Government regulations. Contact your sales representative or distributor for more information, or send e-mail to export@cisco.com.

The new feature set tables use the following conventions to identify features:

- : the feature is offered in the basic feature set
- -: the feature is not offered in the feature set
- Encrypt: the feature is offered in the 40-bit and 56-bit data encryption feature sets

The following tables provide feature set information by product:

Table 68 lists the Cisco IOS Release 11.2, 11.1, and 11.0 feature sets, Table 69 lists feature set product numbers, Table 70 lists optional feature set licenses and their product numbers, and Table 71 lists feature set upgrade product numbers.

**Note** For the (HSA) feature to operate properly, you need Cisco IOS Release 11.1(4) or later and ROM monitor Version 11.1(4) or later. This Cisco IOS release and ROM version will enable the Cisco 7507 or Cisco 7513 to use the HSA feature, which supports two simultaneous RSP2s. One RSP2 operates as the system *master* and the other RSP2 operates as the system *slave*, which takes over if the master RSP2 fails.

Both RSP2s require the same ROM monitor version, the same Cisco IOS release (Cisco IOS Release 11.1(4) or later), and the same DRAM configuration. If you need to update your ROM monitor, order product number ROMMON-RSP2=. HSA also requires a minimum of 24 MB of DRAM on the RSP2.



	Cisco 7500 Series Feature Sets										
Features	IP	Routing	9	IP/IPX	/IBM <sup>1</sup>	Des	ktop/IBN	<b>//</b> <sup>2</sup>	En	terprise	2
Cisco IOS Release	11.2	11.1	11.0	11.1	11.0	11.2	11.1	11.0	11.2	11.1	11.0
LAN Support											
Apollo Domain	-	-	-	-	-	_	_	-			
AppleTalk 1 and 2 <sup>3</sup>	-	-	-	-	-						
Banyan VINES	-	-	-	-	-	_	_	-			
Concurrent routing and bridging <sup>4</sup>											
DECnet IV	-	-	-	-	-						
DECnet V	-	-	-	-	-	_	_	-			
GRE											
Integrated routing and bridging (IRB) <sup>5</sup>		-	-	-	-		_	-		-	-
IP											
LAN extension host											
Multiring											
Novell IPX <sup>6</sup>	-	-	-								
OSI	-	-	-	-	_	_	_	-			
Transparent and translational bridging <sup>7</sup>											
XNS	-	-	-	-	-	_	_	-			
WAN Services											
ATM LAN emulation: DECnet routing and Banyan VINES support <sup>8</sup>		-	-	-	-		-	_		-	_
ATM LAN emulation: Hot Standby Router Protocol (HSRP) and Simple Server Redundancy Protocol (SSRP)		_	-	_	_		_	_		_	_
ATM LAN emulation: Rate queues for SVC per subinterface		-	-	-	-		-	-		-	-
ATM LAN emulation: UNI 3.1 signaling for ATM		-	-	-	-		_	-		-	-
Combinet Packet Protocol (CPP)		-	-	-	-		_	-		-	-
Dialer profiles		-	-	-	_		_	-		-	-
Half bridge/half router for CPP and PPP		-	-	-	-		_	-		-	-
HDLC											
IPXWAN 2.0	-	-	-								
ISDN <sup>9</sup>											
Multichassis Multilink PPP (MMP)	-	-	-	-	-	-	-	-		-	-
PPP <sup>10</sup>											
Virtual Private Dial-up Network (VPDN)	_	_	_	II –	_		_	_		_	_

### Table 68 Cisco IOS Release 11.2, 11.1, and 11.0 Feature Sets—Cisco 7500 Series



	Cisco 7500 Series Feature Sets										
Features	IP Routing IP/IPX/IBM <sup>1</sup>			/IBM <sup>1</sup>	Des	ktop/IBN	1 <sup>2</sup>	En	terprise	2	
Cisco IOS Release	11.2	11.1	11.0	11.1	11.0	11.2	11.1	11.0	11.2	11.1	11.0
WAN Optimization											
Bandwidth-on-demand											
Custom and priority queuing <sup>11</sup>											
Dial backup											
Dial-on-demand											
Header <sup>12</sup> , link and payload compression <sup>13</sup>											
NetFlow Switching (NFS) <sup>14</sup>		-	_	_	-		-	_		-	_
Snapshot routing											
Weighted fair queuing											
IP Routing											
Enhanced IGRP											
Enhanced IGRP Optimizations		-	_	_	-		-	_		-	_
ES-IS	-	-	_	_	-	-	-	_			
IGRP											
IS-IS	_	-	_	_	-	-	_	_			
Named IP Access Control List <sup>15</sup>		-	-	-	-		-	_		-	-
Network Address Translation (NAT)		-	_	-	-		-	_		-	-
NHRP											
On Demand Routing (ODR)		-	-	-	-		-	_		-	-
OSPF											
OSPF Not-So-Stubby-Areas (NSSA)		-	_	_	-		-	_		-	_
OSPF On Demand Circuit (RFC 1793)		-	-	-	-		-	_		-	-
PIM											
Policy-based routing											
RIP											
RIP Version 2			-		-			-			-
Other Routing											
AURP	-	-	-	-	-						
IPX RIP	-	-	-								
NLSP	-	-	-								
RTMP	-	-	_	_	-						
SMRP	_	-	_	_	-						
SRTP	_	_	_	_	-	-	-	_			



	Cisco 7500 Series Feature Sets										
Features	IP	Routing	I	IP/IPX	/IBM <sup>1</sup>	Des	ktop/IBI	M <sup>2</sup>	En	Enterprise <sup>2</sup>	
Cisco IOS Release	11.2	11.1	11.0	11.1	11.0	11.2	11.1	11.0	11.2	11.1	11.0
Multimedia and Quality of Service											
Generic traffic shaping		_	-	-	-		-	-		_	-
Random Early Detection (RED)		-	-	-	-		-	-		-	-
Resource Reservation Protocol (RSVP)		-	-	-	-		-	-		-	-
Management											
AutoInstall											
Automatic modem configuration <sup>16</sup>			-		-			-			-
HTTP Server		-	-	-	-		-	-		-	-
RMON events and alarms			-		-			-			-
SNMP											
Telnet											
Security											
Access lists											
Access security											
Extended access lists											
Kerberized login	-	_	_	-	_	-	-	-			-
Kerberos V client support	-	-	-	-	-	-	-	-		_	-
Lock and Key			_		_			-			-
MD5 routing authentication											
Network layer encryption (export controlled 40-bit and 56-bit DES) <sup>17</sup>	Encrypt	-	-	-	-	Encrypt	-	-	Encrypt	_	-
RADIUS			-		-			-			-
Router authentication	Encrypt	-	-	-	-	Encrypt	-	-	Encrypt	_	-
TACACS+ <sup>18</sup>											
IBM Support											
APPN (optional) <sup>2</sup>	-	-	-				-	-			
BAN for SNA Frame Relay support	-	-	-		-			-			-
Caching and filtering	-	-	-								
DLSW+ <sup>19, 20</sup>	-	-	-								
Downstream PU concentration (DSPU)	-	-	-	-	-	-	-	-			
Frame Relay SNA support (RFC 1490)	-	_	_								
Native Client Interface Architecture (NCIA) Server	-	-	-	-	-		-	-		_	-
NetView Native Service Point	_	_	_								
QLLC	_	_	-								
Response Time Reporter (RTR)		_	_	_	_		_	_		_	_
SDLC integration	_	_	_								



	Cisco 7500 Series Feature Sets										
Features	IP	Routing	I	IP/IPX	/IBM <sup>1</sup>	Des	sktop/IBN	<b>//</b> <sup>2</sup>	En	terprise	2
Cisco IOS Release	11.2	11.1	11.0	11.1	11.0	11.2	11.1	11.0	11.2	11.1	11.0
SDLC transport (STUN)	-	-	_								
SDLC-to-LAN conversion (SDLLC)	-	-	_								
SNA and NetBIOS WAN optimization via local acknowledgment	-	-	-								
SRB/RSRB <sup>21</sup>	-	-	_								
SRT	-	-	_								
TG/COS	-	-	-	-	-	-	-	-			
TN3270 Server (CIP only)	-	-	-	-	-		-	-		_	-
VIP and HSA											
VIP and HSA <sup>22</sup>			_		-			-			-
VIP2 <sup>23</sup>			-		-			-			_

1. The IP/IPX/IBM feature set was discontinued in Cisco IOS Release 11.2. All features in this feature set prior to Cisco IOS Release 11.2 are now available in the Desktop/IBM feature set, including APPN.

2. Desktop/IBM and Enterprise are available with APPN in a separate feature set. Use the product numbers that specify APPN. In Cisco IOS Release 11.2, APPN includes APPN Central Registration (CRR) and APPN over DLSw+.

3. Appletalk load balancing is available in Cisco IOS Release 11.2.

4. Concurrent routing and bridging feature only applies to transparent bridging, not source-route bridging (SRB).

- 5. On the 7500 series, IRB supports IP, IPX, and AppleTalk; it is supported for transparent bridging, but not for SRB; it is supported on all media-type interfaces except X.25 and ISDN bridged interfaces; and IRB and concurrent routing and bridging (CRB) cannot operate at the same time.
- 6. In Cisco IOS Release 11.2, the Novell IPX feature includes display SAP by name, IPX Access Control List violation logging, and plain-English IPX access lists.
- 7. See the category "IBM Support" for information about SRB.

8. LAN emulation for Banyan VINES is only supported in Enterprise.

- 9. ISDN support includes calling line identification (ANI), X.25 over the B channel, ISDN subaddressing, and applicable WAN optimization features. Asynchronous ISDN Access (V.120) is only supported in the Enterprise feature set.
- 10. PPP includes support for LAN protocols supported by the feature set, address negotiation, PAP and CHAP authentication, and PPP compression.

11. Custom priority and queuing is not currently supported on SMIP or MIP cards.

- 12. IPX header compression (RFC 1553) is available in the feature sets that support IPX in Cisco IOS Release 11.1(1) and later releases.
- 13. X.25 and Frame Relay payload compression.
- 14. In Cisco IOS Release 11.2, NFS supports IP over all interfaces with optimal performance on Ethernet, FDDI, and HDLC.
- 15. In Cisco IOS Release 11.2, this feature can only be used by packet and route filters, is not backward-compatible with earlier Cisco IOS releases, and is not supported with distributed fast switching.
- 16. Automatic modem configuration is supported in all feature sets for Cisco IOS Release 11.1(2) and later releases. Supported only in Enterprise for Cisco IOS Release 11.1(1).
- 17. For more details on the new data encryption options, see the section "Software Options" earlier in this chapter,
- 18. With Cisco IOS Release 11.2, TACACS+ Single Connection and TACACS+ SENDAUTH enhancements are supported.
- 19. DLSw+ over TCP/IP is supported.
- 20. Cisco IOS Release 11.2 introduces several DLSw+ enhancements. See the section "IBM Support" in the chapter "Cisco IOS Software" for more details.
- 21. With Cisco IOS Release 11.2, SRB/RSRB is fast switched. This enhancement is on by default, but can be disabled.
- 22. HSA support requires Cisco IOS Release 11.1(4) and later releases.
- 23. VIP2 support requires Cisco IOS Release 11.1(5) and later releases. VIP2 support also requires the RSP1, RSP2, or RSP7000.



Description	Cisco IOS Release 11.2	Cisco IOS Release 11.1	Cisco IOS Release 11.0
Enterprise	SF75A-11.2.x <sup>1</sup> SW75A-11.2.x=	SF-G75A-11.1.x <sup>1</sup> SW-G75A-11.1.x=	SF-G75A-11.0.x <sup>1</sup> SW-G75A-11.0.x=
Enterprise and Encryption 40	SF75AK-11.2.x SW75AK-11.2.1=	-	-
Enterprise and Encryption 56	SF75AT-11.2.x SW75AT-11.2.1=	-	-
Enterprise, VIP/VIP2 <sup>2</sup>	SF75A-11.2.x SW75A-11.2.x=	SF-G75AV-11.1.x	-
Enterprise, APPN <sup>3</sup>	SF75AN-11.2.x SW75AN-11.2.x=	SF-G75AN-11.1.x SW-G75AN-11.1.x=	SF-G75AN-11.0.x SW-G75AN-11.0.x=
Enterprise, APPN, and Encryption 40	SF75ANK-11.2. SW75ANK-11.2.1=	-	-
Enterprise, APPN, and Encryption 56	SF75ANT-11.2.x SW75ANT-11.2.1=	-	-
Enterprise, APPN, VIP/VIP2 <sup>2</sup>	SF75AN-11.2.x SW75AN-11.2.x=	SF-G75ANV-11.1.x	-
Desktop, IBM	SF75BS-11.2.x SW75BS-11.2.x=	SF-G75BS-11.1.x SW-G75BS-11.1.x=	SF-G75BS-11.0.x SW-G75BS-11.0.x=
Desktop, IBM, and Encryption 40	SF75BSK-11.2.x SW75BSK-11.2.1=	-	-
Desktop, IBM, and Encryption 56	SF75BST-11.2.x SW75BST-11.2.1=	_	-
Desktop, IBM, VIP/VIP2 <sup>2</sup>	SF75BS-11.2.x SW75BS-11.2.x=	SF-G75BSV-11.1.x	-
Desktop, IBM, APPN, VIP/VIP2 <sup>2</sup>	SF75BSN-11.2.x SW75BSN-11.2.1=	_	-
IP/IPX, IBM <sup>4</sup>	-	SF-G75DS-11.1.x SW-G75DS-11.1.x=	SF-G75DS-11.0.x SW-G75DS-11.0.x=
IP/IPX <sup>4</sup> , IBM, VIP/VIP2 <sup>2</sup>	-	SF-G75DSV-11.1.x	_
IP/IPX <sup>4</sup> , IBM, APPN	-	SF-G75DSN-11.1.x SW-G75DSN-11.1.x=	SF-G75DSN-11.0.x SW-G75DSN-11.0.x=
IP/IPX <sup>4</sup> , IBM, APPN, VIP/VIP2 <sup>2</sup>	-	SF-G75DSNV-11.1.x	_
IP only	SF75C-11.2.x SW75C-11.2.x=	SF-G75C-11.1.x SW-G75C-11.1.x=	SF-G75C-11.0.x SW-G75C-11.0.x=
IP and Encryption 40	SF75CK-11.2.x SW75CK-11.2.1=	-	-
IP and Encryption 56	SF75CT-11.2.x SW75CT-11.2.1=	-	-
IP, VIP/VIP2 <sup>2</sup>	SF75C-11.2.x SW75C-11.2.1=	SF-G75CV-11.1.x	-

### Table 69 Cisco IOS Software Product Numbers—Cisco 7500 Series

1. Where x represents the current maintenance release number.

2. VIP2 requires Cisco IOS Release 11.1(5) or later.

3. See "DRAM Guidelines" in the chapter "Configuration Guidelines for the Cisco 7000 Family."

4. IP/IPX feature sets have been replaced by the Desktop feature sets in Cisco IOS 11.2.



Category	Features	Product Number
WAN packet protocols	<ul> <li>X.25, X.25 switching, Frame Relay, SMDS, Frame Relay switching, Switched 56, ATM DXI, SMDS over ATM</li> <li>In Cisco IOS Release 11.2 only: all of the above plus Frame Relay SVC support (DTE) and Frame Relay traffic shaping</li> </ul>	FR-WPP75, FR-WPP75=
Interdomain routing <sup>1</sup>	BGP, EGP for Internet scale routing In Cisco IOS Release 11.2 only: all of the above plus BGP4 <sup>2</sup>	FR-IR75, FR-IR75=
NetFlow Switching	NetFlow Switching	FR-NF75 FR-NF75=
CIP (or CIP2) support <sup>3</sup>	TCP/IP offload feature for CIP (or CIP2)	FR-CIP-TCPOFF, FR-CIP-TCPOFF=
	SNA support feature for CIP (or CIP2) SNA	FR-CIP-CSNA, FR-CIP-CSNA=
VIP/VIP2 support	Included automatically with VIP order	-

### Table 70 Cisco IOS Release 11.2, 11.1, and 11.0 Feature Licenses—Cisco 7500 Series

1. Interdomain routing is automatically included with all Cisco 7000 series RPs with 16-MB RAM. However, this option is appropriate for all other Cisco 7000 and 7500 series system processors.

2. BGP4 includes soft configuration, multipath support, and prefix filtering with inbound route maps.

3. Any order for a CIP board must include one or both of the software features. To calculate CIP memory requirements, see the section "CIP2 Memory Guidelines" in the chapter "Configuration Guidelines for the Cisco 7000 Family."



### **Cisco IOS Feature Set Upgrades**

Cisco IOS Release 11.2 for the Cisco 7500 series allows software upgrades that cross multiple feature sets. This will require you to order multiple feature set licenses. The following is an example:

You have a Cisco 7513 router running the Cisco IOS Release 11.2 IP Routing (basic) feature set. You want to upgrade to the Cisco IOS Release 11.2 Enterprise and Encryption 40 feature set. You are crossing two feature sets: one to get from IP to Enterprise and one to add Encryption 40 (basic to encryption). To complete the upgrade, use the following guidelines:

- If you subscribe to SMARTnet Maintenance, you need to do the following:
  - Order FR75-CA= (IP to Enterprise upgrade license, charged item)
  - Order FR75-40= (Encryption 40 upgrade license, charged item)
  - Download the new software feature set from CCO
- If you do not subscribe to SMARTnet Maintenance, you need do the following:
  - Order FR75-CA= (IP to Enterprise upgrade license, charged item)
  - Order FR75-40= (Encryption 40 upgrade license, charged item)
  - Order SW75AK-11.2.1= (Cisco IOS Enterprise and Encryption 40 software on diskette, charged item)

Cisco IOS Release 11.1 and 11.0 follow the same upgrade guidelines as described for Cisco IOS Release 11.2. Use the applicable product numbers listed in Table 71. Unless otherwise noted, these upgrades are available for Cisco IOS Release 11.2, 11.1 and 11.0.



Feature Set Upgrade	Product Number
IP to IP/IPX and IBM Base Upgrade	FR75-CDS=
IP to Desktop and IBM Base Upgrade	FR75-CBS=
IP to Enterprise Upgrade	FR75-CA=
IP/IPX and IBM to Desktop and IBM Upgrade <sup>1</sup>	FR75-DSBS=
IP/IPX and IBM to Enterprise Upgrade <sup>1</sup>	FR75-DSA=
Desktop and IBM to Enterprise Upgrade	FR75-BSA=
RSP1, RSP2, and RSP7000 IOS Encryption 40 Upgrade <sup>2</sup>	FR75-40
RSP1, RSP2, and RSP7000 IOS Encryption 40 Upgrade <sup>2</sup>	FR75-56=
APPN Upgrade <sup>3</sup>	SW-G75NU-11.0.x=
APPN Upgrade <sup>4</sup>	SW-G75NU-11.1.x=
IP/IPX and IBM and APPN to Enterprise and APPN Upgrade <sup>3</sup>	SW-G75DNNU-11.0.x=
IP/IPX and IBM and APPN to Enterprise and APPN Upgrade <sup>4</sup>	SW-G75DNNU-11.1.x=

### Table 71 Cisco IOS Software Upgrades—Cisco 7500 Series

1. Available for Cisco IOS Release 11.0 and 11.1 only.

2. Available for Cisco IOS Release 11.2 only.

3. Available for Cisco IOS Release 11.0 only.

4. Available for Cisco IOS Release 11.1 only.

