CISCO SYSTEMS

Q&A

Cisco 1841 Integrated Services Router

GENERAL

Q. What are the Cisco® 1800 Series Integrated Services Routers?

A. The Cisco 1800 Series is part of the Cisco Integrated Services Router product line. The Cisco 1800 Series consists of the Cisco 1800 Series fixed routers and the Cisco 1841 modular router.

Q. Why did Cisco Systems® introduce the Cisco 1800 Series?

A. Cisco introduced the Cisco 1800 Series to allow the secure deployment of multiple, integrated services at wire-speed performance. In general, the integrated services router product line provides high performance while running simultaneous services such as data, security, and quality of service (QoS) in one integrated routing platform. The best-in-class Cisco 1800 Series architecture has been specifically designed to meet requirements of small-to-medium-sized businesses (SMBs) and small enterprise branch offices as well as service provider-managed services applications. The Cisco 1800 Series delivers secure concurrent services at wire-speed performance and allows for lower operational and capital expenditures because of the high degree of integration and ease of installation, management, and deployment.

Q. What is the Cisco 1841 Integrated Services Router?

A. The Cisco 1841 is a modular router that is designed to intelligently integrate data and security services into one single, resilient system for fast, scalable delivery of mission-critical business applications. It is specifically engineered for customers who want to securely deploy multiple, concurrent services at wire-speed performance with security and QoS features enabled. The Cisco 1841 comes in a desktop form factor with two modular WAN-interface-card (WIC) or high-speed WIC (HWIC) slots for data connectivity. It offers hardware-based encryption for Data Encryption Standard (DES), Triple DES (3DES), Advanced Encryption Standard (AES), and Secure Sockets Layer (SSL) VPN as well as Cisco IOS® Firewall and Cisco IOS Intrusion Prevention System, which can be enabled through an optional Cisco IOS Software security image. The Cisco 1841 router provides two integrated 10/100BASE-T Fast Ethernet ports onboard, an integrated USB port (1.1), as well as an internal advanced-integration-module (AIM) slot. The modular form factor of the Cisco 1841 helps ensure investment protection with WICs and HWICs that are compatible with the Cisco 2800 and Cisco 3800 Series Integrated Services Routers. For more information on the Cisco 2800 Series routers, please visit http://www.cisco.com/go/2800. Please refer to http://www.cisco.com/go/3800 for more information on the Cisco 3800 Series.

Q. With the introduction of the Cisco 1800 Series, what are the plans for the current Cisco 1700 Series Modular Access Routers?

A. The Cisco 1700 Series will reach end of sale on March 27, 2006. New feature development for the Cisco 1700 Series will be available through Cisco IOS Software Release 12.4T with bug-fix support through Cisco IOS Software Release 12.5 Mainline. For more details on the Cisco 1700 Series end of sale, please refer to: http://www.cisco.com/en/US/prod/collateral/routers/ps221/prod_end-of-life_notice0900aecd8044473f.html

Q. Does the Cisco 1841 offer a bundled security, data, and broadband solution similar to the Cisco 1700 Series?

A. Yes. Bundled security solutions with support for hardware-based encryption for DES, 3DES, AES, SSL VPN, Cisco IOS Firewall, and Cisco IOS Intrusion Prevention System are available for the Cisco 1841. Bundled data and DSL solutions are also available for the Cisco 1841. Check with your Cisco representative regarding Cisco 1841 bundle offerings for security, data, and broadband solutions or visit http://www.cisco.com/go/1800 for details.

Q. **What is the performance of the Cisco 1841?**

A. The Cisco 1841 is a new-generation, best-in-class router platform designed to deliver multiple concurrent services at wire-speed performance up to single T1/E1/xDSL speeds. Chassis performance has been increased up to five-fold, and security performance increased up to seven-fold compared to the Cisco 1700 Series. The single T1/E1/xDSL value quoted here represents IMIX packet sizes in higher-than-typical Cisco 1841 services configurations. In less service-heavy environments, actual WAN throughput will be higher.

Q. **How does the Cisco 1841 router compare to the Cisco 1721 router that is the current Cisco 1700 Series data-only version?**

A. The Cisco 1841 router provides significant additional value compared to the Cisco 1721 router by offering more than a five-fold performance increase. It also integrates hardware-based encryption that can be enabled with an optional Cisco IOS Software security image while simultaneously supporting multiple services such as security, data, and QoS, and providing increased slot performance and density. Also, more than 30 existing Cisco 1700 Series WICs and multiflex trunk interface cards (voice WICs [VWICs]) (for data only) are supported. Further, both of the modular slots on the Cisco 1841 router are HWIC slots that offer greater speeds and higher port density.

Note: The WIC/HWIC/VWIC (in data mode only) slots on the Cisco 1841 router do not support Cisco product-based inline power, or Power over Ethernet (PoE). This support is offered beginning with the Cisco 2801 Integrated Services Router as part of the Cisco 2800 Series.

Q. **What are the basic specifications for the Cisco 1841 router?**

A. Table 1 provides the specifications for the Cisco 1841 router:

Table 1.   Product Specifications

Cisco 1800 Series Features	Cisco 1841
Target deployments	Secure data
Default memory—Uses external compact and synchronous dual inline memory module (DIMM) DRAM	Default/maximum: 32 MB/128 MB compact flash 128 MB/384 MB synchronous dynamic RAM (SDRAM)
Modular HWIC slots—total These slots can accommodate new HWICs. They also support WICs, and multiflex trunk (VWIC) cards (for Cisco 1841 router in data mode only).	2
Modular slots for WAN access	2
Modular slots for voice support	None; Cisco 1841 does not support voice termination
Fixed LAN ports with an RJ-45 port	2 Fast Ethernet (10/100)
Fixed USB port (1.1)	1
AIM slots (internal)	1
Packet-voice-DSP-module (PVDM) slots for optional PVDM and fax DSP modules (PVDM2)	None; Cisco 1841 does not support voice termination
Onboard VPN encryption acceleration—IP Security (IPSec) DES, 3DES, AES 128, AES 192, and AES 256—can be enabled through a Cisco IOS Software security image	Yes
IP BASE Cisco IOS Software feature set by default	Yes

Q. **How do the Cisco 2800 Series Integrated Services Routers differ from the Cisco 1841 Integrated Services Router?**

A. Cisco 2800 Series is targeted at medium-sized businesses and small to medium-sized enterprise branch offices with even higher performance and interface density requirements. Further, the Cisco 2800 Series not only offers even higher security performance and support of network modules (except the Cisco 2801) but also voice support, including the optional integration of voicemail. For more details, refer to: http://www.cisco.com/go/2800.

APPLICATIONS

Q. **For what applications is the Cisco 1841 router designed?**

A. The Cisco 1841 router offers a comprehensive feature set ideal for applications and solutions requiring the following:

- **Secure integrated services**—Using its new best-in-class, secure, high-performance architecture; the optional integration of an AIM module; a wide array of interface cards; and the rich Cisco IOS Software services capability, the Cisco 1841 router offers the ability to easily integrate the functions of standalone network appliances and components in an interface card or AIM and supports multiple services at wire-speed performance.

- **Secure network connectivity for data**—The Cisco 1841 router features leading advanced, integrated, end-to-end security for the delivery of converged services and applications. The integration of security functions directly onto the router provides optimal performance for security solutions such as Dynamic Multipoint VPN (DMVPN) applications, Secure Sockets Layer VPN (SSL VPN), network admission control (NAC) for antivirus defense, inline intrusion prevention, and a transparent Cisco IOS Firewall.

WICs, VWICs, and HWICs

Q. **What is an HWIC slot?**

A. An HWIC slot supports HWICs. It is a newly architected, high-performance version of the current WIC slot. Both modular slots on the Cisco 1841 router support HWICs. The HWIC card can offer greater speeds and higher port density than the current WIC. In addition, the HWIC slots support Cisco product-based inline power and PoE. However, PoE is not offered on the HWIC slots of the Cisco 1841 router. The HWIC slots also support most of the more-than 30 existing WICs and VWICs (on the Cisco 1841 router in data-only mode).

Q. **Is online insertion and removal (OIR) supported for cards in the HWIC slots?**

A. No, OIR of modules in the HWIC slots on the Cisco 1841 router is not supported.

Q. **Does the Cisco 1841 router support all the current WICs?**

A. Most existing modules are carried forward for the Cisco 1800 Series Integrated Services Routers. Refer to the Cisco 1841 data sheet for a detailed listing of all supported modules:
http://www.cisco.com/en/US/prod/collateral/routers/ps5853/product_data_sheet0900aecd8016a59b.html

Q. **Are any WICs not supported on the Cisco 1841 router?**

A. Table 2 lists the WICs that are not supported on the Cisco 1800 Series and also shows the replacement WICs that provide the same or enhanced functions.

Table 2.   WICs Not Supported on Cisco 1841 Router

WICs Not Supported	Replacement WICs
WIC-1DSU-T1	WIC-1DSU-T1-V2
WIC-1B-S/T	WIC-1B-S/T-V3
WIC-1B-U	WIC-1B-U-V2
WIC-1SHDSL-V2	WIC-1SHDSL-V3
WIC-1ENET	Two integrated Fast Ethernet 10/100BASE-T ports
WIC-4ESW	HWIC-4ESW
HWIC-4T	WIC-2T (for higher density, consider the Cisco 2800 Series)
HWIC-16A	HWIC-8A (for higher density, consider the Cisco 2800 Series)
HWIC-1GE-SFP	None; the Cisco 1841 supports Fast Ethernet 10/100BASE-T ports

Q. **Does the Cisco 1841 router support all the current multitflex trunk interface cards (VWICs)?**

A. Yes, the Cisco 1841 router supports only data services on all the current VWICs.

Voice Interface Cards

Q. **Does the Cisco 1841 router support VICs?**

A. The Cisco 1841 router does not support voice; that is, it supports no VICs. Also, none of the multiflex trunk interface cards (VWICs) in voice mode are supported on the Cisco 1841 router. Refer to the Cisco 1841 data sheet for a detailed listing of all supported modules: http://www.cisco.com/en/US/prod/collateral/routers/ps5853/product_data_sheet0900aecd8016a59b.html

Advanced Integration Modules

Q. **What is an AIM?**

A. An AIM is an advanced integration module that can be plugged into the internal AIM slot of the Cisco 1841, Cisco 2600 Series, Cisco 2800 Series, Cisco 3700 Series, and Cisco 3800 Series routers. The AIM slot provides a way of integrating additional functions and offloading processor-intensive functions from the main CPU without reducing the LAN or WAN density of the Cisco platform by otherwise occupying an external modular slot. The encryption AIM (part number AIM-VPN/BPII-PLUS) and the SSL VPN AIM (AIM-VPN/SSL-1) are currently available for use in the Cisco 1841 router.

Q. **Does the Cisco 1841 router support all the current AIMs?**

A. The Cisco 1841 router supports the encryption and SSLVPN AIMs (part number AIM-VPN/BPII-PLUS and AIM-VPN/SSL-1).

Note: The VPN module supported on the Cisco 1700 Series (part number MOD1700-VPN) is not supported on the Cisco 1841 router. Instead, the encryption AIM (part number AIM-VPN/BPII-PLUS) and SSL VPN AIM (part number AIM-VPN/SSL-1) are supported on the Cisco 1841 router.

Q. **Are any AIMs not supported on the Cisco 1841 router?**

A. Table 3 lists the AIMs that are not supported on the Cisco 1841 router.

Table 3.   AIMs Not Supported on Cisco 1841 Router

Unsupported AIMs
AIM-COMPR2
AIM-VPN/BP
AIM-VPN/EP
AIM-VPN/HP
AIM-ATM-VOICE-30

Unsupported AIMs
AIM-VOICE-30
AIM-VPN-BPII
AIM-VPN-EPII
AIM-VPN-HPII
AIM-VPN-HPII-PLUS
AIM-COMPR2-V2
AIM-VPN-EPII-PLUS
AIM-VPN/SSL-2
AIM-VPN/SSL-3

Q. **How many internal AIM slots are available on the Cisco 1841 router?**

A. The Cisco 1841 router has one internal AIM slot.

Rack-Mount Support

Q. **Is the Cisco 1841 rack-mountable?**

A. The Cisco 1841 is now rack-mountable. In order to enable the rack-mount functionality, the optional Cisco 1841 rack-mount kit (ACS-1841-19-RM=) needs to be used.

Q. **When was the rack-mount capability introduced on the Cisco 1841?**

A. All Cisco 1841 chassis shipping since Q4FY06 are rack-mountable. Cisco 1841 chassis with the following starting serial numbers have the rack-mount screw holes: FTX1009W0Z3 (United States), FCZ100812UR (Europe, Middle East, and Africa), and FHK100653JL (Asia Pacific).

Q. **Are all Cisco 1841 chassis rack-mountable?**

A. All Cisco 1841 chassis shipping since Q4FY06 are rack-mountable. Please refer to the serial numbers provided above to find out whether a specific chassis has the rack-mount screw holes to be rack-mountable with the optional rack-mount kit. All chassis currently shipping are rack-mountable with the optional Cisco 1841 rack-mount kit.

Universal Serial Bus

Q. **What is the USB port for?**

A. The Cisco 1841 router has an integrated USB port (1.1). The USB port is configurable to work with an optional USB token for secure configuration distribution and off-platform storage of VPN credentials.

Q. **Can I use the USB port as a console port?**

A. No, the USB port is not available for use as a console port. If your computer has only a USB interface, you need to use a USB-to-serial conversion cable to access the console port.

Power Supply

Q. **What type of power supplies does the Cisco 1841 router use?**

A. The Cisco 1841 router uses a universal internal standard power supply that is applicable for all countries. There are no country-specific power supplies. The AC input voltage of this universal standard power supply spans from 100 to 240V, the frequency from 50 to 60 Hz, and the AC input current is 2.0A. The maximum power output is 50W for the Cisco 1841 router.

Q. **Does the Cisco 1841 router support 802.3af PoE?**

A. Support for 802.3af PoE is not available on the Cisco 1841 router.

Q. **Does the Cisco 1841 router support a redundant power supply (RPS)?**

A. No, the Cisco 1841 router does not support a RPS.

Q. **Does the Cisco 1841 router support DC power?**

A. No, the Cisco 1841 router does not support DC power. Within the integrated services router product line, DC power support starts with the Cisco 2800 Series Integrated Services Routers, specifically with the Cisco 2811.

Memory

Q. **What kind of DRAM memory does the Cisco 1841 router use?**

A. The Cisco 1841 router uses SDRAM. The default DRAM for the Cisco 1841 router is 128 MB, which is fixed onboard. The Cisco 1841 has a DIMM slot onboard that can be populated with additional DRAM memory.

Q. **What is the default and maximum DRAM memory in the Cisco 1841 router?**

A. Table 4 shows default and maximum memory of the Cisco 1841 router.

Table 4. Default and Maximum Memory

Platform	Default SDRAM Memory	Maximum SDRAM Memory
Cisco 1841	128 MB	384 MB

Q. **What kind of flash memory does the Cisco 1841 router use?**

A. The Cisco 1841 Router has a single, external compact flash memory. This is the only flash memory for the system and should never be removed whenever ROM Monitor (ROMMON) is being updated with a new image or configurations or when the compact flash LED light "busy" is on.

Q. **What is the flash memory used for?**

A. Cisco IOS Software is stored in flash memory. In addition, configuration files can be saved in flash memory. Also, flash memory allows software upgrades to be downloaded over the WAN or LAN link and to be stored in the flash memory.

Q. **What is the default and maximum compact flash memory in the Cisco 1841 router?**

A. Table 5 shows default and maximum compact flash memory of the Cisco 1841 router.

Table 5. Default and Maximum Compact Flash Memory

Platform	Default Compact Flash Memory	Maximum Compact Flash Memory
Cisco 1841	32 MB	128 MB

Q. **What is the ROM monitor?**

A. The ROM monitor is a ROM-based program that is executed upon system power-up or reset. It performs various functions, including a power-on confidence test, hardware initialization, a system boot process, system failure debug, and file system support.

Q. **What is required to upgrade the ROM monitor?**

A. The boot flash device on the Cisco 1841 router is a 4-MB, fixed flash device that is not field-replaceable. The ROM monitor image can be upgraded by downloading new software. The first image in ROM is a read-only image that cannot be erased. The upgrade image is a read-write image that is stored in ROM flash memory as the second image. You can configure the router to boot ROM monitor from either of the two images, primary or secondary if it exists, in the flash memory. In order to upgrade the ROM monitor on the Cisco 1841 router, you need to have a ROM monitor image available to copy from a remote server or from the external compact flash memory.

LAN Interfaces

Q. **What LAN interfaces are on the Cisco 1841 router?**

A. The Cisco 1841 router has two onboard Fast Ethernet autosensing interfaces that support 10- or 100-Mbps connections.

System Architecture

Q. **What is new about the architecture of the Cisco 1841 router?**

A. The Cisco 1800 Series with the Cisco 1841 router was designed as a high-performance routing platform to integrate and support secure, concurrent multiple services. The entire architecture provides significant performance increases over the Cisco 1700 Series as well as security through the hardware-based encryption on the motherboard that can be enabled with an optional Cisco IOS Software security software image. Combining faster discrete components such as CPU and memory with a higher bus speed and custom silicon, the Cisco 1841 router can maintain high throughput levels while running a complex set of services.

Q. **Does the architectural design of the Cisco 1841 router include a real-time clock?**

A. Yes. The real-time clock keeps an accurate value of date and time for applications that require an accurate time stamp such as logging, debugging, and digital certificates.

SECURITY SUPPORT

Q. **What security functions are available for the Cisco 1841 router?**

A. The Cisco 1841 router integrates hardware-based encryption onboard that can be enabled with an optional Cisco IOS Software security software image that not only enables the encryption (DES/3DES/AES) but also provides Cisco IOS Firewall and Cisco IOS Intrusion Prevention System support. Other standard security features supported are access control lists (ACLs); authentication, authorization, and accounting (AAA) features such as Password Authentication Protocol (PAP) and Challenge Handshake Authentication Protocol (CHAP); TACACS+, RADIUS, and token authentication; and Lock & Key. Further, NAC for antivirus defense can be enabled on the Cisco 1841 router.

Q. **Can I use the Cisco 1841 router as a firewall?**

A. Yes. The Cisco IOS Firewall feature set is supported in the Cisco 1841 router. This feature set includes enhanced firewall functions such as context-based access control (CBAC), which enables securing a network on a per-application basis. Additional firewall security features include Java applet blocking, denial-of-service (DoS) detection and prevention, and more advanced logging capabilities.

Q. **What is the difference in features and performance between the encryption and SSL VPN AIM and the onboard cryptographic engine?**

A. The IPSec and SSL VPN AIM modules (AIM-VPN-BPII-PLUS and AIM-VPN/SSL-1) offer more than double the performance of the onboard cryptographic accelerator and more than five times the number of remote VPN tunnels. The AIM modules also offer IP Payload Compression Protocol support (IPPCP Layer 3 compression) in hardware. The AIM-VPN/SSL-1 additionally supports SSL VPN in hardware with two times the number of users supported when compared to the software-based SSL encryption feature in Cisco IOS Software.

Q. **What Cisco IOS Software release and feature set are needed to use Cisco IOS SSL VPN on the Cisco 1841?**

A. Cisco IOS WebVPN/SSL VPN is supported starting in Cisco IOS Software Release 12.4(6)T with the Advanced Security and higher images.

Q. **What is the maximum number of SSL VPN sessions that are supported on the 1841?**

A. The Cisco 1841 supports up to 25 users when using software-based SSL encryption (without the AIM-VNP/SSL-1 module) and 50 users when using the AIM-VPN/SSL-1 module.

Q. Where can I find further information on Cisco IOS WebVPN and SSL VPN?

A. For more information, please refer to http://www.cisco.com/go/iossslvpn.

Q. Does the Cisco 1841 support Secure Shell (SSH) Protocol?

A. Yes. Starting with Cisco IOS Software Release 12.4(1), SSH is supported in all images with the following exceptions: IP Base without Crypto and Enterprise Base without Crypto.

Q. Does the Cisco 1841 router work with the Cisco VPN client?

A. Yes.

Q. Does the Cisco 1841 router function with Cisco Easy VPN remote client-server mode?

A. Yes. The term *Easy VPN server* denotes any headend model that supports the Cisco Unity® voice messaging system workgroup specification for VPN server. The term *Easy VPN client* denotes any customer premises equipment (CPE) that receives IPsec configuration from an Easy VPN server. The Cisco 1841 router can serve as both an Easy VPN server and an Easy VPN client. The Cisco 1841 router can push IPsec configurations to an Easy VPN client and can receive IPsec configurations from another Easy VPN server.

Q. Can the Cisco 1841 router perform software Lempel-Ziv-Stac (LZS) compression with the AIM VPN modules?

A. The IPSec and SSL VPN AIM modules (part number AIM-VPN-BPII-PLUS and AIM-VPN/SSL-1) perform IPPCP compression at Layer 3 in hardware prior to encryption, providing compression with security.

VOICE SUPPORT

Q. What voice features does the Cisco 1841 support?

A. The Cisco 1841 router does not support voice termination. However the Cisco 1841 supports voice over IP (VoIP) in pass-through mode.

NETWORK MANAGEMENT

Q. How is the Cisco 1841 router managed?

A. Like all Cisco routers, the Cisco 1841 router can be managed with Simple Network Management Protocol (SNMP), with a Telnet session, and through a directly connected terminal or PC running terminal emulator software.

Q. Does the Cisco 1841 router support CiscoWorks Resource Manager Essentials (RME), CiscoWorks CiscoView, the CiscoWorks VPN/Security Management Solution (VMS), and the Cisco IP Solution Center (ISC)?

A. Yes, the Cisco 1841 router supports CiscoWorks RME, CiscoWorks CiscoView, CiscoWorks VMS, and the Cisco ISC.

Q. Does the Cisco Router and Security Device Manager support the Cisco 1841 router?

A. Yes, starting with Cisco Router and Security Device Manager Version 2.0.

Q. Is Cisco Voice Manager supported on the Cisco 1841 router?

A. Cisco Voice Manager is not supported on the Cisco 1841 router because this router platform does not support voice.

For more information about the Cisco 1800 Series Integrated Services Routers, visit http://www.cisco.com/go/1800 or contact your local account representative.

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