Cisco 1805 Integrated Services Router

Product Overview

The Cisco® 1805 Integrated Services Router (Figure 1) offers cable multiservice operators (MSOs) a cost-effective, standards-based, integrated cable router solution for business-class broadband services. Designed for small office, home office, and teleworker environments, the Cisco 1805 complies with DOCSIS® 2.0 and delivers secure data networking over hybrid fiber-coaxial (HFC) cable. The Cisco 1805 allows cable MSOs to simplify their customer-premises-equipment (CPE) deployment by consolidating a multibox deployment into a single-box, integrated solution and maximize revenue by offering multiple services.

Figure 1. Cisco 1805 Integrated Services Router

The Cisco 1805 is the latest addition to the Cisco integrated services router portfolio, which delivers multiple services, including feature-rich Cisco IOS® Software routing, LAN switching, and advanced security with secure cable WAN access technology.

The Cisco 1805 with the HFC offers a cost-effective alternative to leased lines; it also can be used to supplement leased-line or other broadband services such as xDSL services for critical WAN backup solutions. Cable service providers and small business customers can also benefit from ease of deployment and management by deploying an integrated, single-box cable solution, including improved quality-of-service (QoS) enforcement, enhanced WAN failover implementation, and improved availability.

The Cisco 1805 includes the following:

- Integrated cable modem based on DOCSIS 2.0
- Built-in encryption hardware that you can enable with optional Cisco IOS Software for Triple Digital Encryption Standard (3DES) and Advanced Encryption Standard (AES) encryption support
- Integrated dual high-speed Fast Ethernet ports that you can use for LAN or WAN connectivity
- Four-port 10/100 Ethernet switch, fully manageable with IEEE 802.1q VLAN support
- Auxiliary (AUX) port (up to 115.2-kbps asynchronous serial) for analog dial backup or out-of-band management
- Console port transmit and receive rates up to 115.2 kbps (default 9600 bps, not a network data port)

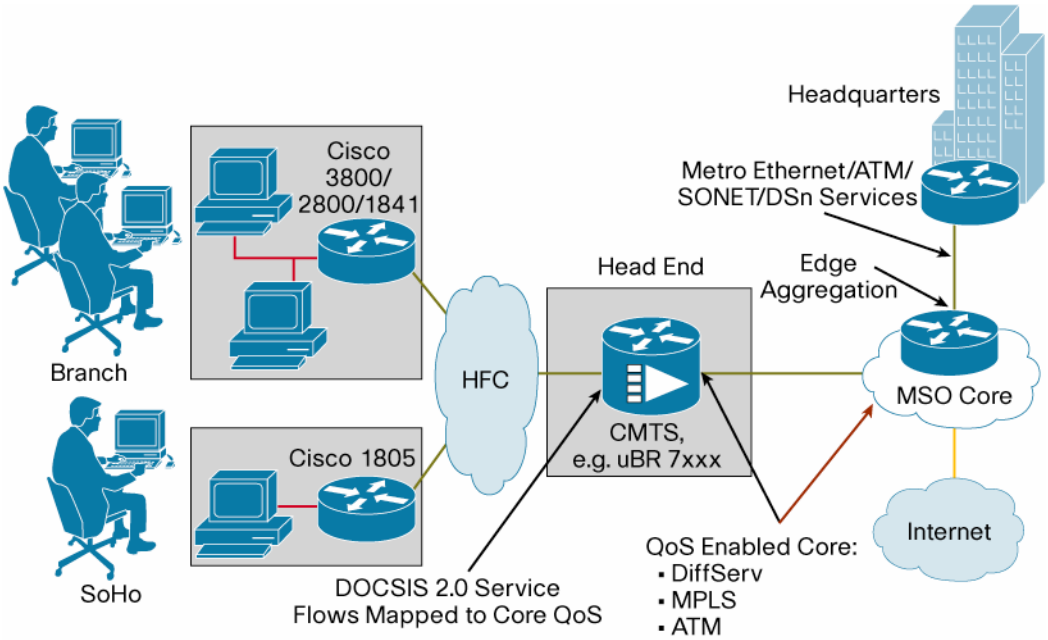
- Advanced routing protocols such as Routing Information Protocol (RIP) Versions 1 and 2, Border Gateway Protocol (BGP), Enhanced Interior Gateway Routing Protocol (EIGRP), Open Shortest Path First (OSPF), Protocol Independent Multicast (PIM), Internet Group Management Protocol Version 2 (IGMPv2), Network Address Translation (NAT), Port Address Translation (PAT), and Dynamic Host Configuration Protocol (DHCP)
- Cisco IOS Software Stateful Firewall with Context Based Access Control (CBAC), application-aware and zone-based; intrusion prevention system (IPS); and advanced VPN features such as Dynamic Multipoint VPN (DMVPN), Group Encrypted Transport VPN, and Secure Sockets Layer (SSL) VPN
- Advanced QoS and bandwidth management
- Inter-VLAN routing

Table 1 summarizes the features of the Cisco 1805.

Table 1. Features of Cisco 1805

Feature	Cisco 1805-D	Cisco 1805-EJ	Cisco 1805-D/K9
DOCSIS 2.0-based cable interface	HWIC-CABLE-D-2	HWIC-CABLE-E/J-2	HWIC-CABLE-D-2
Two onboard Fast Ethernet WAN ports for WAN backup or for LAN connectivity	Yes	Yes	Yes
Four-port managed switch	Yes	Yes	Yes
Onboard hardware-based IP Security (IPsec) encryption	Yes	Yes	Yes
DRAM	128 MB	128 MB	192 MB
Flash memory	64 MB	64 MB	64 MB
Software image	Cisco IOS IP Base	Cisco IOS IP Base	Cisco IOS Advanced IP Services

Figure 2. Business Broadband Connectivity with Cisco 1805



Applications

The Cisco 1805 Integrated Services Router is ideally suited for deployment where a small office is going to be connected to a larger network, most often with a secure VPN connection. These types of offices can include the following:

- **Small Remote Office:** The Cisco 1805 connects users in a small remote office, such as insurance agents, lawyer offices, or sales offices. With an always-on cable connection, Internet security is vital to protect business resources from malicious network attacks. VPN encryption and integrated security such as firewalls and intrusion prevention are critical to protect the network at every point. IT managers can centrally manage the remote site to quickly troubleshoot any network problems. For added reliability, customers can also use dial backup, through an external modem, if the primary broadband link fails.
- **Teleworking:** The Cisco 1805 is ideal for corporate teleworkers, offering high-speed HFC cable broadband access to the corporate network, as shown in Figure 3. The Cisco 1805 gives IT managers a standard platform to manage at the employee's home office. By integrating the cable modem into Cisco IOS Software, the Cisco 1805 provides expanded QoS features that adequately allow voice traffic precedence over data applications.
- **Remote Call-center Agent:** Similar to teleworking applications, this solution extends the Cisco IP Contact Center solution for telephone call-center agents to remote sites. With a high-quality, secure connection through the Cisco 1805, call-center agents can be located away from costly call-center facilities while maintaining secure and productive voice and data access from their home.
- **Retail VPN:** Retail stores migrating from dialup or satellite connections for point-of-sale transactions can use the Cisco 1805 to use low-cost broadband access with the required security to effectively use these public networks. They can then add multiple devices and applications to the store network to use the increased bandwidth. (Refer to Figure 4.)
- **Ethernet Over DOCSiS:** For small and medium businesses with multiple locations, the Cisco 1805 ISR can provide a dedicated connection between locations by leveraging an Ethernet over DOCSIS connection. Metro Ethernet Forum (MEF) 9 & 14 certified, the Cisco 1805 offers a low cost replacement for Private Line and Frame Relay T1 services with its Ethernet over DOCSIS capabilities.

  For Cable Service Providers, this solution enables business services across multiple footprints, with minimal OpEx costs, as no changes to the CMTS are required to provision MetroE over DOCSIS using the Cisco 1805 ISR. Existing HFC plant can be used to deliver business class Ethernet based services, maximizing ROI on the existing plant.

In addition to providing an excellent primary WAN link, the Cisco 1805 is also well-suited to be used as a secondary WAN link to offload Web traffic directly to the Internet, provide a redundant option for a primary link in case of failure, or provide load balancing with a xDSL or other type of link, as shown in Figure 4.

Figure 3. Secure Broadband Teleworker Solution with Cisco 1805

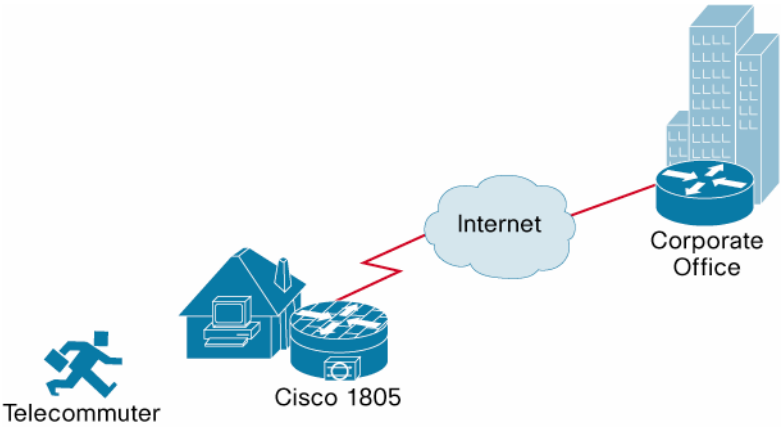
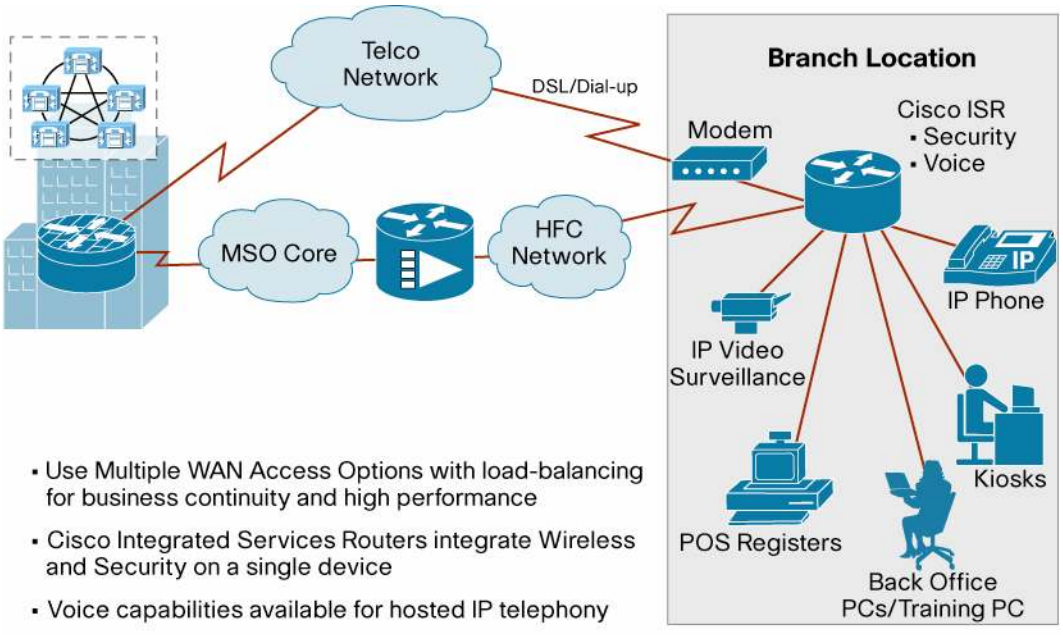


Figure 4. Cable Solution for Branch Office: Redundant WAN Access Options



Features and Benefits

The Cisco 1805 offers a broad set of features designed to allow businesses to maximize on their investment and easily deploy a business-class broadband solution. Table 2 lists features and benefits of the router.

Table 2. Cisco 1805 Features and Benefits

Features	Benefits
Hardware Features	
DOCSIS 2.0-based cable WAN interface*	The Cisco 1805 provides standards-based, interoperable, high-speed data connectivity over a HFC cable interface with cable modem high-speed WAN interface cards (HWICs; part number HWIC-CABLE-D-2 or HWIC-CABLE-E/J-2).
Two onboard Fast Ethernet ports	Fast Ethernet ports on the router provide an alternate WAN link to supplement the cable WAN. These ports also can be used for LAN connectivity.
Four-port 10/100BASE-T managed switch	Fully managed LAN switch ports provide Layer 2 VLAN traffic separation between LAN segments.
Onboard hardware encryption	The router supports Data Encryption Standard (DES) and 3DES and AES.

Features	Benefits
AUXILIARY port	The Cisco 1805 auxiliary port allows for modem connection to the router, which you can configure and manage from a remote location. It supports up to 115.2 kbps. Dial backup is available using an external analog modem.
Console port	The console port allows for router configuration and management with a directly connected terminal or PC.
Software Features	
Full Cisco IOS Software support, including multiprotocol routing	• The Cisco 1805 provides robust, scalable, and feature-rich internetworking software support with RIPv1/v2, BGP, EIGRP, OSPF, PIM, IGMPv2, NAT, PAT, DHCP, and Multiprotocol Label Switching (MPLS) customer edge functions • The router constitutes part of the Cisco end-to-end network solution.
Cisco QoS	The Cisco 1805 supports advanced QoS features such as the Resource Reservation Protocol (RSVP), Low Latency Queuing (LLQ), Class-Based Weighted Fair Queuing (CBWFQ), and IP Precedence, Policing, and Traffic Shaping to reduce recurring WAN costs and improve performance.
DOCSIS-based QoS	The router provides 1 primary and 15 secondary flows for voice, video, and data applications over a single HFC cable WAN connection.
PacketCable™ multimedia	The Cisco 1805 offers traffic prioritization or bandwidth reservation for delay-sensitive voice, video, and data services over the cable infrastructure.
Cisco AutoSecure	Cisco AutoSecure facilitates rapid implementation of firewall and security policies to optimize network security with a single Cisco IOS Software command.
Access control lists (ACLs)	Router ACLs help filter traffic based on the specified criteria and prevent malicious attacks.
Complete Security and VPN Capability**	
Cisco IOS Firewall and URL filtering	The Cisco 1805 offers Application Inspection, Transparent and Stateful Firewall, ACLs, and URL Filtering, which protect the network from unauthorized user access. URL Filtering prevents access of inappropriate Websites and downloading of offensive content.
IPS	The router IPS feature detects harmful network activity and generates alarms to warn of threats and intrusion attempts. You can dynamically download new IPS signatures.
Site-to-site VPN	The router connects remote-access clients and branch offices to central sites more cost-effectively and flexibly than networks using leased lines, Frame Relay, or ATM.
DMVPN	DMVPN allows you to better scale IPsec VPNs by combining generic-routing-encapsulation (GRE) tunnels, IPsec encryption, and Next Hop Resolution Protocol (NHRP) while offering IP Multicast and QoS.
Group Encrypted Transport VPN	Group Encrypted Transport VPN is a Cisco IOS Software solution that simplifies securing large Layer 2 or MPLS networks requiring partial or full-mesh connectivity by providing tunnel-less VPN connectivity.
VPN tunneling with IPsec, GRE, and Layer 2 Tunneling Protocol Version 3 (L2TPv3)	This feature allows any standards-based IPsec or L2TPv3 client to interoperate with Cisco IOS Software tunneling technologies.
Cisco Easy VPN	Cisco Easy VPN allows the router to act as a remote VPN client and have VPN policies pushed down from the VPN concentrator.
Cisco Network Admission Control (NAC)	Cisco NAC helps ensure that client devices are using the most up-to-date antivirus application and signature files and protects the network from harmful threats by prohibiting network access if outdated versions are used.
Real-time clock support	Real-time clock support keeps an accurate value of date and time for applications that require an accurate timestamp—such as logging, debugging, and digital certificates.
Simplified Management and Ease of Deployment	
Independent router and cable modem management domains	The Cisco 1805 offers the powerful ability to manage and upgrade cable modem firmware and configuration using the cable modem termination system (CMTS) independent of the router configuration. It offers cable operators an independent domain of cable-interface management.
IP service-level agreements (SLAs)	IP SLAs allow you to monitor network performance and collect real-time statistics on delay, jitter, and response times to verify and report on your SLA.
Manageable using Simple Network Management Protocol Version 3 (SNMPv3)	SNMP allows central monitoring, configuration, and diagnostics for all functions integrated in the Cisco router, reducing management time and costs.

Features	Benefits
Supported cable MIBs	• DOCSIS-IF-MIB • DOCSIS-CABLE-DEVICE-MIB • DOCSIS-CABLE-DEVICE-TRAP-MIB • DOCSIS-QOS-MIB • IF-MIB • RFI-MIB
Cisco Configuration Express	Cisco Configuration Express allows direct shipment from Cisco to the end customer or branch office, with factory-loaded configurations for high-volume deployments.
CiscoWorks***	CiscoWorks network management software provides common management across all Cisco routers and switches.
Cisco ConfigMaker support	You can set up the Cisco 1805 network using the Cisco ConfigMaker application, a wizard-based software tool that helps you easily configure and address Cisco routers, access servers, hubs, switches, and networks.
LED status indicators	These indicators provide at-a-glance indications for power, network activity, and interface status.
Reliability	
WAN link redundancy	WAN link redundancy allows you to use the two onboard Fast Ethernet ports for alternate WAN links.
Dial-on-demand routing (DDR)	DDR allows automatic backup of WAN connections using an external analog modem in case of a primary link failure.
Hot Standby Router Protocol (HSRP)	HSRP provides high network availability.

*Supported only on Cisco 1805 VPN Secure Broadband Cable Router.
** Supported in Cisco IOS Advanced IP Services Image
*** Supported post-FCS

Network-Management and Installation Tools

The Cisco 1805 supports a range of network-management and ease-of-installation tools.

With CiscoWorks, a Web-based network-management suite, you can remotely configure, administer, monitor, and troubleshoot the Cisco 1805. With the increased visibility into network behavior, you can quickly identify performance bottlenecks and track long-term performance trends. CiscoWorks also provides sophisticated configuration tools to optimize bandwidth and usage across expensive and critical WAN links in the network.

CiscoView, part of CiscoWorks, is a Web-based tool that graphically provides real-time status of the Cisco 1805. It can navigate to display monitoring information on interfaces and provide dynamic status, statistics, and comprehensive configuration information.

Product Specifications

Table 3 gives specifications of the Cisco 1805.

Table 3. Cisco 1805 Specifications

Cisco 1800 Series	Cisco 1805
Chassis	
Form factor	Desktop, 1-rack-unit (1RU) height (4.75 cm high with rubber feet)
Chassis	Metal
Wall-mountable	Yes
Rack-mountable	Yes (optional rack-mount kit: ACS-1841-RM-19=)
Dimensions (W x D)	• 13.5 x 10.8 in. (34.3 x 27.4 cm) • Height without rubber feet: 1.73 in. (4.39 cm) • Height with rubber feet: 1.87 in. (4.75 cm)
Weight	Maximum: 6.2 lb (2.8 kg)

Cisco 1800 Series	Cisco 1805
Architecture	
DRAM	Synchronous dual in-line memory module (DIMM) DRAM
DRAM capacity	• Default: 128 MB on Cisco 1805 DOCSIS Cable Router (CISCO1805-D and CISCO1805-EJ, respectively) • Default: 192 MB on Cisco 1805 DOCSIS Cable Router (CISCO1805-D/K9) • Maximum: 384 MB
Flash memory	External Compact Flash
Flash-memory capacity	• Default: 64 MB • Maximum: 128 MB
Cisco 1805 slot 0 Cisco 1805 slot 0 Cisco 1805	• Cisco cable modem HWIC-CABLE-D-2 in CISCO1805-D and CISCO1805-D/K9 • Cisco cable modem HWIC-CABLE-E/J-2 in CISCO1805-EJ • MetroEthernet Forum (MEF): MEF9, MEF14 Certified
Cisco 1805	MetroEthernet Forum (MEF): MEF9, MEF14 Certified
Cisco 1805 slot 1	Cisco EtherSwitch® Interface Card (HWIC-4ESW)
Voice-over-IP (VoIP) support	VoIP pass-through only
Onboard Ethernet ports	Two 10/100
Onboard universal-serial-bus) USB ports	One (1.1)
Console port	One: Up to 115.2 kbps
Auxiliary port	One: Up to 115.2 kbps
Integrated hardware-based encryption on motherboard	Yes
Encryption support in software and hardware by default	DES; 3DES ; and AES 128, 192, and 256
Power-Supply Specifications	
Internal power supply	Yes
Redundant power supply	No
DC power support	No
AC input voltage	100 to 240 VAC
Frequency	50 to 60 Hz
AC input current	1.5A maximum
Output power	50W (maximum)
Power Dissipation	
System Power Dissipation	153 BTU/hr
Software Support	
First Cisco IOS Software release	12.4(15)XY
Cisco IOS Software default image, release	IP BASE, 12.4(15)XY on CISCO1805-D and CISCO1805-EJ, respectively Advanced IP Services, 12.4(15)XY on CISCO1805-D/K9
Environmental	
Operating temperature	32 to 104℉ (0 to 40℃)
Operating humidity	10 to 85% noncondensing operating; 5 to 95% noncondensing, nonoperating
Nonoperating temperature	–4 to 149℉ (–25 to 65℃)
Operating altitude	10,000 ft (3000m) @ 77℉ (25℃)
Noise level	Normal operating temperature: • <78℉ (26℃): 34 dBA • >78℉ (26℃) through <104℉ (40℃): 37 dBA • >104℉ (40℃): 42 dBA
Regulatory Compliance	

Cisco 1800 Series	Cisco 1805
Safety	• UL60950-1 • CAN/CSA 60950-1 • AS 3260 • EN60950-1
EMI	• EN 55022, 1998, class A • CISPR22, 1997, class A • CFR47, Part 15, Subpart B, 1995, class A • EN61000-3-2 Harmonic Current Emission (only for equipment >75W but <16A) • EN61000-3-3 Voltage Fluctuation and Flicker (only for equipment ≤16A)
Immunity	• CISPR24, 1997 ITE-Immunity characteristics, Limits and methods of measurement • EN 55024,1998 ITE-Immunity characteristics, Limits and methods of measurement • EN50082-1, 1997 Electromagnetic compatibility-Generic immunity standard, Part 1 • EN 300 386, 1997 Telecommunications network equipment EMC requirements • The requirements are covered by the following standards: • IEC 61000-4-2:1995 Immunity to Electrostatic Discharges • IEC 61000-4-3:1995 Immunity to Radio Frequency Electromagnetic Fields • IEC 61000-4-4:1995 Immunity to Electrical Fast Transients • IEC 61000-4-5:1995 Immunity to Power Line Transients (Surges) • IEC 61000-4-6:1996 Immunity to Radio Frequency Induced Conducted Disturbances • IEC 61000-4-11:1995 Immunity to Voltage Dips, Voltage Variations, and Short Voltage Interruptions
Network homologation	• USA-TIA-968-A, T1.TRQ.6-2001 • Canada-CS-03 • European Union-RTTE Directive 5/99 • Argentina-CTR 21 • Australia-AS/ACIF S002, S003, S016 , S031, 3043 • Brazil-225-540-788, CTR3, 225-100-717 Edition 3, NET 001/92 1990 • China-ITU-G.992.1, ITU-G.992.1, ITU-G.991.2, CTR3, ITU I.431 1993 • Hong Kong-HKTA 2033, HKTA 2033, HKTA 2014, HKTA 2017 Issue 3 2003, HKTA 2011 Issue 1, HKTA 2011 Issue 2, HKTA 2013 Issue 1 • India-I_DCA_18_02_Jun_99-199, S/ISN-01/02 Issue 1999 S/ISN-02 1 1998, IR/PRI-01/02 Issue 1 1998, S/INT-2W/02 MAY 2001, S/INT-2W/02 MAY 2001 • Israel-U.S. approval accepted • Japan-Technical condition (DoC acceptance in process) • Korea-U.S. approval accepted • Mexico-U.S. approval accepted • New Zealand-PTC 270/272, CTR 3, ACA 016 Revision 4 1997, PTC 200 • Singapore-IDA TS ADSL1 Issue 1, IDA TS ADSL 2, IDA TS HDSL, IDA TS ISDN 1 Issue 1 1999, IDA TS ISDN 3 Issue 1 1999, IDA TS PSTN 1 Issue 4, IDA TS PSTN 1 Issue 4, IDA TS PSTN 1 Issue 4 • South Africa-U.S. approval accepted • Taiwan-U.S. approval accepted

The Cisco 1805 complies with the requirements of the countries for distribution. The Cisco 1805 conforms to safety, EMI, immunity, and network homologation standards. You can learn more from your Cisco reseller or account manager.

CMTS Interoperability

The Cisco 1805 is DOCSIS-based and designed to interoperate with CMTSs supporting DOCSIS 1.0, 1.1, and 2.0 standards.

Software Support

The Cisco 1805 is supported starting with Cisco IOS Software Release 12.4(15)XY.

The DOCSIS-based and Cisco IOS Software features are supported in the IP Base software image for the Cisco 1805, and in the Advanced IP Services software image for Cisco 1805-D/K9, as shown in Table 4.

Ordering Information

To place an order, visit the Cisco ordering homepage and refer to Table 4.

For more information about the Cisco 1805, visit http://www.cisco.com/en/US/products/ps6942/index.html.

Table 4. Ordering Information

Product Part Number	Product Description
Cisco 1805	
CISCO1805-D	Cisco 1805 4 x FE US DOCSIS 2.0 64 MB Flash 128 MB DRAM
CISCO1805-EJ	Cisco 1805 4 x FE EU JPN DOCSIS 2.0 64 MB Flash 128 MB DRAM
CISCO1805-D/K9	Cisco 1805 4 x FE US DOCSIS 2 Adv IP 64 MB Flash 192 MB DRAM
MEM1841-128U192D	128 to 192MB SODIMM DRAM factory upgrade
MEM1841-128U256D	128 to 256MB SODIMM DRAM factory upgrade
MEM1800-64U128CF	64 to 128 MB Cisco 1800 Compact Flash factory upgrade

Cisco Services and Support

Innovative technology deserves innovative support. Cisco offers a wide range of services programs to accelerate customer success. These innovative services programs are delivered through a unique combination of people, processes, tools, and partners, resulting in high levels of customer satisfaction. Cisco services help you protect your network investment, optimize network operations, and prepare your network for new applications to extend network intelligence and the power of your business.

Cisco SMARTnet® technical support for the Cisco 1805 is available on a one-time or annual contract basis. Support options range from help-desk assistance to proactive, onsite consultation. All support contracts include:

- Major Cisco IOS Software updates in protocol, security, bandwidth, and feature improvements
- Full access rights to Cisco.com technical libraries for technical assistance, electronic commerce, and product information
- 24-hour access to the large, dedicated technical support staff

For more information about Cisco services, refer to Cisco Technical Support Services at: http://www.cisco.com/en/US/products/svcs/ps3034/ps2827/serv_category_home.html

For More Information

For more information about the Cisco 1805, visit http://www.cisco.com/en/US/products/ps5853/index.html or contact your local Cisco account representative.

For more information about other Cisco products, contact:

- United States and Canada: 800 553-6387
- Europe: +32 2 778 4242
- Australia: +61 2 9935 4107
- Other: 408 526-7209

- Web: http://www.cisco.com

Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
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