Cisco 880VA Series Integrated Services Routers

Product Overview

The new Cisco 880VA Series Integrated Services Routers (ISRs) are part of the Cisco Integrated Services Routers Generation 2 (ISR G2) portfolio. The Cisco 880VA Series Routers support DSL multimode, including very-high-speed DSL 2 (VDSL2) and asymmetric DSL 2+ (ADSL2+). The routers support VDSL2 and ADSL2+ on a single WAN interface, thus providing secure, cost-effective connectivity to small businesses, enterprise small branch offices, and teleworker sites (Figure 1).

Features and Benefits

Cisco 880VA Series ISRs are fixed-configuration routers that provide collaborative business solutions for secure voice and data communications to small businesses and enterprise teleworkers. They offer concurrent broadband services over multiple DSL technologies to provide business continuity. The routers provide the performance required for concurrent services, including firewall, intrusion prevention, content filtering, and encryption for VPNs; and quality-of-service (QoS) features for optimizing voice and video applications. In addition, the web-based Cisco Configuration Professional configuration tool simplifies setup and deployment. Centralized management capabilities give network managers visibility and control of the network configurations at the remote site.

Cisco 880 Series Integrated Services Routers offer:

- High performance for broadband access in small offices and small branch-office and teleworker sites
- Collaborative services with secure analog, digital voice, and data communications
- Business continuity with redundant WAN links: Multimode DSL (VDSL2 and ADSL2 and 2+) over telephone service and ISDN
- Enhanced security, including:
  - Firewall with advance application and control for email, Instant Messaging (IM), and HTTP traffic
  - Site-to-site remote-access and dynamic VPN services: IP Security (IPsec) VPNs (Triple Data Encryption Standard [3DES] or Advanced Encryption Standard [AES]), Dynamic Multipoint VPN (DMVPN), Group Encrypted Transport VPN with onboard acceleration, and Secure Sockets Layer (SSL) VPN
  - Intrusion prevention system (IPS): An inline, deep-packet inspection feature that effectively mitigates a wide range of network attacks
  - Content filtering: A subscription-based integrated security solution that offers category-based reputation rating; keyword blocking; and protection against adware, malware, spyware, and URL blocking
- Four-port 10/100 Fast Ethernet managed switch with VLAN support; two ports support Power over Ethernet (PoE) for powering IP phones or external access points
- CON/AUX port for console or external modem
- One USB 1.1 port
- Easy setup, deployment, and remote-management capabilities through web-based tools and Cisco IOS® Software

Figure 1 shows a Cisco 880VA Integrated Services Router, and Table 1 lists the data models.

Figure 1. Cisco 880VA Integrated Services Router

Table 1. Cisco 880VA Series Data Models

Models	WAN Interface	LAN Interfaces	802.11g/n Option	Integrated Third-Generation (3G) WAN Capabilities	Integrated ISDN Dial Backup
Cisco 886VA	Multimode VDSL2/ ADSL2 and 2+ over ISDN	4-port 10/100-Mbps managed switch	No	No	Yes
Cisco 887VA	Multimode VDSL2/ ADSL2 and 2+ over basic telephone service	4-port 10/100-Mbps managed switch	No	No	No
Cisco 887VA-M	Multimode VDSL2/ ADSL2 and 2+ over basic telephone service Annex M (extended upstream band)	4-port 10/100-Mbps managed switch	No	No	No
Cisco 886VA-J	Multimode VDSL2/ ADSL2 and 2+ over ISDN Annex J, all-digital ISDN band	4-port 10/100-Mbps managed switch	No	No	No

Features and Benefits

Table 2 lists the features and benefits of the Cisco 880VA Series Integrated Services Routers.

Table 2. Features and Benefits of Cisco 880VA Series Routers

Feature	Benefit
Increased performance to run concurrent services	• Performance allows customers to take advantage of broadband network speeds while running secure, concurrent data, voice, video, and wireless services.
Enhanced security	• An integrated stateful and application inspection firewall provides network perimeter security. • High-speed IPsec 3DES and AES encryption offers data privacy over the Internet. • Intrusion prevention enforces security policy in a larger enterprise or service provider network. • Content filtering offers category-based URL classification and blocking, thus providing increased productivity and better use of company resources.
WAN	• DSL Multimode VDSL2 and ADSL2 and 2+ provide for business continuity.
Redundant WAN links	• Redundant WAN links provide business continuity and WAN diversity (CISCO886VA only).
Four-port 10/100-Mbps managed switch	• The Cisco 880 Series allows for connection of multiple devices in a small office, with the ability to designate a port as the network edge. • An optional external PoE adapter powers IP phones and external access points to avoid individual power supplies or power injectors. • VLANs allow for secure segmentation of network resources.
CON/AUX port	• A single dual-purpose port provides direct connection to a console or external modem for management or backup access points.

Feature	Benefit
Real-time clock	• A built-in real-time clock maintains an accurate date and time for applications that require an accurate time stamp, such as logging and digital certificates.
Cisco Configuration Professional	• Cisco Configuration Professional uses smart wizards and task-based tutorials, which resellers and customers can use to quickly and easily deploy, configure, and monitor a Cisco access router without requiring knowledge of the Cisco IOS Software command-line interface (CLI).

Summary

Cisco 880VA Series Integrated Services Routers combine increased network performance with advanced security to allow small-office customers to get the most from their broadband connections. You can deploy Cisco 880VA Series Routers at any small-office location. With the Cisco 880VA Series, enterprise IT managers and service providers can take advantage of a solution that they can easily set up at the remote site and centrally manage to reduce ongoing operating costs.

Product Specifications

Cisco IOS Software Support

Table 3 lists the minimum Cisco IOS Software releases and the default Cisco IOS Software feature sets.

Table 3. Cisco IOS Software Releases and Default Cisco IOS Software Feature Sets

Models	Universal Image	Default Feature Set	First Cisco IOS Software Release
Cisco 886VA, 887VA, and 887VA-M	Data	Advanced Security	15.1(2)T
Cisco 886VA and 887VA SEC	Data	Advanced IP	15.1(2)T
Cisco 886VA-J	Data	Advanced Security	15.1(4)M
C886VA-K9, C886VAJ-K9, C887VA-K9, C887VAM-K9	Data	Advanced Security	15.3(3)M2, 15.4(1)T

Tables 4 and 5 list software features of the Cisco 880VA Series.

Table 4. Cisco IOS Software Features on Cisco 880 Series: Advanced Security Feature Set (Default)

Feature	Description
IP and IP services features	• Routing Information Protocol Versions 1 and 2 (RIPv1 and RIPv2) • Generic routing encapsulation (GRE) and Multipoint GRE (MGRE) • Cisco Express Forwarding • Standard 802.1d Spanning Tree Protocol • Layer 2 Tunneling Protocol (L2TP) • Network Address Translation (NAT) • Dynamic Host Configuration Protocol (DHCP) server, relay, and client • Dynamic Domain Name System (DNS) • DNS Proxy • DNS Spoofing • Access control lists (ACLs)
ATM features	• ATM Variable Bit Rate real-time (VBR-rt) • ATM Unspecified Bit Rate (UBR), Constant Bit Rate (CBR), and Variable Bit Rate non-realtime (VBR-nrt) • ATM operations, administration, and maintenance (OA&M) support for F5 Continuity Check; segment and end-to-end loopback; and Integrated Local Management Interface (ILMI) support • TX ring adjustment • Virtual-circuit (VC) bundling • Per-VC queuing • Per-VC traffic shaping • Four ATM virtual circuits (RFCs 1483 and 2684) • Point-to-Point Protocol over ATM (PPPoA) • PPP over Ethernet (PPPoE)

Feature	Description
Switch features	• Auto Media Device In/Media Device Cross Over (MDI-MDX) • Eight 802.1Q VLANs • MAC filtering • Two-port 802.3af and Cisco compliant PoE • Switched Port Analyzer (SPAN) • Storm Control • Smartports
Security features	Secure connectivity: • SSL VPN for secure remote access • Hardware-accelerated DES; 3DES; and AES 128, 192, and 256 • Public-key-infrastructure (PKI) support • Twenty IPsec tunnels • Cisco Easy VPN Client and Server • Network Address Translation (NAT) transparency Zone-based policy firewall: • Stateful inspection transparent firewall • Advanced application inspection and control • Secure HTTP (HTTPS), FTP, and Telnet authentication proxy • Dynamic and static port security
QoS features	• Low-Latency Queuing (LLQ) • Weighted Fair Queuing (WFQ) • Class-Based WFQ (CBWFQ) • Class-Based Traffic Shaping (CBTS) (on Fast Ethernet WAN ports and DSL ports in Packet Transport Mode [PTM] only) • Class-Based Traffic Policing (CBTP) • Policy-Based Routing (PBR) • Class-Based QoS MIB • Class of service (CoS)-to-differentiated services code point (DSCP) mapping
Management features	• Cisco Configuration Professional • Cisco Configuration Express • Cisco Configuration Engine support • Cisco AutoInstall • IP service-level agreement (SLA) • Cisco IOS Embedded Event Manager (EEM) • CiscoWorks • Cisco Security Manager • Telnet, Simple Network Management Protocol Version 3 (SNMPv3), Secure Shell (SSH) Protocol, CLI, and HTTP management • RADIUS and TACACS+ • Out-of-band management with ISDN S/T port or external modem through virtual auxiliary port
High-availability features	• Virtual Router Redundancy Protocol (VRRP) (RFC 2338) • Hot Standby Router Protocol (HSRP) • Multigroup HSRP (MHSRP) • Dial backup with external modem through virtual auxiliary port • Dial backup with ISDN S/T port (CISCO886VA only)
Number of recommended users	20

Cisco IOS Software Advanced IP Services Feature Set (Optional Software Upgrade)

The Advanced IP Services software image has all the features of the Advanced Security software image, in addition to the features listed in Table 4.

Table 5. Cisco IOS Software Features on Cisco 880 Series: Advanced IP Services Feature Set (Optional Software Upgrade)

Feature	Description
IP and IP services features	• IPv4 and IPv6 Multicast • Open Shortest Path First (OSPF) • Border Gateway Protocol (BGP) • Enhanced Interior Gateway Routing Protocol (EIGRP) • Virtual Route Forwarding (VRF) Lite • Next Hop Resolution Protocol (NHRP) • Layer 2 Tunneling Protocol Version 3 (L2TPv3) • Bidirectional Forwarding Detection (BFD) • Web Cache Communication Protocol (WCCP)
Switch features	• Internet Group Management Protocol Version 3 (IGMPv3) snooping • 802.1x
Security features	Secure connectivity: • DMVPN • Tunnel-less Group Encrypted Transport VPN • IPsec stateful failover • VRF-aware IPsec • IPsec over IPv6 • Adaptive control technology • Session Initiation Protocol (SIP) application layer gateway Cisco IOS Firewall: • Firewall stateful failover • VRF-aware firewall Content filtering: • Subscription-based content filtering with Trend Micro • Support for Websense and SmartFilter • Cisco IOS Software black and white lists Integrated threat control: • IPS • Control-Plane Policing • Flexible Packet Matching • Network foundation protection
QoS features	• Class-Based Weighted Random Early Detection (CBWRED) • Network-Based Application Recognition (NBAR) • Link fragmentation and interleaving (LFI) • Resource Reservation Protocol (RSVP) • Real-Time Transport Protocol (RTP) header compression (cRTP) • Differentiated Services (DiffServ) • QoS preclassify and prefragmentation • Hierarchical QoS (HQoS)
IPv6 features	• IPv6 addressing architecture • IPv6 name resolution • IPv6 statistics • IPv6 translation: Transport packets between IPv6-only and IPv4-only endpoints (NAT-PT) • Internet Control Message Protocol Version 6 (ICMPv6) • IPv6 DHCP

System Specifications

Table 6 lists the system specifications for the Cisco 880 Series Routers.

Table 6. System Specifications

Feature	Description
Default DRAM	• 256 MB on Cisco 880 Series data models
Maximum DRAM	768 MB
Default and maximum flash memory	• 128 MB on Cisco 880 Series data models
WAN	• Multimode VDSL2 and ADSl2 and 2+ over ISDN with ISDN backup • Multimode VDSL2 and ADSl2 and 2+ over basic telephone service
LAN switch	Managed 4-port 10/100BASE-T with autosensing MDI/MDX for autocrossover
Console or auxiliary port	RJ-45
One USB 1.1 port for advanced security features such as security tokens or USB flash memory	• One USB 1.1 port on Cisco 880 Series Routers • USB devices supported: ◦ USB eTokens ◦ USB flash memory Note: USB 1.1 port cannot be used for connecting external devices other than those specified at: http://www.cisco.com/en/US/prod/collateral/modules/ps6247/product_data_sheet0900aecd80232473.html.
ISDN Basic Rate Interface (BRI) S/T	Available on: • Cisco 886VA for out-of-band management and dial backup or primary
External power supply	Universal 100- to 240-VAC input; 60W, 12-VDC output
Physical dimensions and weight	Product dimensions, nonwireless models: • H x W x D = 1.9 x 12.8 x 9.8 in. (48 x 325 x 249 mm) (includes rubber feet) • H x W x D = 1.75 x 12.8 x 9.8 in. (44 x 325 x 249 mm) (without rubber feet) Product dimensions, wireless models: • H x W x D = 1.9 x 12.8 x 10.4 in. (48 x 325 x 264 mm) (includes rubber feet) • H x W x D = 1.75 x 12.8 x 10.4 in. (44 x 325 x 264 mm) (without rubber feet; excludes antennas) • Weight: 5.5 lb (2.5 kg) maximum
Power	Product power specifications: • AC input voltage: 100 to 240 VAC • Frequency: 50 to 60 Hz • Maximum output power: 60W • Output voltages: 12 VDC Optional internal PoE with external adapter: • Maximum output power: 80W • External output voltage: 48 VDC
Approvals and compliance	Emissions: • 47 CFR Part 15: 2006 • CISPR22: 2005 • EN300386: V1.3.3: 2005 • EN55022: 2006 • EN61000-3-2: 2000 [Inc amd 1 and 2] • EN61000-3-3: 1995 [+ amd 1: 2001] • ICES-003 Issue 4: 2004 • KN 22: 2005 • VCCI: V-3/2006.04 Immunity: • CISPR24: 1997 [+ amd 1 and 2] • EN300386: V1.3.3: 2005 • EN50082-1: 1992 • EN50082-1: 1997

Feature	Description
	• EN55024: 1998 [+ amd 1 and 2] • EN61000-6-1: 2001 The following are supported on teleworker models: • AS/NRZ 3548: 1992 Class B • CFR 47 Part 15 Class B • EN60555-2 Class B • EN55022 Class B • ICES-003, Issue 2, Class B, April 1997S
Environmental operating range	• Nonoperating temperature: -4 to 149°F (-20 to 65°C) • Nonoperating humidity: 5 to 95% relative humidity (noncondensing) • Nonoperating altitude: 0 to 15,000 ft (0 to 4570m) • Operating temperature ◦ At sea level: 32 to 104°F (0 to 40°C) ◦ Up 10,000ft: 32 to 77 °F (0 to 25°C) ◦ Derating 2.7°F/10000 ft (1.5°C [304.8m]) • Operating humidity: 10 to 85% relative humidity (noncondensing) • Operating altitude: 0 to 10,000 ft (0 to 3000m)

DSL Specifications

Tables 7 through 10 list the DSL feature specifications and DSL access multiplexer (DSLAM) interoperability support for the Cisco 880 Series Routers. For more information and details about DSLAM and line-card interoperability, please refer to the following document: What Is Cisco ISR and ISR G2 xDSL Interoperability?

Table 7. DSL Features Specifications

DSL Specifications	
Multimode DSL (VDSL2 and ADSL2 and 2+)	• Broadcom chipset • Dying gasp • IEEE 802.1q VLAN tagging • Independent DSL firmware loading VDSL2: • ITU G.993.2 (VDSL2) • 997 and 998 band plans • VDSL2 profiles: 8a, 8b, 8c, 8d, 12a, 12b, and 17a • U0 band support (25-276 kHz) • Ethernet PTM mode only based on IEEE 802.3ah 64/65 octet encapsulation • DELT diagnostics mode ADSL2 and 2+: • ADSL over basic telephone service with Annex A T1.413, ITU G.992.1 (ADSL 1 G.Dmt), G.992.3 (ADSL2 and G.DMT bis), and G.992.5 (ADSL2+ and G.DMT bis 2+) • Cisco 887VA: Optimized for Annex A • C887VA: Optimized for Annex A • ADSL over basic telephone service with Annex M (extended upstream bandwidth) G.992.3 (ADSL2) and G.992.5 (ADSL2+) • Cisco 887VA-M: Optimized for PSD Mask EU-64 M9; also compatible with Annex A • Cisco 887VA-M: Supports UK Annex M • C887VAM: Optimized for PSD Mask EU-64 M9; also compatible with Annex A • C887VAM: Supports Annex M • ADSL over ISDN with Annex B ITU G.992.1 (ADSL), G.992.3 (ADSL2), and G.992.5 (ADSL2+) • Cisco 886VA: Optimized for Annex B • C886VA: Optimized for Annex B • ADSL over ISDN with Annex J Full Digital ISDN ITU-T G.992.3 (ADSL2) and G.992.5 (ADSL2+) • Cisco 886VA-J: Optimized for Annex J • C886VAJ: Optimized for Annex J • G.994.1 ITU G.hs

DSL Specifications	
	• Reach-extended ADSL2 (G.922.3) Annex L for increased performance on loop lengths greater than 16,000 feet (4876.8m) from central office • T1.413 ANSI ADSL DMT issue 2 compliance • DSL Forum TR-067, TR-100, and TR-112 compliance • Inpulse Noise Protection (INP) and extended INP-Delay • Seamless Rate Adaptation • Physical Layer Retransmission (PhyR) • Downstream Power Back Off (DPBO) • ATM mode only

Table 8. VDSL2 over ISDN and Basic Telephone Service DSLAM Interoperability for Cisco 886VA and 887VA

DSLAM	VDSL2 over ISDN and Basic Telephone Service Line-Card Chipset
ZTE 9806	Broadcom
Alcatel ISAM 7302	Ikanos
Alcatel ISAM 7302	Conexant
Huawei 5603	Broadcom

Table 9. ADSL over ISDN DSLAM Interoperability for Cisco 886VA

DSLAM	ADSL2 and 2+ over ISDN Line-Card Chipset
Alcatel ASAM7300	Broadcom
ECI Hi-Focus 480	Infineon
Ericsson ECN320	Broadcom
Siemens HiX 5300	Infineon

Table 10. ADSL over Basic Telephone Service DSLAM Interoperability for Cisco 887VA

DSLAM	ADSL2 and 2+ over Basic Telephone Service Line-Card Chipset
Alcatel ASAM7300	Broadcom
Alcatel ISAM 7302	Broadcom
Ericsson EDA2.1	Broadcom
ECI Hi-Focus 480	Infineon
Fujitsu FDX Hub 1000	Infineon
Fujitsu FDX Hub 1000	Texas Instruments
Huawei MA5600	Conexant
Lucent Stinger	Conexant
Nokia D500	Globespan

Ordering Information

Table 11 lists ordering information for the Cisco 880 Series. To place an order, visit the Cisco ordering homepage.

Table 11. Ordering Information

Part Number	Product Name
Multi-mode DSL (VDSL2 and ADSl2/2+)	
CISCO886VA-K9	Cisco 886VA router with VDSL2/ADSL2+ over ISDN
CISCO886VA-SEC-K9	Cisco 886VA Secure router with VDSL2/ADSL2+ over ISDN
C886VA-K9	Cisco 886VA router with VDSL2/ADSL2+ over ISDN - Lead Free
CISCO886VA-J-K9	Cisco 886VA router with VDSL2/ADSL2+ over ISDN Annex J

Part Number	Product Name
C886VAJ-K9	Cisco 886VA router with VDSL2/ADSL2+ over ISDN Annex J – Lead Free
CISCO887VA-K9	Cisco 887VA router with VDSL2/ADSL2+ over POTS
CISCO887VA-SEC-K9	Cisco 887VA Secure router with VDSL2/ADSL2+ over POTS
C887VA-K9	Cisco 887VA router with VDSL2/ADSL2+ over POTS - Lead Free
CISCO887VA-M-K9	Cisco 887VA router with VDSL2/ADSL2+ over POTS Annex M router
C887VAM-K9	Cisco 887VA router with VDSL2/ADSL2+ over POTS Annex M router – Lead Free
POE	
800-IL-PM=2	2 port 802.3af capable inline power module for 880 routers
DRAM	
MEM8XX-256U512D	256-MB DRAM upgrade to 512 MB for Cisco 880 Series Routers
MEM8XX-256U768D	512-MB DRAM upgrade to 768 MB for Cisco 880 Series Routers
MEM8XX-512U768D	512-MB DRAM upgrade to 768 MB for Cisco 880 Series Routers
FL-8XX-512U1GB*	CISCO800 DRAM Upgrade from 512MB to 1GB (For
Cisco IOS Universal Software for Cisco 880	
S880DUDK9[1]	Cisco 880 Series IOS UNIVERSAL DATA
Software License for Cisco 880 Data	
SL-880-ADSEC (default)	Cisco 880 Advanced Security Image Feature License
SL-880-AIS (upgrade option)	Cisco 880 Advanced IP Services Image Feature License
SL-880-ADVSEC-NPE	Cisco 880 Advanced Security NPE License PAK (Paper)
SL-880-AIS-NPE (upgrade option)	Cisco 880 Advanced IP Services NPE License PAK (Paper)
Software License for Cisco 880 Data (Bulk)	
L-SL-800-SEC-K9	Advanced IP e-Delivery PAK for Cisco 800 Series
Security Services	
SL-CNFIL-88x-1Y	One year subscription to Content Filtering for Cisco 881/888-URL/Phishing
SL-CNFIL-8xx-TRI	30 day free trial license for 88x series
SSL	
FL-WEBVPN-10-K9	Feature License SSL VPN for Up to 10 Users (incremental), for 12.4T based IOS releases only
FL-SSLVPN10-K9	Feature License SSL VPN for Up to 10 Users (incremental), for 15.x based IOS releases only
Router Software	
C880data-universalk9-mz	Universal image for Cisco 880 ISR Data Router Series
C800data-universalk9-mz**	Universal image for Cisco 880 ISR Data Router Series

* This Memory license is only valid for C881-K9, C886VA-K9, C886VAJ-K9, C887VA-K9, and C887VA-M-K9

** This universal image is valid for C881-K9, C886VA-K9, C886VAJ-K9, C887VA-K9, and C887VA-M-K9

Cisco License Manager is a secure client- and server-based application used to manage Cisco IOS Software activation and licenses. For more information about Cisco License Manager, visit http://www.cisco.com/go/clm.

[1] Each software part number has the Cisco IOS Software release number at the end of the string. For example, the part number of the Cisco IOS 12.4(20)T data universal image for the Cisco 880 Series is S880DUK9-12420T.

Cisco Services for the Branch Office

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Warranty Information

Warranty information is available on Cisco.com at the Product Warranties page.

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