

Cisco 1921 Series Integrated Services Routers

Product names: CISCO1921/K9, CISCO1921-SEC/K9

Cisco® 1900 Series Integrated Services Routers build on 25 years of Cisco innovation and product leadership. The new platforms are architected to enable the next phase of branch-office evolution, providing rich-media collaboration to the branch office while maximizing operational cost savings. The Cisco Integrated Services Routers Generation 2 (ISR G2) platforms are future-enabled with multicore CPUs, Gigabit Ethernet switching with enhanced Power over Ethernet (PoE), and new energy monitoring and control capabilities that enhance overall system performance. Additionally, a new Cisco IOS® Software Universal image enables you to decouple the deployment of hardware and software, providing a stable technology foundation that can quickly adapt to evolving network requirements. Overall, the Cisco 1900 Series offers exceptional total cost of ownership (TCO) savings and network agility through the intelligent integration of market-leading security, unified communications, wireless, and application services.

Product Overview

The Cisco 1921 builds on the best-in-class offering of the Cisco 1841 Integrated Services Routers. All Cisco 1900 Series Integrated Services Routers offer embedded hardware encryption acceleration, optional firewall, intrusion prevention, and advanced security services. In addition, the platforms support the industry's widest range of wired and wireless connectivity options such as Serial, T1/E1, xDSL, Gigabit Ethernet, and third-generation (3G) wireless (Figure 1)

Figure 1. Cisco 1921 Integrated Services Router



Key Business Benefits

Cisco ISR G2 routers provide superior services integration and agility. Designed for scalability, the modular architecture of these platforms enables you to grow and adapt with your business needs. Table 1 lists the business benefits of the Cisco 1900.

Table 1. Key features and benefits of the Cisco 1921 Integrated Services Router

Benefits	Description
Service integration	The Cisco 1921 offers increased levels of services integration with data, security, wireless, and mobility services, enabling greater efficiencies and cost savings.
Services on demand	A single Cisco IOS Software Universal image is installed on each ISR G2. The Universal image contains <i>all</i> of the Cisco IOS Software technology sets that can be activated with a software license allowing your business to quickly deploy advanced features without downloading a new Cisco IOS Software image. Additionally, larger default memory is included to support the new capabilities.
High performance with integrated services	The Cisco 1900 Series enables deployment in high-speed WAN environments with concurrent services enabled up to 15 Mbps.
Network agility	- Designed to address customer business requirements, the Cisco 1921 with the modular architecture offers a performance range of modular interfaces and services as your network needs grow. - Modular interfaces offer increased bandwidth, a diversity of connection options, and network resiliency.

Benefits	Description
Energy efficiency	• The Cisco 1921 architecture provides energy-savings features that include the following: • The Cisco 1900 Series offers intelligent power management and allows you to control power to the modules based on the time of day. Cisco EnergyWise technology will be supported in the future. • Services integration and modularity on a single platform performing multiple functions optimizes raw-materials consumption and energy usage. • Platform flexibility and ongoing development of both hardware and software capabilities lead to a longer product lifecycle, lowering all aspects of the TCO, including materials and energy use. • High-efficiency power supplies are provided with each platform.
Investment protection	• The Cisco 1921 maximizes investment protection by supporting: • Reuse of a broad array of existing modules supported on the original integrated services routers (ISRs) provides a lower TCO. • A rich set of Cisco IOS Software features is carried forward from the original ISRs and delivered in the universal image. • This router gives you the flexibility to grow as your business needs evolve.

Architecture and Modularity

The Cisco 1921 is architected to meet the application demands of today's branch offices with design flexibility for future applications. The modular architecture is designed to support expanding customer requirements, increased bandwidth, and fully integrated power distribution to modules supporting 802.3af PoE and Cisco Enhanced PoE (ePoE). Table 2 lists the architectural features and benefits of the Cisco 1921.

Table 2. Architectural Features and Benefits

Architectural Feature	Benefits
Modular platform	• The Cisco 1921 ISRs are highly modular platforms with multiple module slots to provide connectivity and services for varied branch-office network requirements. • The ISRs offer an industry-leading breadth of LAN and WAN connectivity options through modules to accommodate field upgrades to future technologies without requiring replacement of the platform.
Processors	• The Cisco 1921 is powered by high-performance multicore processors that support growing demands of branch-office networks by supporting high-throughput WAN requirements.
Embedded IP Security/Secure Sockets Layer (IPsec/SSL) VPN hardware acceleration	• Embedded hardware encryption acceleration is enhanced to provide higher scalability, which, combined with an optional Cisco IOS Security license, enables WAN link security and VPN services (Both IPsec and SSL acceleration). • The onboard encryption hardware out-performs the advanced integration modules of previous generations.
Integrated Gigabit Ethernet ports	• All onboard LAN/WAN ports are 10/100/1000 Gigabit Ethernet routed ports.
Innovative universal-serial-bus (USB)-based console access	• A new, innovative, mini-Type B USB console port supports management connectivity when traditional serial ports are not available. • The traditional console and auxiliary ports are also available. You can use either the USB-based console or the RJ-45-based console port to configure the router.
Optional external power supply for distribution of PoE	• An optional upgrade to the power supply provides inline power (802.3af-compliant PoE and Cisco Standard Inline Power) to optional integrated switch modules.

Modularity Features and Benefits

The Cisco 1921 provides significantly enhanced modular capabilities (refer to Table 3) that offer you investment protection. Most of the modules available on previous generations of Cisco routers, such as the Cisco 1841 ISR, are supported on the Cisco 1921. Additionally, you can easily interchange modules used on the Cisco 1921 with other Cisco routers to provide maximum investment protection. Taking advantage of common interface cards across a network greatly reduces the complexity of managing inventory requirements, implementing large network rollouts, and maintaining configurations across a variety of branch-office sizes.

A complete list of supported modules is available at <http://www.cisco.com/go/1921>.

Table 3. Modularity Features and Benefits

Feature	Benefits
Cisco Enhanced High-Speed WAN Interface Card (EHWIC) 	• The EHWIC slot replaces the high-speed WAN interface card (HWIC) slot and can natively support HWICs, WAN interface cards (WICs), and voice/WAN interface cards (VWICs). • Two integrated EHWIC slots are available on the Cisco 1921 for flexible configurations for support of two modules: One doublewide HWIC-D or two singlewide EHWIC/HWIC modules are supported. • Each EHWIC slot offers high-data-throughput capability.
USB 2.0 ports	• One high-speed USB 2.0 port is supported. The USB port enables another mechanism for secure-token capabilities and storage.

Cisco IOS Software

The Cisco 1921 Integrated Services Routers deliver innovative technologies running on industry-leading Cisco IOS Software. Developed for wide deployment in the world's most demanding enterprise, access, and service provider networks, Cisco IOS Software Releases 15 M and T support a comprehensive portfolio of Cisco technologies, including new functions and features delivered in Releases 12.4 and 12.4T, and new innovations that span multiple technology areas, including security, high availability, IP Routing and Multicast, quality of service (QoS), IP Mobility, Multiprotocol Label Switching (MPLS), VPNs, and embedded management.

Cisco IOS Software Licensing and Packaging

A single Cisco IOS Universal image encompassing all functions is delivered with the platforms. You can enable advanced features by activating a software license on the Universal image. In previous generations of access routers, these feature sets required you to download a new software image. Technology packages and feature licenses, enabled through the Cisco software licensing infrastructure, simplify software delivery and decrease the operational costs of deploying new features.

Four major technology licenses are available on the Cisco 1921 Integrated Services Routers; you can activate the licenses through the Cisco software activation process identified at <http://www.cisco.com/go/sa>.

- IP Base: This technology package is available as default
- Data
- Security (SEC) or Security with No Payload Encryption (SEC-NPE)

For additional information and details about Cisco IOS Software licensing and packaging on Cisco 1921 Integrated Services Routers, please visit <http://www.cisco.com/go/1921>.

Key Branch-Office Services

The industry-leading Cisco Integrated Services Routers offer unprecedented levels of services integration. Designed to meet the requirements of the branch office, these platforms provide a complete solution with security, mobility, and data services. Businesses enjoy the benefit by deploying a single device that meets all their needs and saves on capital and operational expenses.

Integrated Network Security for Data and Mobility

Security is essential to protect a business' intellectual property while also ensuring business continuity and providing the ability to extend the corporate workplace to employees who need anytime, anywhere access to company resources. As part of the architectural framework of the SAFE Blueprint from Cisco that allows organizations to identify, prevent, and adapt to network security threats - the Cisco 1900 Series Integrated Services Routers facilitate secure business transactions and collaboration.

The Cisco IOS Software Security technology package license for the Cisco 1900 Series offers a wide array of common security features such as advanced application inspection and control, threat protection, and encryption architectures for enabling more scalable and manageable VPN networks in one solution set. The Cisco 1921 offers native hardware-based encryption acceleration to provide greater IPsec throughput with less overhead for the router processor when compared with software-based encryption solutions. Cisco Integrated Services Routers offer a comprehensive and adaptable security solution for branch-office routers that include features such as:

- **Secure connectivity:** Achieve secure collaborative communications with Group Encrypted Transport VPN, Dynamic Multipoint VPN (DMVPN), or Enhanced Easy VPN.
- **Integrated threat control:** Respond to sophisticated network attacks and threats using Cisco IOS Firewall, Cisco IOS Zone-Based Firewall, Cisco IOS IPS, and Cisco IOS Content Filtering and Flexible Packet Matching (FPM).
- **Identity management:** Intelligently protect endpoints using technologies such as authentication, authorization, and accounting (AAA) and public key infrastructure (PKI).

Detailed information about the security features and solutions supported on the Cisco 1900 Series routers is available at <http://www.cisco.com/go/routersecurity>.

Mobility Services

Wireless WAN

Cisco 3G wireless WAN (WWAN) modules combine traditional enterprise router functions such as remote management, advanced IP services such as voice over IP (VoIP), and security, with mobility capabilities of 3G WAN access. Using high-speed 3G wireless networks, routers can replace or complement existing landline infrastructure, such as dialup, Frame Relay, and ISDN. Cisco 3G solutions support 3G standards High-Speed Packet Access (HSPA) and Evolution Data Only/Evolution Data Optimized (EVDO), **offering** you a true multipath WAN backup and the ability to rapidly deploy primary WAN connectivity. For more information about 3G solutions on Cisco Integrated Services Routers, please visit <http://www.cisco.com/go/3g>.

Integrated LAN Switching

The Cisco 1921 Integrated Services Router will support the EHWIC LAN modules when they become available in the future. The Cisco 1921 supports the existing singlewide Cisco EtherSwitch® HWIC and the doublewide HWIC-D modules, which greatly expand the capabilities of the router by integrating industry-leading Layer 2 switching.

Managing Your Integrated Services Routers

Network management applications are instrumental in lowering operating expenditures (OpEx) while improving network availability by simplifying and automating many of the day-to-day tasks associated with managing an end-to-end network. "Day-one device support" provides immediate manageability support for the ISR, enabling quick and easy deployment, monitoring, and troubleshooting from Cisco and third-party applications.

Organizations rely on Cisco, third-party, and in-house developed network management applications to achieve their OpEx and productivity goals. Underpinning those applications are the embedded management features available in every ISR. The new ISRs continue a tradition of broad and deep manageability features within the devices. Features such as Cisco IOS IP Service-Level Agreements (IP SLAs), Cisco IOS Embedded Event Manager (EEM), and NetFlow allow you to know what is going on in your network at all times. These features along with Simple Network Management Protocol (SNMP) and syslog support enable your organization's management applications.

Tables 4 through 6 give for details about Cisco IOS Software, network management, and manageability support on Cisco 1921 Integrated Services Routers.

Table 4. Cisco 1921 with Cisco IOS Software Feature and Protocol High-Level Support

Feature	Description
Protocols	IPv4, IPv6, static routes, Open Shortest Path First (OSPF), Enhanced IGRP (EIGRP), Border Gateway Protocol (BGP), BGP Router Reflector, Intermediate System-to-Intermediate System (IS-IS), Multicast Internet Group Management Protocol (IGMPv3) Protocol Independent Multicast sparse mode (PIM SM), PIM Source-Specific Multicast (SSM), Distance Vector Multicast Routing Protocol (DVMRP), IPsec, generic routing encapsulation (GRE), Bidirectional Forwarding Detection (BFD), IPv4-to-IPv6 Multicast, MPLS, Layer 2 Tunneling Protocol Version 3 (L2TPv3), 802.1ag, 802.3ah, and Layer 2 and Layer 3 VPN
Encapsulations	Ethernet, 802.1q VLAN, Point-to-Point Protocol (PPP), Multilink Point-to-Point Protocol (MLPPP), Frame Relay, Multilink Frame Relay (MLFR) (FR.15 and FR.16), High-Level Data Link Control (HDLC), Serial (RS-232, RS-449, X.21, V.35, and EIA-530), Point-to-Point Protocol over Ethernet (PPPoE), and ATM
Traffic management	QoS, Class-Based Weighted Fair Queuing (CBWFQ), Weighted Random Early Detection (WRED), Hierarchical QoS, Policy-Based Routing (PBR), Performance Routing (PfR), and Network-Based Advanced Routing (NBAR)

For a more comprehensive list of features supported in Cisco IOS software, refer to the Feature Navigator tool at: <http://www.cisco.com/go/fn>.

Table 5 highlights several ISR management capabilities that are available within Cisco IOS Software:.

Table 5. Cisco IOS Software Management Capabilities

Feature	Description of Feature Supported by Cisco Integrated Services Routers
WSMA	The Web Services Management Agent (WSMA) defines a mechanism through which you can manage a network device, retrieve configuration data information, and upload and manipulate new configuration data. WSMA uses XML-based data encoding that is transported by the Simple Object Access Protocol (SOAP) for the configuration data and protocol messages.
EEM	Cisco IOS EEM is a distributed and customized approach to event detection and recovery offered directly in a Cisco IOS Software device. It offers the ability to monitor events and take informational, corrective, or any desired EEM action when the monitored events occur or when a threshold is reached.
IPSLA	Cisco IOS IP SLAs enable you to assure new business-critical IP applications, as well as IP services that use data, voice, and video, in an IP network.
SNMP, RMON, Syslog, NetFlow, and TR-069	Cisco 1900 Series Integrated Services Routers also support SNMP, Remote Monitoring (RMON), syslog, NetFlow, and TR-069 in addition to the embedded management features previously mentioned.

Cisco Network Management Applications

The applications listed in Table 6 are standalone products that you can purchase or download to manage your Cisco network devices. The applications are built for the different operational phases; you can select the ones that best fit your needs.

Table 6. Network Management Solutions

Operational Phase	Application	Description
Device staging and configuration	Cisco Configuration Professional	Cisco Configuration Professional is a GUI device-management tool for Cisco IOS Software-based access routers. This tool simplifies routing, firewall, IPS, VPN, unified communications, and WAN and LAN configuration through GUI-based easy-to-use wizards.
Networkwide deployment, configuration, monitoring, and troubleshooting	CiscoWorks LMS	- CiscoWorks LAN Management Solution (LMS) is a suite of integrated applications for simplifying day-to-day management of a Cisco end-to-end network, lowering OpEx while increasing network availability. CiscoWorks LMS offers network managers an easy-to-use web-based interface for configuring, administering, and troubleshooting the Cisco integrated Services Routers, using new instrumentation such as Cisco IOS EEM. - In addition to supporting basic platform services of the integrated services router, CiscoWorks also provides added-value support for the Cisco Service-Ready Engine (SRE) enabling the management and distribution of software images to the SRE, thereby reducing the time and complexities associated with image management.
Networkwide staging, configuration, and compliance	CiscoWorks NCM	CiscoWorks Network Compliance Manager (NCM) tracks and regulates configuration and software changes throughout a multivendor network infrastructure. It provides superior visibility into network changes and can track compliance with a broad variety of regulatory, IT, corporate governance, and technology requirements.
Security staging, configuration, and monitoring	Cisco Security Manager	Cisco Security Manager is a leading enterprise-class application for managing security. It delivers provisioning of firewall, VPN, and intrusion-prevention-system (IPS) services across Cisco routers, security appliances, and switch service modules. The suite also includes the Cisco Security Monitoring, Analysis and Response System (Cisco Security MARS) for monitoring and mitigation.

Operational Phase	Application	Description
Configuration and provisioning	Cisco Unified Provisioning Manager	Cisco Unified Provisioning Manager provides a reliable and scalable web-based solution for managing a company's crucial next-generation communications services. It manages unified communications services in an integrated IP telephony, voicemail, and messaging environment.
Staging, deployment, and changes of licenses	Cisco License Manager	Easily manage Cisco IOS Software activation and license management for a wide range of Cisco platforms running Cisco IOS Software as well as other operating systems with the secure client-server application Cisco License Manager.
Staging, deployment, and changes to configuration and image files	Cisco Configuration Engine	Cisco Configuration Engine is a secure network management product that provides zero-touch image and configuration distribution through centralized, template-based management.

Summary and Conclusion

As businesses strive to lower the TCO in running their networks and increase their overall employee productivity with more centralized and collaborative network applications, more intelligent branch-office solutions are required. The Cisco 1921 offers these solutions by providing enhanced performance and increased modular density to support multiple services. The Cisco 1921 is designed to consolidate the functions of separate devices into a single, compact system that can be remotely managed. Table 7 gives specifications of the Cisco 1921.

Product Specifications

Table 7. Product Specifications of Cisco 1921 Integrated Services Router

	Cisco 1921 Integrated Services Router
Services and Slot Density	
Embedded hardware-based cryptography acceleration (IPsec + SSL)	Yes
RJ-45 onboard LAN/WAN 10/100/1000 ports	2
EHWIC slots	2
Doublewide EHWIC slots (use of a doublewide EHWIC slot will consume 2 EHWIC slots)	1
Cisco Integrated Services Module (ISM) slots	0
Memory (DDR2 DRAM): Default/Maximum	512 MB/512 MB
USB flash memory (internal): Default/maximum	256 MB/256 MB
External USB flash-memory slots (Type A)	1
USB console port (mini-Type B) (up to 115.2 kbps)	1
Serial console port (up to 115.2 kbps)	1
Serial auxiliary port (up to 115.2 kbps)	1
Integrated power supply	AC
Power-supply options	POE (external)
Redundant-power-supply support	No
Power Specifications	
AC input voltage	100–240V ~
AC input frequency	47–63 Hz
AC input current range AC power supply (maximum) (amps)	1.5–0.6
AC input surge current	<50A
Typical power (no modules)	25W
Maximum power capacity with AC power supply	60W
Maximum power capacity with PoE power supply (platform only)	70W
Maximum PoE device power capacity with PoE power supply	80W
Physical Specifications	
Dimensions (H x W x D)	1.75 x 13.5 x 11.5 in.

Cisco 1921 Integrated Services Router	
Rack height	1RU
Rack-mount 19in. (48.3 cm) EIA	optional
Wall-mount (refer to installation guide for approved orientation)	Yes
Weight - with AC power supply (no modules)	6.75 lbs
Weight - with PoE power supply (no modules)	7.5 lb
Airflow	Back to Sides
Environmental Specifications	
Operating Condition	
Temperature: 5906 feet (1800m) maximum altitude	0–40°C (32–104°F)
Temperature: 9843 feet (3000m) maximum altitude	0–25°C (32–77°F)
Altitude	3000m (10000 ft)
Humidity	10 to 85% RH
Acoustic: Sound pressure (typical /maximum)	32.99/58.33 dBA
Acoustic: Sound power (typical/maximum)	41.99/67.22 dBA
Transportation/Storage Condition	
Temperature	–40 to 70°C (–40 to 158°F)
Humidity	5 to 95% RH
Altitude	4570m (15000 ft)
Regulatory Compliance	
Safety	UL 60950-1 CAN/CSA C22.2 No. 60950-1 EN 60950-1 AS/NZS 60950-1 IEC 60950-1
EMC	47 CFR, Part 15 ICES-003 Class A EN55022 Class A CISPR22 Class A AS/NZS 3548 Class A VCCI V-3 EN 300-386 EN 61000 (Immunity) EN 55024, CISPR 24 EN50082-1
Telecom	TIA/EIA/IS-968 CS-03 ANSI T1.101 IEEE 802.3 RTTE Directive

Supported Modules

Cisco 1921 routers support a wide range of modules that span industry-leading breadth of services at the branch office. Please refer to the following link for the list of modules supported on the Cisco 1900:

http://www.cisco.com/en/US/products/ps10538/products_relevant_interfaces_and_modules.html.

Ordering Information

The Cisco 1921 is orderable at the [Cisco Ordering Home Page](#).

For more information about the Cisco 1900 Series, visit <http://www.cisco.com/go/1921>.

Table 8 gives ordering information for the Cisco 1921 Router. For information about how to order the Cisco 1900 Series, please visit the Cisco 1900 Series Ordering Guide. To place an order, visit the [Cisco Ordering Home Page](#). For additional product numbers, including the Cisco 1900 Series bundle offerings, please check the [Cisco 1900 Series Integrated Services Router Price List](#) or contact your local Cisco account representative.

Table 8. Cisco 1921 Basic Ordering Information

Product Number	Product Description
Cisco1921/K9	Cisco 1921 with 2 onboard GE, 2 EHWIC slots, 256MB USB Flash (internal) 512MB DRAM, IP Base Lic
Cisco1921-SEC/K9	Cisco 1921 with 2 onboard GE, 2 EHWIC slots, 256MB USB Flash (internal) 512MB DRAM, SEC Feature Lic
Cisco1921-T1SEC/K9	Cisco 1921 SEC T1 bundle with HWIC-1DSU-T1, 256F/512D, IOS SEC Lic
CISCO1921-ADSL2/K9	Cisco 1921 ADSL2+ bundle with HWIC-1ADSL, 256F/512D, IP Base Lic
C1921-ADSL2-M/K9	Cisco 1921 ADSL2+ Annex M bundle, with HWIC-1ADSL-M, 256F/512D, IP Base Lic
C1921-4SHDSL/K9	Cisco 1921 4-pair G.SHDSL bundle, with HWIC-4SHDSL, 256F/512D, IP Base Lic

To download the Cisco 1921 with Cisco IOS Software, go to [Download Software](#), click "Router Software", and go to "Cisco ISR 1921 Integrated Services Router."

ISR Migration Options

Cisco 1900 Series Routers are included in the standard Cisco Technology Migration Program (TMP). Refer to <http://www.cisco.com/go/TMP> and contact your local Cisco account representative for program details.

Warranty Information

The Cisco 1900 Series Integrated Services Routers have a 1-year limited liability warranty.

Cisco and Partner Services for the Branch Office

Services from Cisco and our certified partners can help you reduce the cost and complexity of branch-office deployments. We have the depth and breadth of experience across technologies to architect a blueprint for a branch-office solution to meet your company's needs. Planning and design services align technology with business goals and can increase the accuracy, speed, and efficiency of deployment. Technical services help maintain operational health, strengthen software application functions, solve performance problems, and lower expenses. Optimization services are designed to continually improve performance and help your team succeed with new technologies. For more information, please visit <http://www.cisco.com/go/services>.

Cisco SMARTnet® technical support for the Cisco 1900 Series 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
- Access to the industry's largest dedicated technical support staff 24 hours a day

For More Information

For more information about the Cisco 1900 Series, visit <http://www.cisco.com/go/1900> or contact your local Cisco account representative.



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