Cisco 900 Series Integrated Services Routers

The Cisco® 900 Series Integrated Services Routers (ISRs) combine Internet access, comprehensive security, and wireless services in a single high-performance device that is easy to deploy and manage. They are well suited for deployment as Customer Premises Equipment (CPE) in enterprise small branch offices and in service provider managed-service environments.

Product overview

The Cisco 900 Series ISRs deliver integrated security and threat defense, protecting networks from both known and new Internet vulnerabilities and attacks. These powerful, fixed-configuration routers provide secure broadband and Metro Ethernet connectivity. Service providers offering managed Ethernet WAN services can deploy them in customer locations as CPE. Centralized and remote management capabilities are available through web-based tools and Cisco IOS® Software for full visibility and control of network configurations at the remote site.

The 900 Series ISRs simplify the deployment of Ethernet WAN services, with end-to-end Operations, Administration, and Maintenance (OA&M), Service-Level Agreement (SLA) monitoring and verification, and configuration management.

The Cisco 900 Series ISRs come with a 4-port managed switch, providing LAN ports to connect multiple devices. Figures 1 and 2 show the C921-4P and C926-4P models.

Figure 1.   C921-4P ISR front, back, and top views

Figure 2.   C926-4P ISR front, back, and top views
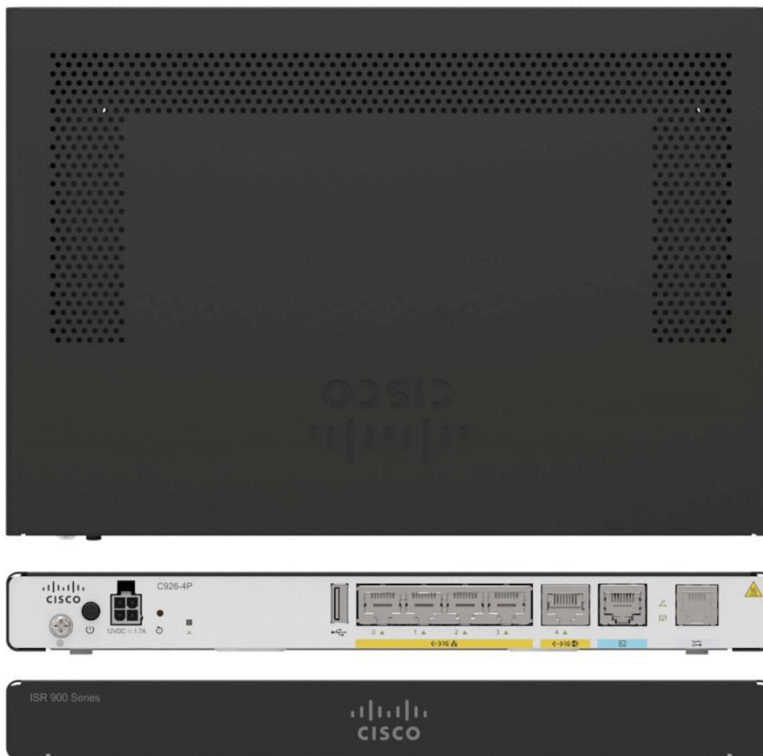
Features and benefits

Table 1 describes some of the business needs enterprises have in branch offices and other edge networking locations and how the Cisco 900 Series ISRs fulfill those requirements.

Table 1.   How the Cisco 900 Series ISRs address edge networking challenges

Business need	Features and descriptions
High availability and business continuity	• Redundant WAN connections for failover protection and load balancing • Dynamic failover protocols such as Virtual Router Redundancy Protocol (VRRP, RFC 2338), Hot Standby Router Protocol (HSRP), and Multigroup HSRP (MHSRP)
Consistent, high application performance levels	• Can run multiple services simultaneously with no performance degradation • High-performance Intel® x86 2.2-GHz CPU
Risk mitigation with multilevel security	• Network perimeter security with integrated application inspection firewall • Data privacy through high-speed IP Security (IPsec) Triple Data Encryption Standard (3DES) and Advanced Encryption Standard (AES) encryption • Enforced security policy with intrusion prevention • Security hardware acceleration • FlexVPN • Next-generation encryption for secure network communications systems, reliable for the next decade
Feature consolidation for real estate, Capital Expenditures (CapEx), and management savings	• Supports LAN connections
Unified control of wired and wireless networks from a common console for streamlined operations	• Simplifies and centralizes configuration and management of wireless and wireline devices
Remote configuration and management to keep local IT staff lean	• Supports separate console ports

Platform support

Table 2 describes the interfaces and integrated capabilities supported by each of the Cisco 900 Series ISR models.

Table 2. Platform support

Model	WAN interfaces	LAN interfaces	Integrated USB 2.0
C921-4P	2 ports Gigabit Ethernet (GE)	4-port GE managed switch	Yes
C931-4P	2 ports GE	4-port GE managed switch	Yes
C927-4P	1 port GE and 1 VADSL (Annex A)	4-port GE managed switch	Yes
C926-4P	1 port GE and 1 VADSL (Annex B/J)	4-port GE managed switch	Yes
C927-4PM	1 port GE and 1 VADSL (Annex M)	4-port GE managed switch	Yes

Product specifications

Table 3 shows Cisco IOS Software features and general system specifications for the 900 Series ISRs.

Table 3. Cisco IOS Software features and system specifications

Feature	Specification
Cisco IOS Software	
IP and IP services	• 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) • L2TP Version 3 (L2TPv3) • Network Address Translation (NAT) • Dynamic Host Configuration Protocol (DHCP) server, relay, and client • Dynamic DNS • DNS Proxy • DNS Spoofing • Access Control Lists (ACLs) • IPv4 and IPv6 multicast • Open Shortest Path First (OSPF) • Border Gateway Protocol (BGP) • Performance Routing (PfR) • Enhanced Interior Gateway Routing Protocol (EIGRP) • Virtual Route Forwarding (VRF) Lite • Next Hop Resolution Protocol (NHRP) • Bidirectional Forwarding Detection (BFD) • Web Cache Communication Protocol (WCCP)
xDSL	• True Multimode VDSL2 and ADSL2+ over Annex A, B, J, and M, including traditional G.DMT and T1.413 • World-class interoperability with industry-standard DSL Access Multiplexer (DSLAM) chipsets • Highest field reliability with Impulse Noise Protection (INP) over Repetitive Electrical Impulse Noise (REIN) and single isolated impulse noise (SHINE), extended INP delay, G.INP, physical layer retransmission, Seamless Rate Adaptation (SRA), and Bitswap • VDSL2 Persistent Storage Device (PSD) profiles up to 17a/b with support for spectral shaping • VDSL2 vectoring to offer blazing fiber speeds over copper • Remote management with TR069 and CWMP • Investment protection with Gigabit Ethernet

Feature	Specification
Switch features	- Auto Media Device In/Media Device Cross Over (MDI-MDX) 25 802.1Q VLANs - MAC filtering - Switched Port Analyzer (SPAN) - Storm control - Smart ports - Secure MAC address - Internet Group Management Protocol Version 3 (IGMPv3) snooping 802.1X
Security features	Secure connectivity: - Secure Sockets Layer (SSL) VPN for secure remote access - Hardware-accelerated DES, 3DES, AES 128, AES 192, and AES 256 - Public-Key-Infrastructure (PKI) support 50 IPsec tunnels - Cisco Easy VPN client and server - NAT transparency - Dynamic Multipoint VPN (DMVPN) - Tunnel-less Group Encrypted Transport VPN (GET VPN) - VRF-aware IPsec - IPsec over IPv6 - Adaptive control technology - Session Initiation Protocol (SIP) application-layer gateway - Cisco IOS Firewall: - Zone-based policy firewall - VRF-aware stateful inspection routing firewall - Stateful inspection transparent firewall - Advanced application inspection and control - HTTPS, FTP, and Telnet Authentication Proxy - Dynamic and static port security - Firewall stateful failover - VRF-aware firewall - Cisco IOS Software black and white lists - Control plane policing - Flexible packet matching - Network foundation protection
Quality of Service (QoS)	- Low-Latency Queuing (LLQ) - Weighted Fair Queuing (WFQ) - Class-Based WFQ (CBWFQ) - Class-Based Traffic Shaping (CBTS) - Class-Based Traffic Policing (CBTP) - Policy-Based Routing (PBR) - Class-Based QoS MIB - Class of Service (CoS)-to-Differentiated Services Code Point (DSCP) mapping - 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)

Feature	Specification
Management	• Cisco Configuration Professional • Cisco Configuration Express • Cisco Configuration Engine support • Cisco AutoInstall • Cisco IP Service-Level Agreement (IP SLA) • Cisco IOS Embedded Event Manager (EEM) • CiscoWorks • Cisco Security Manager • Telnet, Simple Network Management Protocol Version 3 (SNMPv3), Secure Shell (SSH) Protocol, Command-Line Interface (CLI), and HTTP management • RADIUS and TACACS+ • Cisco Next Generation Plug-and-Play (NG PnP) Protocol
High availability	• Virtual Router Redundancy Protocol (VRRP) (RFC 2338) • HSRP • MHSRP
Metro Ethernet	• Ethernet OA&M • Ethernet Local Management Interface (E-LMI) • IP SLA for Ethernet
IPv6	• IPv6 addressing architecture • IPv6 name resolution • IPv6 statistics • IPv6 translation: Transport packets between IPv6-only and IPv4-only endpoints (NAT-Protocol Translation) • Internet Control Message Protocol Version 6 (ICMPv6) • IPv6 DHCP • OSPFv3 • BGP4+ • IPv6 Path Maximum Transmission Unit (PMTU) • IPv6 neighbor discovery • IPv6 stateless address autoconfiguration (SLAAC) • IPv6 multicast routing
Application visibility and control	• NBAR2 • Flexible NetFlow (FNF) • Performance Agent
Number of recommended users	• 50
Default and maximum DRAM	• Default 1 GB
Default and maximum flash memory	• 2 GB on all Cisco 900 Series ISR models; not upgradable
WAN	• Refer to Table 2 for details
LAN switch	• Refer to Table 2 for details
Separate console ports	• RJ-45
USB 2.0	• One USB 2.0 Type A port **Note:** USB 2.0 ports cannot be used for connecting external devices other than those specified at: https://www.cisco.com/en/US/prod/collateral/modules/ps6247/product_data_sheet0900aecd80232473.html.

Feature	Specification

Physical dimensions and weight	Weight: 2.65 lb (1.20 kg) maximum
	Dimensions:
	• C921-4P and C931-4P
	  ◦ H x W x D = 1.70 x 9.0 x 9.5 in. (4.32 x 22.86 x 24.13 cm) (includes rubber feet)
	• C927-4P, C927-4PM, and C926-4P
	  ◦ H x W x D = 1.10 x 10.20 x 7.00 in. (2.80 x 25.91 x 17.78 cm) (includes rubber feet)

Power supply	Power specifications: • AC input voltage: Universal 100 to 240 VAC • Frequency: 50 to 60 Hz • Internal power supply (C921-4P and C931-4P only) • External power adapter (C927-4P, C927-4PM, and C926-4P only): 12 VDC; 30 W

Approvals and compliance	Safety:
	• IEC 60950-1
	• UL 60950-1
	• CAN/CSA C22.2 No. 60950-1
	• EN 60950-1
	• AS/NZS 60950.1
	• Class I Equipment (C921-4P and C931-4P only)
	• Class III Equipment (C927-4P, C927-4PM, and C926-4P only)
	Emissions:
	• 47 CFR Part 15: 2006
	  ◦ CISPR22: Edition 6.0: 2008
	  ◦ CNS13438: 2006
	  ◦ EN 300 386 V1.6.1
	  ◦ EN 55032
	  ◦ EN61000-3-2: 2006 [+ amd 1 & 2]
	  ◦ EN61000-3-3: 2008
	  ◦ ICES-003 Issue 5: 2012
	  ◦ KN 22: 2009
	• TCVN 7189: 2009
	• VCCI: V-3/2012.04
	Immunity:
	• CISPR24: 2010 [+ amd 1 & 2]
	  ◦ EN300386: V1.6.1
	  ◦ EN55024: 2010
	  ◦ EN61000-6-1: 2007
	  ◦ KN24: 2011
	  ◦ TCVN 7317:2003

Environmental operating range	• Nonoperating temperature: -40° to 158°F (-40° to 70°C)
	• Nonoperating humidity: 5% to 95% relative humidity (noncondensing)
	• Nonoperating altitude: 0 to 15,000 ft (0 to 4570 m)
	• Operating temperature:
	  ◦ C921-4P and C931-4P: 0° to 50°C (de-rate 1°C per 1000-ft increase in altitude)
	  ◦ C927-4P, C926-4P, and C927-4PM: 0° to 45°C (de-rate 1°C per 1000-ft increase in altitude)
	• Operating humidity: 5% to 95% relative humidity (noncondensing)
	• Operating altitude: 0 to 10,000 ft (0 to 3000 m)

Cisco IOS Software licensing and packaging

Cisco IOS Universal image

A single Cisco IOS Universal image encompassing all functions is delivered with the platform. Advanced features can be enabled simply by activating a software license on the Universal image. Technology packages and feature licenses, enabled through right-to-use licenses, simplify software delivery and decrease the operational costs of deploying new features.

Three major technology licenses are available on the Cisco 900 Series; these licenses can be activated through the Cisco software activation process identified at https://www.cisco.com/go/sa. The following licenses are available:

- IP Base: This technology package is the default.
- Application Experience (APP): This license includes data and application performance features.
- Security (SEC) or Security with No Payload Encryption (SEC-NPE): This license includes features for securing network infrastructure.

Table 4 lists the part numbers and features for each of the licenses. Table 5 lists the part numbers for the software images.

Table 4.　Licenses

Part number	Bundle	Features
SL-900-IPB	IP Base (default)	Routing protocols, ACL, NAT, QoS, BFD, VRF Lite, IP SLA Responder
SL-900-APP(=)	Application Experience (APP)	IP Base + advanced networking protocols: L2TPv3, MPLS Application Experience: PfRv3, NBAR2, AVC, IP SLA Initiator Hybrid Cloud Connectivity: LISP, Virtual Private LAN Services (VPLS), Ethernet over MPLS
SL-900-SEC(=) SL-900-SECNPE(=)	Security (SEC)	IP Base + Advanced Security: Zone-based firewall, IPsec VPN, DMVPN, FlexVPN, GET VPN, SSL VPN Provides up to 250-Mbps IPsec performance

Table 5.　Software images

Part number	Description
Router software images	
SISR900UK9-1583MB(=)	C900-universalk9-mz: Universal image for C921-4P, C931-4P, C927-4P, C927-4PM, C926-4P
SISR900NPEUK9-1583MB(=)	Cisco 900 ISR Universal image and non-payload encryption image

Ordering information

Table 6 lists the part numbers and Cisco IOS Software image details for each of the Cisco 900 Series ISR models. To place an order, visit the Cisco Ordering Home Page. To download software, visit the Cisco Software Center.

Table 6.　Product part numbers and software images

Part number	Product description
Integrated services routers	
C921-4P	Cisco 921 Gigabit Ethernet security router with internal power supply
C931-4P	Cisco 931 Gigabit Ethernet security router with internal power supply
C927-4P	Cisco 927 Gigabit Ethernet security router with VDSL/ADSL2+ Annex A
C927-4PM	Cisco 927 Gigabit Ethernet security router with VDSL/ADSL2+ Annex M

Part number	Product description
C926-4P	Cisco 926 Gigabit Ethernet security router with VDSL/ADSL2+ Annex B/J
• Cisco C921-4P and C931-4P are supported only on Cisco IOS Software Release 15.8(3)Mb and later • Cisco C927-4P, C927-4PM, and C926-4P are supported only on Cisco IOS Software Release 15.8(3)M1 and later	
Mount kits	
ACS-900-RM-19	Rack-mount kit for 900 Series ISRs [Only for C921-4P, C931-4P]
ACS-900-DM	Under-the-desk mount kit for all 900 Series ISRs [Only for C921-4P, C931-4P]

For additional information and details about Cisco IOS Software licensing and packaging on the 900 Series, please visit:

https://www.cisco.com/c/en/us/support/routers/900-series-integrated-services-routers-isr/products-licensing-information-listing.html

For the Cisco 900 Series ISR Hardware and Software Installation Guide, go to:

https://www.cisco.com/c/en/us/support/routers/900-series-integrated-services-routers-isr/products-installation-guides-list.html

https://www.cisco.com/c/en/us/support/routers/900-series-integrated-services-routers-isr/products-installation-and-configuration-guides-list.html

Cisco and partner services

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, visit https://www.cisco.com/go/services.

Cisco Smart Net Total Care® technical support for the 900 Series ISRs 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 industry's largest dedicated technical support staff

For more information

For more information about the Cisco 900 Series ISRs, visit https://www.cisco.com/go/isr900 or contact your local Cisco account representative.

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