

## Cisco 890 Series Integrated Services Routers

Cisco® 890 Series Integrated Services Routers combine Internet access, comprehensive security, and wireless services in a single, secure device that is easy to deploy and manage (Figure 1). The best-in-class Cisco 890 Series architecture is specifically designed to deliver high performance with concurrent services, business continuity, and investment protection for enterprise small branch offices and service provider-managed services applications.

**Figure 1.** Cisco 890 Series Integrated Services Router with Integrated 802.11n Access Point



### Product Overview

Cisco 890 Series Integrated Services Routers (ISRs) are fixed-configuration routers that provide collaborative business solutions for secure voice and data communications to enterprise small branch offices (Figure 2). They are designed to deliver secure broadband, Metro Ethernet, wireless LAN (WLAN) connectivity, and business continuity. The routers also come with powerful management tools, such as the web-based Cisco Configuration Professional configuration management tool, which simplifies setup and deployment. Centralized management capabilities give network managers visibility and control of the network configurations at the remote site.

Cisco 890 Series Integrated Services Routers offer the following:

- The routers offer high performance for secure broadband and Metro Ethernet access with concurrent services for enterprise small branch offices.
- They provide business continuity and WAN diversity with redundant WAN links: Fast Ethernet (FE), V.92, ISDN Basic Rate Interface (BRI), Gigabit Ethernet (GE), ADSL2+/VDSL (Annex A/B/M), Multimode G.SHDSL, and Small Form-Factor Pluggable (SFP).
- An integrated secure 802.11a/g/n access point (optional) is based on the draft 802.11n standard. Dual-band radios allow for mobility and support for autonomous or Cisco Unified WLAN architectures.
- The routers offer 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 mitigates a wide range of network attacks
  - Web security with Cisco ScanSafe deployment
- The 8-port 10/100 Fast Ethernet managed switch offers VLAN support and 4-port support for Power over Ethernet (PoE) (optional for certain models) to power IP phones or external access points. The Cisco 892FSP, 896VA, 897VA, 898EA, and 891F have an 8-port 10/100/1000 Gigabit Ethernet managed switch with VLAN support. No PoE support is available for the Cisco 892FSP. For the PoE option on the Cisco 896VA, 897VA, 898EA, and 891F models, there is a 125W power supply adapter to power the unit and the 4 PoE ports. On the Cisco 891 and 892 a second 80W power supply adapter provides power to the PoE ports.
- Metro Ethernet features include:
  - One 1000BASE-T Gigabit Ethernet WAN port
  - One 10/100BASE-T Fast Ethernet WAN port on the Cisco 891, 892, and Cisco 891F or 1-port Gigabit Ethernet WAN port on the Cisco 892FSP, 896VA, 897VA, and 898EA
  - One 1-port Gigabit Ethernet SFP socket for WAN connectivity on the Cisco 892F, 892FSP, 896VA, 897VA, 898EA, and 891F  
(**Note:** Only the 1000BASE-T Gigabit Ethernet WAN or the SFP is operational at a given time.)
  - Intelligent hierarchical quality of service (HQoS): Support for hierarchical queuing and shaping
  - Connectivity Fault Management (CFM), based on 802.1ag
  - 802.3ah standards-based link operations, administration, and maintenance (OA&M)
  - Ethernet Local Management Interface (E-LMI) for the customer edge
  - CFM Interworking and backward compatibility
  - Performance management based on IP service-level agreement (SLA) for Ethernet
- Dedicated console and auxiliary ports for configuration and management.
- Two USB 2.0 ports for security eToken credentials, booting, and loading configuration from USB available on the Cisco 891, 892, and 892F.

- Cisco 892FSP, 896VA, 897VA, 898EA, and 891F are fanless, providing a quiet, comfortable working environment in small offices.
- One USB 2.0 port for booting and loading configurations from the USB port is available on the Cisco 892FSP, 896VA, 897VA, 898EA, and 891F.
- Easy to set up and deploy, the Cisco 890 ISRs offer centralized and remote-management capabilities through web-based tools and Cisco IOS® Software.

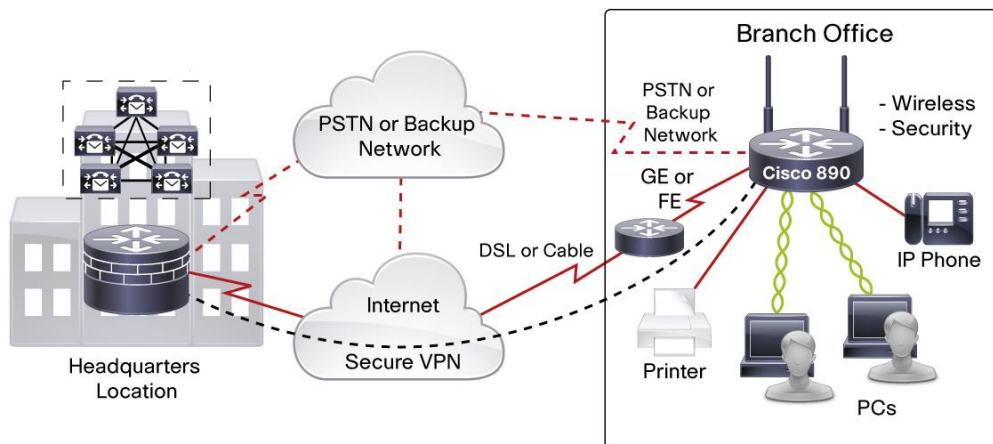
Table 1 summarizes the Cisco 890 Series models.

**Table 1.** Cisco 890 Series Models

Models	WAN Interface	LAN Interfaces	802.11a/g/n Option	Integrated USB 2.0/AUX/Console	Integrated Dial Backup
<b>Cisco 891</b>	1-port GE 1-port FE	8-port 10-/100-Mbps managed switch	Yes	Yes/Yes/Yes	V.92 analog modem
<b>Cisco 892</b>	1-port GE 1-port FE	8-port 10-/100-Mbps managed switch	Yes	Yes/Yes/Yes	ISDN BRI
<b>Cisco 892F</b>	1-port GE or 1-port SFP 1-port FE	8-port 10-/100-Mbps managed switch	Yes	Yes/Yes/Yes	ISDN BRI
<b>Cisco 892FSP</b>	1-port GE or 1-port SFP 1-port GE	8-port 10-/100-/1000-Mbps managed switch	No	Yes/Yes/Yes	No
<b>Cisco 896VA</b>	1-port GE or 1-port SFP VDSL/ADSL2+ Annex B	8-port 10-/100-/1000-Mbps managed switch	No	Yes/Yes/Yes	ISDN
<b>Cisco 897VA</b>	1-port GE or 1-port SFP VDSL/ADSL2+ Annex A/M	8-port 10-/100-/1000-Mbps managed switch	Yes Cisco CleanAir® technology	Yes/Yes/Yes	ISDN (only on Cisco 897VA-K9)
<b>Cisco 898EA</b>	1-port GE or 1-port SFP 4 pair Ethernet in the first mile (EFM)	8-port 10-/100-/1000-Mbps managed switch	No	Yes/Yes/Yes	No
<b>Cisco 891F</b>	1-port GE or 1-port SFP 1-port FE	8-port 10-/100-/1000-Mbps managed switch	Yes Cisco CleanAir technology	Yes/Yes/Yes	V.92 analog modem ISDN BRI

Figure 2 illustrates a typical enterprise small branch-office deployment.

**Figure 2.** Typical Enterprise Small Branch-Office Deployment



## Architecture Features and Benefits

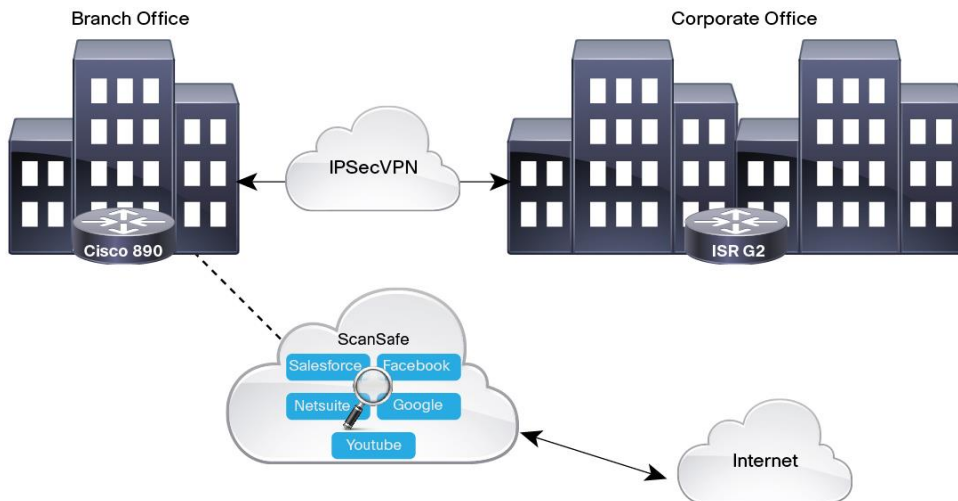
### Secure Network Connectivity

Cisco 890 Series Routers deliver high performance with integrated security and threat defense. Network security has become a fundamental building block of any network, and Cisco routers play an important role in embedding security at the customer's access edge. Cisco recognizes this requirement, so Cisco 890 Series Routers are equipped with security hardware acceleration and Cisco IOS Software (by default, a universal image with Advanced IP Services feature license). This Cisco IOS Software feature set facilitates hardware-based IPsec encryption on the motherboard and provides a robust array of security capabilities such as Cisco IOS Firewall, Cisco ScanSafe Connector, IPS support, IPsec VPNs (DES, 3DES, and AES), SSL VPN, tunnel-less Group Encrypted Transport VPN, DMVPN, Easy VPN server and client support, Secure Shell (SSH) Protocol Version 2.0, and Simple Network Management Protocol (SNMP) in one solution set.

Cisco 890 Series Routers come with a comprehensive security solution that protects organizations' networks from known and new Internet vulnerabilities and attacks while improving employee productivity. Security suite also includes the following:

- **FlexVPN:** Large customers deploying IPsec VPN over IP networks are faced with high complexity and high cost of deploying multiple types of VPN to meet different types of connectivity requirements. Customers often have to learn different type of VPNs to manage and operate different types of networks. And when a technology is selected for a deployment, migrating or adding functions to enhance the VPN is often avoided. FlexVPN was created to simplify the deployment of VPN and address the complexity of multiple solutions, and, as a unified ecosystem, to cover all types of VPNs: remote-access, teleworker, site-to-site, mobility, managed security services, and others.
- **Next-generation encryption (NGE):** Traditional encryption standards (Internet Key Exchange Version 1 [IKEv1], Secure Hash Algorithm1 [SHA-1], etc.) were developed more than a decade ago. They are no longer considered as secure as before. NGE is meant to refresh the existing security protocols to the next level based on the standard Suite-B algorithms such as SHA-2, AES-Galois Counter Mode (AES-GCM), Elliptic Curve Diffie-Hellman (ECDH), Elliptic Curve Digital Signature Algorithm (ECDSA), IKEv2, etc. NGE offers customers secure network communications systems that will be reliable for the next decade.
- **Cisco ISR Web Security with Cisco ScanSafe:** Cisco Cloud Web Security is a cloud-based service designed to prevent zero-day malware from reaching corporate networks, including roaming or mobile users. The Cisco ScanSafe Cloud Web Security solution requires no hardware, initial capital costs, or maintenance and provides unparalleled real-time threat protection (Figure 3). This solution is scalable and easy to maintain, and is ideally suited for small businesses and enterprise small branch offices.

**Figure 3.** Typical Cisco ISR Web Security with Cisco ScanSafe Deployment



### **Metro Ethernet Connectivity**

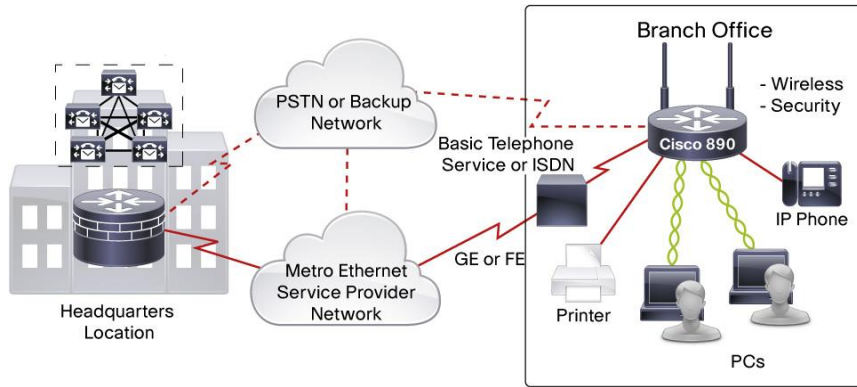
Cisco 890 Series Routers are ideal for service provider deployments as Metro Ethernet customer premises equipment (CPE). The routers also provide failover protection and load balancing. The 8-port managed switch provides enough LAN ports for connecting multiple devices, and the optional PoE capability can supply power to IP phones or other devices. The Cisco 890 Series offers customers significant value by simplifying deployment of Ethernet WAN services with end-to-end OA&M, service-level agreement (SLA) monitoring and verification, and configuration management, resulting in increased operational efficiency and reduced operating expenses (OpEx).

The Cisco 890 Series supports the following Metro Ethernet features:

- E-LMI: Basic configuration for detection and isolation of connectivity in the Metro Ethernet network
- E-LMI: Automated configuration of customer edge based on profiles configured:
  - Layer 2 connectivity management
  - E-LMI for the customer edge
- Metro Ethernet OA&M:
  - Debugging hierarchy of Ethernet networks
  - Layer 2 service performance monitoring
- 802.1agCFM:
  - Standard that uses domains to contain OA&M flows and bound OA&M responsibilities
- 802.3ah: Ethernet in the First Mile (EFM)
  - Three types of packets: Continuity Check, Layer 2 Ping, and Layer 2 Traceroute
- IP SLA for Ethernet

Figure 4 shows a typical small branch-office Metro Ethernet deployment.

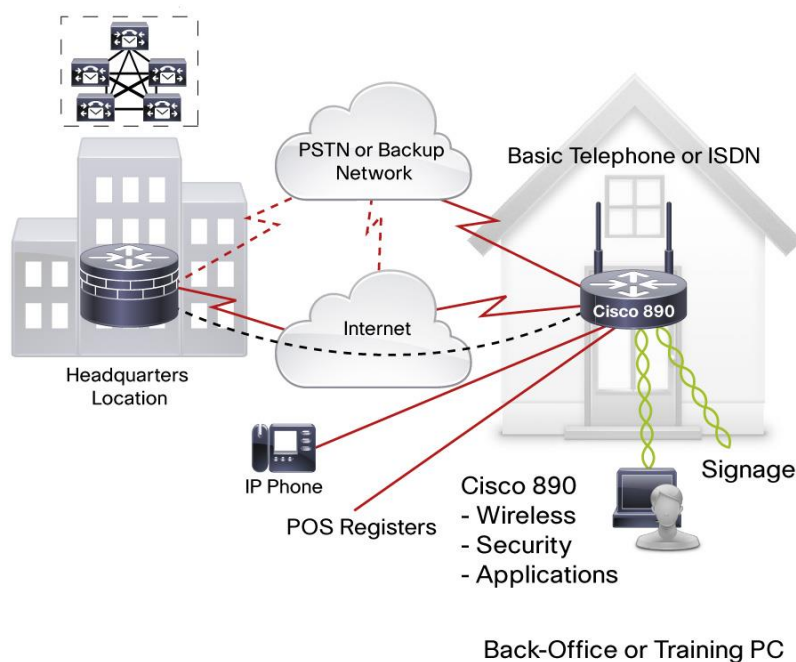
**Figure 4.** Typical Metro Ethernet Deployment



## High Availability

Cisco 890 Series Routers enable customers to deliver high-performance, high-availability, mission-critical business applications (Figure 5). The Cisco IOS Software universal image with Advanced IP Services feature license (default) offers basic and advanced routing capabilities to deliver failover protection and load balancing. These capabilities include Virtual Router Redundancy Protocol (VRRP) (RFC 2338), Hot Standby Router Protocol (HSRP), MultigroupHSRP (MHSRP), and dial backup with external modem through a virtual auxiliary port. Cisco 890 Series Routers are integrated with ISDN BRI (892, 896, and 897 models), a V.92 analog modem (891 model), or a Gigabit Ethernet port for a secondary WAN backup connection. The Cisco 891F supports both the ISDN BRI and a V.92 analog modem with a Fast Ethernet port for a secondary WAN backup connection. If the primary Ethernet-access WAN is disconnected, the router detects this failure and fails over to the secondary backup WAN.

**Figure 5.** High Availability

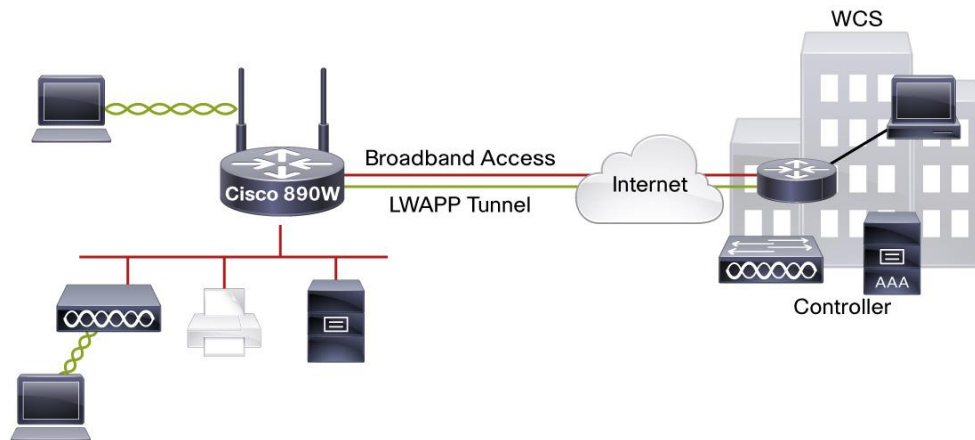


## Integrated Wireless LAN Capability

The Cisco 890 Series is ideal for enterprise small branch offices and small businesses that need to be connected to larger enterprise networks. These routers help extend corporate networks to secure remote sites while giving users access to the same applications found in a corporate office. They provide increased reliability for diversity of wireless data, voice, and video applications. When users require WLAN access, visibility and control of network security are even more critical at the remote site. The Cisco 890 Series meets this need with a single device that combines integrated 802.11a/g/n capabilities with security features such as Wi-Fi Protected Access (WPA), including authentication with IEEE 802.1X with Cisco Extensible Authentication Protocol (LEAP) and Protected EAP (PEAP), and encryption with WPA Temporal Key Integrity Protocol (TKIP). The Cisco 890 Series wireless models that include the integrated access point have full feature parity with the Cisco Aironet® 1250 Series Access Point and can be used in either autonomous or Cisco Unified WLAN modes. In Cisco Unified WLAN mode, as part of an enterprise WLAN architecture, all WLAN functions are centrally managed through Cisco Wireless LAN Controllers and the Cisco Wireless Control System (WCS). The Cisco 897 and 891F with wireless support support Cisco CleanAir technology.

Figure 6 shows a Cisco 890 Series Router deployed in an enterprise small branch-office WLAN application.

**Figure 6.** Enterprise Small Branch-Office WLAN



## Manageability

Cisco 890 Series Routers support a whole suite of management tools to provide ease of use. Tools such as Cisco Configuration Professional use 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).

Table 2 lists the features and benefits of the Cisco 890 Series Routers.

**Table 2.** Features and Benefits of Cisco 890 Series Routers

Feature	Benefit
<b>Increased performance for concurrent services</b>	<ul style="list-style-type: none"> <li>Router performance allows customers to take advantage of broadband network speeds while running secure, concurrent data, voice, video, and wireless services.</li> </ul>
<b>Integrated Gigabit Ethernet, SFP, and Fast Ethernet WAN ports</b>	<ul style="list-style-type: none"> <li>Integrated ports offer flexibility in Ethernet WAN access, and the additional capability to deploy redundant WAN connections for failover protections and load balancing.</li> <li>Refer to Table 1 for details about the WAN interface.</li> </ul>

Feature	Benefit
<b>Option of integrated 8-port 10/100BASE-T managed switch or integrated 8-port 10/100/1000BASE-T managed switch</b>	<ul style="list-style-type: none"> <li>Fully managed LAN switch ports connect multiple LAN devices and reduce the need for an additional LAN switch.</li> <li>The Cisco 891, 892, and 892F support 10/100BASE-T.</li> <li>The Cisco 892FSP, 896VA, 897VA, 898EA, and 891F support 10/100/1000BASE-T.</li> </ul>
<b>Integrated WAN backup</b>	<ul style="list-style-type: none"> <li>Refer to Table 1 for details about the backup WAN interface.</li> </ul>
<b>Real-time clock</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>
<b>Enhanced security</b>	<ul style="list-style-type: none"> <li>An integrated stateful and application inspection firewall provides network perimeter security.</li> <li>High-speed IPsec 3DES and AES encryption offers data privacy over the Internet.</li> <li>Intrusion prevention enforces security policy in a larger enterprise or service provider network.</li> <li>Web Security is supported with Cisco ScanSafe deployments.</li> </ul>
<b>Optional dual-radio or dual-band IEEE 802.11n access point</b>	<ul style="list-style-type: none"> <li>The Cisco 890 Series offers a secure, integrated access point in a single device. It supports both autonomous and unified modes. It is backward-compatible with 802.11a/b/g.</li> <li>The router supports IEEE 802.11n draft 2.0 and uses multiple-input, multiple-output (MIMO) technology that provides increased throughput, reliability, and predictability.</li> <li>Refer to Table 1 for details about Wi-Fi options.</li> </ul>
<b>Separate console, auxiliary, and USB ports</b>	<ul style="list-style-type: none"> <li>One auxiliary and one console port enable remote configuration and management.</li> <li>The router has two USB 2.0 flash memory or security eTokens. Integrated USB ports can be configured to work with an optional USB token for off-platform storage of VPN credentials or for deployment of configurations stored on USB flash-memory devices.</li> </ul>
<b>Unified wireless management</b>	<ul style="list-style-type: none"> <li>Configuration and management of access points is automated and simplified without manual intervention.</li> <li>A unified hybrid remote-edge access point (HREAP) provides the following: <ul style="list-style-type: none"> <li>WLAN services to remote and branch offices without deploying a wireless LAN controller at each location.</li> <li>Central configuration and control of unified WLAN services for remote offices through a WAN link.</li> <li>Flexibility in setting up wireless access at remote locations by specifying how traffic is to be bridged or tunneled.</li> </ul> </li> </ul>
<b>Cisco Configuration Professional</b>	<ul style="list-style-type: none"> <li>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 CLI.</li> </ul>

## Summary

Cisco 890 Series Integrated Services Routers combine increased network performance with advanced security and wireless technology to allow enterprise small branch-office customers to get the most from their broadband connections. Service providers and value-added resellers can take advantage of the Cisco 890 Series to provide a true business-class broadband service. The Cisco 890 Series delivers on the requirements of enterprise small branch offices and managed services providers.

## Product Specifications

Tables 3 and 4 list software and hardware features of the Cisco 890 Series.

**Table 3.** Cisco IOS Software Features on Cisco 890 Series Routers: Advanced IP Features Set (Default)

Feature	Description
<b>IP and IP services features</b>	<ul style="list-style-type: none"> <li>Routing Information Protocol Versions 1 and 2 (RIPv1 and RIPv2)</li> <li>Generic routing encapsulation (GRE) and multipoint GRE (MGRE)</li> <li>Cisco Express Forwarding</li> <li>Standard 802.1d Spanning Tree Protocol</li> <li>Layer 2 Tunneling Protocol (L2TP)</li> <li>Layer 2 Tunneling Protocol Version 3 (L2TPv3)</li> <li>Network Address Translation (NAT)</li> <li>Dynamic Host Configuration Protocol (DHCP) server, relay, and client</li> <li>Dynamic Domain Name System (DNS)</li> <li>DNS Proxy</li> </ul>




Feature	Description
	<ul style="list-style-type: none"> <li>• DNS Spoofing</li> <li>• Access control lists (ACLs)</li> <li>• IPv4 and IPv6 Multicast</li> <li>• Open Shortest Path First (OSPF)</li> <li>• Border Gateway Protocol (BGP)</li> <li>• Performance Routing (PfR)</li> <li>• Enhanced Interior Gateway Routing Protocol (EIGRP)</li> <li>• Virtual Route Forwarding (VRF) Lite</li> <li>• Next Hop Resolution Protocol (NHRP)</li> <li>• Bidirectional Forwarding Detection (BFD)</li> <li>• Web Cache Communication Protocol (WCCP)</li> </ul>
<b>xDSL</b>	<ul style="list-style-type: none"> <li>• True Multimode VDSL2/ADSL2+ over Annex A, B, J, and M including traditional G.DMT and T1.413</li> <li>• World-class interoperability with industry-standard DSL access multiplexer (DSLAM) chipsets</li> <li>• Highest field reliability with Impulse Noise Protection over REIN/SHINE, Extended INP-Delay, G.INP, Physical Layer Retransmission, SRA, and Bitswap</li> <li>• VDSL2 PSD Profiles upto 17a/b with support for Spectral Shaping</li> <li>• VDSL2 Vectoring to offer blazing fiber speeds over copper</li> <li>• Support for 4-pair multimode G.SHDSL; that is, ATM and EFM</li> <li>• Remote management with TR069/CWMP</li> <li>• Investment protection with GE/SFP for Future Fiber that could replace xDSL deployment</li> </ul>
<b>Switch features</b>	<ul style="list-style-type: none"> <li>• Auto Media Device In/Media Device Cross Over (MDI-MDX)</li> <li>• 14 802.1Q VLANs</li> <li>• MAC filtering</li> <li>• Four-port 802.3af and Cisco compliant PoE</li> <li>• Switched Port Analyzer (SPAN)</li> <li>• Storm Control</li> <li>• Smart ports</li> <li>• Secure MAC address</li> <li>• Internet Group Management Protocol Version 3 (IGMPv3) snooping</li> <li>• 802.1x</li> </ul>
<b>Security features</b>	<p>Secure connectivity:</p> <ul style="list-style-type: none"> <li>• SSL VPN for secure remote access</li> <li>• Hardware-accelerated DES, 3DES, AES 128, AES 192, and AES 256</li> <li>• Public-key-infrastructure (PKI) support</li> <li>• Fifty IPsec tunnels</li> <li>• Cisco Easy VPN Client and Server</li> <li>• NAT transparency</li> <li>• DMVPN</li> <li>• Tunnel-less Group Encrypted Transport VPN</li> <li>• IPsec stateful failover</li> <li>• VRF-aware IPsec</li> <li>• IPsec over IPv6</li> <li>• Adaptive control technology</li> <li>• Session Initiation Protocol (SIP) application-layer gateway</li> <li>• Cisco IOS Firewall: <ul style="list-style-type: none"> <li>◦ Zone-Based Policy Firewall</li> <li>◦ VRF-aware stateful inspection routing firewall</li> <li>◦ Stateful inspection transparent firewall</li> </ul> </li> <li>• Advanced application inspection and control</li> <li>• Secure HTTP (HTTPS), FTP, and Telnet Authentication Proxy</li> <li>• Dynamic and static port security</li> <li>• Firewall stateful failover</li> <li>• VRF-aware firewall</li> <li>• Cisco ScanSafe Connector</li> <li>• Cisco IOS Software black and white lists</li> <li>• Integrated threat control:</li> </ul>

Feature	Description
	<ul style="list-style-type: none"> <li>◦ IPS</li> <li>• Control Plane Policing</li> <li>• Flexible Packet Matching</li> <li>• Network foundation protection</li> </ul>
<b>QoS features</b>	<ul style="list-style-type: none"> <li>• Low-Latency Queuing (LLQ)</li> <li>• Weighted Fair Queuing (WFQ)</li> <li>• Class-Based WFQ (CBWFQ)</li> <li>• Class-Based Traffic Shaping (CBTS)</li> <li>• Class-Based Traffic Policing (CBTP)</li> <li>• Policy-Based Routing (PBR)</li> <li>• Class-Based QoS MIB</li> <li>• Class of service (CoS)-to-differentiated services code point (DSCP) mapping</li> <li>• Class-Based Weighted Random Early Detection (CBWRED)</li> <li>• Network-Based Application Recognition (NBAR)</li> <li>• Link fragmentation and interleaving (LFI)</li> <li>• Resource Reservation Protocol (RSVP)</li> <li>• Real-Time Transport Protocol (RTP) header compression (cRTP)</li> <li>• Differentiated Services (DiffServ)</li> <li>• QoS preclassify and prefragmentation</li> <li>• HQoS</li> </ul>
<b>Management features</b>	<ul style="list-style-type: none"> <li>• Cisco Configuration Professional</li> <li>• Cisco Configuration Express</li> <li>• Cisco Configuration Engine support</li> <li>• Cisco AutoInstall</li> <li>• IP SLA</li> <li>• Cisco IOS Embedded Event Manager (EEM)</li> <li>• CiscoWorks</li> <li>• Cisco Security Manager</li> <li>• Telnet, SNMPv3, SSH, CLI, and HTTP management</li> <li>• RADIUS and TACACS+</li> <li>• Out-of-band management with ISDN S/T port or external modem through a virtual auxiliary port on models supporting those interfaces; refer to Table 1 for details</li> <li>• Cisco Wireless Control System (WCS) for management of unified access points in models supporting WLAN; on models supporting WLAN, refer to Table 1 for details</li> </ul>
<b>High-availability features</b>	<ul style="list-style-type: none"> <li>• Virtual Router Redundancy Protocol (VRRP) (RFC 2338)</li> <li>• HSRP</li> <li>• MHSRP</li> <li>• Dial backup with external modem through virtual auxiliary port</li> <li>• Dial backup with ISDN S/T or V.92 Analog modem port</li> </ul>
<b>Metro Ethernet features</b>	<ul style="list-style-type: none"> <li>• Ethernet OA&amp;M</li> <li>• E-LMI</li> <li>• IP SLA for Ethernet</li> </ul>
<b>IPv6 features</b>	<ul style="list-style-type: none"> <li>• IPv6 addressing architecture</li> <li>• IPv6 name resolution</li> <li>• IPv6 statistics</li> <li>• IPv6 translation: Transport packets between IPv6-only and IPv4-only endpoints NAT-PT)</li> <li>• Internet Control Message Protocol Version 6 (ICMPv6)</li> <li>• IPv6 DHCP</li> <li>• OSPFv3</li> <li>• BGP4+</li> <li>• IPv6 path maximum transmission unit (PMTU)</li> <li>• IPv6 Neighbor Discovery</li> <li>• IPv6 stateless address autoconfiguration (SLAAC)</li> <li>• IPv6 Multicast Routing</li> </ul>

Feature	Description
<b>Unified WLAN management</b>	<ul style="list-style-type: none"> <li>Unified access point features: <ul style="list-style-type: none"> <li>Supported by wireless LAN controller and Cisco WCS</li> </ul> </li> <li>Configurable local or central switching for HREAP mode</li> <li>Radio management through Cisco WCS</li> <li>Transparent roaming with mobility groups</li> </ul>
<b>Application visibility and control</b>	<ul style="list-style-type: none"> <li>Cisco Wide Area Application Services (WAASx)</li> <li>NBAR2</li> <li>Flexible NetFlow (FNF)</li> <li>Performance Agent</li> </ul>
<b>Number of recommended users</b>	50

**Table 4.** Cisco IOS Software Features on Cisco 890 Series Routers: WLAN Features (Available with Wireless Option)


Feature	Description
<b>Standard 802.11 a/g/n access point</b>	Optional on Cisco 890 Series models
<b>WLAN hardware</b>	<ul style="list-style-type: none"> <li>Support for CleanAir technology on Cisco 897 and 891F</li> <li>Automatic rate selection for 802.11a/g/n</li> <li>Noncaptive RPTNC omnidirectional dipole antennae; 2-dBi gain @ 2.4 GHz, 5-dBi gain @ 5 GHz</li> <li>2 x 3 MIMO radio operation</li> <li>Wi-Fi 802.11n Draft v2.0 certified</li> </ul>
<b>WLAN software features</b>	<ul style="list-style-type: none"> <li>Autonomous or unified access point</li> <li>Cisco WCS support for monitoring of autonomous-mode access points</li> <li>Option to maximize throughput or maximize range</li> <li>Software-configurable transmit power</li> <li>Radio roles, including access point, root bridge, nonroot bridge, and workgroup bridge</li> <li>Wi-Fi Multimedia (WMM) certification</li> <li>Traffic specifications (TSPec) Call Admission Control (CAC) to ensure voice quality is maintained</li> <li>Unscheduled Automatic Power Save Delivery (UPSD) to reduce latency</li> </ul>
<b>WLAN security features</b>	<ul style="list-style-type: none"> <li>Standard 802.11i</li> <li>WPA and AES (WPA2)</li> <li>EAP authentication: Cisco LEAP, PEAP, Extensible Authentication Protocol Transport Layer Security (EAP-TLS), Extensible Authentication Protocol-Flexible Authentication via Secure Tunneling (EAP-FAST), Extensible Authentication Protocol-Subscriber Information Module (EAP-SIM), Extensible Authentication Protocol-Message Digest Algorithm 5 (EAP-MD5), and Extensible Authentication Protocol-Tunneled TLS (EAP-TTLS)</li> <li>Static and dynamic Wired Equivalent Privacy (WEP)</li> <li>TKIP/Simple Security Network (TKIP/SSN) encryption</li> <li>MAC authentication and filter</li> <li>User database for survivable local authentication using LEAP and EAP-FAST</li> <li>Configurable limit to the number of wireless clients</li> <li>Configurable RADIUS accounting for wireless clients</li> <li>Preshared keys (PSKs) (WPA-small office or home office [WPA-SOHO])</li> </ul>
<b>Certifications</b>	
<b>Service Set Identifiers (SSIDs) and Multiple Broadcast SSIDs</b>	16
<b>Wireless VLANs</b>	14 (encrypted and nonencrypted VLANs)

## System Specifications

Table 5 lists the system specifications for Cisco 890 Series Integrated Services Routers.

**Table 5.** System Specifications

Feature	Specification
<b>Default and maximum DRAM</b>	<ul style="list-style-type: none"> <li>• 512 and 768 MB, respectively, on Cisco 891 and 892 Series data models; upgrade option available</li> <li>• 512 MB on Cisco 892F</li> <li>• Up to 1 GB on Cisco 892FSP, 896VA, 897VA, 898EA, and 891F data models; upgrade option available</li> </ul>
<b>Default and maximum flash memory</b>	<ul style="list-style-type: none"> <li>• 256 on all Cisco 890 models; not upgradable</li> </ul>
<b>WAN</b>	<ul style="list-style-type: none"> <li>• Refer to Table 1 for details</li> </ul>
<b>LAN switch</b>	<ul style="list-style-type: none"> <li>• Refer to Table 1 for details</li> </ul>
<b>Separate console and auxiliary ports</b>	<ul style="list-style-type: none"> <li>• RJ-45</li> </ul>
<b>USB 2.0</b>	<ul style="list-style-type: none"> <li>• Two USB 2.0 ports available on Cisco 891, 892, and 892F models</li> <li>• One USB 2.0 port available on Cisco 892FSP, 896VA, 897VA, 898EA, and 891F</li> <li>• USB devices supported: <ul style="list-style-type: none"> <li>◦ USB eTokens on Cisco 891, 892, and 892F only</li> <li>◦ USB flash memory</li> </ul> </li> </ul> <p><b>Note:</b> USB 2.0 ports cannot be used for connecting external devices other than those specified at: <a href="http://www.cisco.com/en/US/prod/collateral/modules/ps6247/product_data_sheet0900aecd80232473.html">http://www.cisco.com/en/US/prod/collateral/modules/ps6247/product_data_sheet0900aecd80232473.html</a>.</p>
<b>ISDN BRI S/T</b>	<ul style="list-style-type: none"> <li>• Refer to Table 1 for details</li> </ul>
<b>Inline PoE</b>	<ul style="list-style-type: none"> <li>• Optional internal adapter for inline PoE on 4 switch ports for IP phones or external wireless access points; 802.3af compliant and Cisco PoE compliant</li> <li>• No PoE support on Cisco 892FSP</li> </ul>
<b>Wireless specifications</b>	2.4 and 5 GHz
<b>Data rates supported</b>	<ul style="list-style-type: none"> <li>• 802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps</li> <li>• 802.11b: 1, 2, 5.5, 6, 9, and 11 Mbps</li> <li>• 802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps</li> <li>• 802.11n: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, 54, and m0-m15</li> </ul>
<b>Maximum transmit power (2-channel aggregate)</b>	<ul style="list-style-type: none"> <li>• 802.11a: 15dBm</li> <li>• 802.11b: 20 dBm</li> <li>• 802.11g: 17 dBm</li> <li>• 802.11n: 16 dBm</li> </ul> <p><b>Note:</b> Maximum power setting is subject to change by channel and by region, depending on regulations.</p>
<b>Physical dimensions and weight</b>	<p>Product dimensions:</p> <p>Cisco 891, 892, and 892F:</p> <p>Nonwireless models:</p> <ul style="list-style-type: none"> <li>• H x W x D = 1.9 x 12.8 x 9.8 in. (4.8 x 32.5 x 24.9 cm) (includes rubber feet)</li> <li>• H x W x D = 1.75 x 12.8 x 9.8 in. (4.5 x 32.5 x 24.9 cm) (without rubber feet)</li> </ul> <p>Wireless models:</p> <ul style="list-style-type: none"> <li>• H x W x D = 1.9 x 12.8 x 10.4 in. (4.8 x 32.5 x 26.4 cm) (includes rubber feet)</li> <li>• H x W x D = 1.75 x 12.8 x 10.4 in. (4.5 x 32.5 x 26.4 cm) (without rubber feet; excludes antennas)</li> <li>• Weight: 5.5 lb (2.5 kg) maximum</li> </ul> <p>Cisco 892FSP, 896VA, 897VA, 898EA and 891F:</p> <ul style="list-style-type: none"> <li>• H x W x D = 1.82 x 12.71 x 9.78 in. (4.62 x 32.28 x 24.84 cm) (includes rubber feet)</li> <li>• H x W x D = 1.75 x 12.71 x 9.78 in. (4.45 x 32.28 x 24.84 cm) (without rubber feet)</li> </ul>

Feature	Specification
<b>External power supply</b>	Product power specifications: AC input voltage: Universal 100 to 240 VAC Frequency: 50 to 60 Hz Maximum output power: 60W Output voltages: 12 VDC Optional POE: Separate 80W POE power supply for Cisco 891 and 892 ISRs Single 125W power supply required for Cisco 896, 897, 898 and 891F for router and PoE External output voltage: 48 VDC
<b>Approvals and compliance</b>	<ul style="list-style-type: none"> <li>• Emission               <ul style="list-style-type: none"> <li>• 47 CFR Part 15: 2006                   <ul style="list-style-type: none"> <li>◦ CISPR22: 2005</li> <li>◦ EN300386: V1.3.3: 2005</li> <li>◦ EN55022: 2006</li> <li>◦ EN61000-3-2: 2000 [Inc amd 1 &amp; 2]</li> <li>◦ EN61000-3-3: 1995 [+ amd 1: 2001]</li> <li>◦ ICES-003 Issue 4: 2004</li> <li>◦ KN 22: 2005</li> <li>◦ VCCI: V-3/2006.04</li> </ul> </li> </ul> </li> <li>• Immunity               <ul style="list-style-type: none"> <li>• CISPR24: 1997 [+ amd 1 &amp; 2]                   <ul style="list-style-type: none"> <li>◦ EN300386: V1.3.3: 2005</li> <li>◦ EN50082-1: 1992</li> <li>◦ EN50082-1: 1997</li> <li>◦ EN55024: 1998 [+ amd 1 &amp; 2]</li> <li>◦ EN61000-6-1: 2001</li> </ul> </li> </ul> </li> </ul>
<b>Certifications</b>	
<b>Environmental operating range</b>	<ul style="list-style-type: none"> <li>• Nonoperating temperature: -4 to 149°F (-0 to 65°C)</li> <li>• Nonoperating humidity: 5 to 95% relative humidity (noncondensing)</li> <li>• Nonoperating altitude: 0 to 15,000 ft (0 to 4570m)</li> <li>• Operating temperature: 32 to 104°F (0 to 40°C)</li> <li>• Operating humidity: 10 to 85% relative humidity (noncondensing)</li> <li>• Operating altitude: 0 to 10,000 ft (0 to 3000m)</li> </ul>

## Ordering Information

To place an order, visit the [Cisco Ordering Home Page](#).

For more information about the Cisco 890 Series, visit <http://www.cisco.com/go/800>. Table 6 lists the ordering information for Cisco 890 Series Integrated Services Routers and other available options.

**Table 6.** Ordering Information

Product Part Number	Product Description
<b>Integrated Services Routers</b>	
<b>CISCO891-K9</b>	Cisco 891 Gigabit Ethernet security router
<b>CISCO891W-AGN-A-K9</b>	Cisco 891W Gigabit Ethernet security router with 802.11n, FCC compliant
<b>CISCO891W-AGN-N-K9</b>	Cisco 891W Gigabit Ethernet security router with 802.11n, Australia compliant
<b>CISCO892-K9</b>	Cisco 892 Gigabit Ethernet security router
<b>CISCO892W-AGN-E-K9</b>	Cisco 892W Gigabit Ethernet security router with 802.11n, ETSI compliant

Product Part Number	Product Description
<b>CISCO892F-K9</b>	Cisco 892 Gigabit Ethernet security router with SFP
<b>CISCO892FW-A-K9</b>	Cisco 892 Gigabit security router with SFP and 802.11n, FCC compliant
<b>CISCO892FW-E-K9</b>	Cisco 892 Gigabit security router with SFP and 802.11n, ETSI compliant
<b>C892FSP-K9</b>	Cisco 892FSP Gigabit Ethernet security router with SFP
<b>C896VA-K9</b>	Cisco 896VA Gigabit Ethernet security router with SFP and VDSL/ADSL2+ Annex B
<b>C897VA-K9</b>	Cisco 897VA Gigabit Ethernet security router with SFP and VDSL/ADSL2+ Annex A
<b>C897VAW-A-K9</b>	Cisco 897 VA Gigabit Ethernet security router with SFP and VDSL/ADSL2+ Annex A with Wireless
<b>C897VAW-E-K9</b>	Cisco 897VA Gigabit Ethernet security router with SFP and VDSL/ADSL2+ Annex A with Wireless
<b>C897VA-M-K9</b>	Cisco 897VA Gigabit Ethernet security router with SFP and VDSL/ADSL2+ Annex M
<b>C897VAM-W-E-K9</b>	Cisco 897VA Gigabit Ethernet security router with SFP and VDSL/ADSL2+ Annex M with Wireless
<b>C898EA-K9</b>	Cisco 898EA Gigabit Ethernet security router with SFP and 4 channel multimode G.SHDSL (EFM/ATM)
<b>C891F-K9</b>	Cisco 891F Gigabit Ethernet security router with SFP
<b>C891FW-A-K9</b>	Cisco 891F Gigabit Ethernet security router with SFP and Dual Radio 802.11n Wifi for FCC -A domain
<b>C891FW-E-K9</b>	Cisco 891F Gigabit Ethernet security router with SFP and Dual Radio 802.11n Wifi for ETSI -E domain
*Cisco 892FSP is supported only on Cisco IOS Software Release 15.2(4)M and later Cisco 896, 897, 898EA is supported only on Cisco IOS Software Release 15.2(4)M1 and later Cisco 891F is supported only on Cisco IOS Software Release 15.3(3)M2, 15.4(1)T and later	
<b>Memory Options</b>	
<b>MEM8XX-512U768D</b>	512 MB DRAM upgrade to 768 MB for Cisco 891 and 892models
<b>MEM8XX-512U1GBD</b>	512 MB DRAM upgrade to 1 GB for Cisco 892F
<b>FL-8XX-512U1GB</b>	512 MB DRAM upgrade to 1 GB for Cisco 892FSP, 896VA, 897VA, 898EA, 891F model (Feature License)
<b>Router Software</b>	
<b>Image</b>	C890-universalk9-mz: Universal image for Cisco 891, Cisco 892 and Cisco 892F C800-universalk9-mz: Universal image for Cisco 892FSP, 896VA, 897VA, 898EA, 891F
<b>Access Point Software</b>	
<b>ap801-k9w7-tar</b>	Autonomous software image for ap801
<b>ap801-rcvk9w8-tar</b>	Lightweight Access Point Protocol (LWAPP) recovery image for ap801
<b>ap802-k9w7-tar</b>	Autonomous software image for ap802
<b>ap802-rcvk9w8-tar</b>	Lightweight Access Point Protocol (LWAPP) recovery image for ap802
<b>Power over Ethernet Options</b>	
<b>800-IL-PM-4</b>	4-port 802.3af capable internal power module for Cisco 891, Cisco 892, Cisco 892F, C896, C897, C898, C891F routers
<b>Security Services</b>	
<b>Scan SafeCloud Web Security</b>	
<b>ScanSafe Connector</b>	<a href="http://www.cisco.com/en/US/prod/vpndevc/ps6525/ps6538/ps6540/isr_web_security.html">http://www.cisco.com/en/US/prod/vpndevc/ps6525/ps6538/ps6540/isr_web_security.html</a> .
<b>SSL</b>	
<b>FL-SSLVPN25-K9</b>	Feature license SSLVPN for up to 25 users (incremental), for 15.x based Cisco IOS Software releases only
<b>Supported SFP Types on the Cisco 892F (*) Series and Cisco 892FSP, 896VA, 897VA, 898EA, 891F</b>	
<b>GLC-LH-SM</b>	1000BASE-LX/LHSFP transceiver module for MMF and SMF, 1300-nm wavelength, dual LC/PC connector
<b>GLC-SX-MM</b>	1000BASE-SXSFP transceiver module for MMF, 850-nm wavelength, dual LC/PC connector
<b>GLC-ZX-SM</b>	1000BASE-ZXSFP transceiver module for SMF, 1550-nm wavelength, dual LC/PC connector
<b>GLC-BX-D</b>	1000BASE-BX10SFP module for single-strand SMF, 1490-nm TX/1310-nm RX wavelength, single LC/PC connector
<b>GLC-BX-U</b>	1000BASE-BX10SFP module for single-strand SMF, 1310-nm TX/1490-nm RX wavelength, single LC/PC connector

Product Part Number	Product Description
<b>GLC-T</b>	1000BASE-T standard
<b>GLC-GE-100FX(*)</b>	Cisco 100BASE-FX SFP for Gigabit Ethernet SFP ports with multimode fiber-optic (MMF) link
<b>GLC-FE-100LX(*)</b>	Cisco 100BASE-LX10SFP with single-mode fiber-optic (SMF) link
<b>GLC-FE-100BX-U(*)</b>	100BASE-BX10-U SFP module for 100-MB ports, 1310 nm TX/1550 nm RX wavelength, 10 km over single-strand SMF
<b>GLC-FE-100BX-D(*)</b>	100BASE-BX10-D SFP module for 100-MB ports, 1550 nm TX/1310 nm RX wavelength, 10 km over single-strand SMF
<b>CWDM-SFP-1470=(*)</b>	Cisco Coarse-Wavelength Division Multiplexing (CWDM) 1470-nm SFP Gigabit Ethernet and 1G/2GFibre Channel
<b>Rack Mount Kit for 890</b>	
<b>ACS-890-RM-19</b>	Rackmount kit for 890
<b>WAASX Feature License</b>	
<b>FL-C890-WAASX</b>	WAASx Feature License

(\*) Supported only on Cisco 892F. For more information regarding Cisco 890 Series Routers and options, contact your local Cisco representative or visit: <http://www.cisco.com/go/800>. To upgrade the Cisco IOS Software for the Cisco 890 Series, visit the [Cisco Software Center](#).

Table 7 gives the Cisco IOS Software images for the Cisco 891 and 892 Integrated Services Routers.

**Table 7.** Cisco IOS Software Images for Cisco 890 Series

Series	Models	Image	Default Feature License	First Cisco IOS Software Release
<b>Router Software</b>				
<b>Cisco 890 Series</b>	Cisco 891 and 892 models	C890-universalk9-mz	SL-890-AIS (Advanced IP Services Image feature)	12.4(22)YB and will be in 15.0[1]m. S890VK9-12422YB
<b>Cisco 892F Series</b>	Cisco 892F	C890-universalk9-mz	SL-890-AIS (Advanced IP Services Image feature)	15.1(2)T2 S890VK9- 15102T2
<b>Cisco 892FSP Series</b>	Cisco 892FSP	C800-universalk9-mz	SL-890-AIS (Advanced IP Services Image feature)	15.2(4)M S89UK9-15204M
<b>Cisco 896VA, 897VA, and 898EA</b>	Cisco 896VA, 897VA, and 898EA	C800-universalk9-mz	SL-890-AIS (Advanced IP Services Image feature)	15.2(4)M1
<b>Cisco 891F Series</b>	Cisco 891F	C800-universalk9-mz	SL-890-AIS (Advanced IP Services Image feature)	15.3(3)M2 and 15.4(1)T
<b>Access Point Software</b>				
<b>ap801</b>	Cisco 891 and 892 models	ap801-k9w7-tar ap801-rcvk9w8-tar (LWAPP recovery software)	-	12.4(10b)JA3
<b>ap802</b>	Cisco 897 and 891F models	ap802-k9w7-tar ap802-rcvk9w8-tar(LWAPP recovery software)	-	-

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## Cisco Services

### Cisco Services for the Branch Office

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Cisco SMARTnet<sup>®</sup> technical support for the Cisco 890 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
- 24-hour access to the industry's largest dedicated technical support staff

### For More Information

For more information about the Cisco 890 Series Integrated Services Routers, visit <http://www.cisco.com/go/800> or contact your local Cisco account representative.

For more information about Cisco products, contact:

- United States and Canada: 800 553-NETS (6387)
- Europe: 32 2 778 4242
- Australia: 61 2 9935 4107
- Other: 408 526-7209
- Web: <http://www.cisco.com>



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