

Cisco WRP500 Wireless-AC Broadband Router

Cisco Small Business Voice Gateways and ATAs

The Cisco® WRP500 Wireless-AC Broadband Router is an all-in-one broadband router with concurrent dual-band 802.11/ac/n/b/g Wi-Fi interfaces, a network security firewall, 4-port network switch, and 2 phone ports. It is an impressive and versatile networking solution that offers advanced triple-play services prioritization in a single intelligent, compact device (Figure 1).

Features and Benefits

- This all-in-one broadband router offers concurrent dual-band interfaces.
- Two standard phone ports enable feature-rich telephone service over a broadband Internet connection with advanced voice quality of service (QoS).
- Simple, highly secure wireless capability is easy to configure, with industry-standard push-button setup, MAC address filtering, and eight service set identifiers (SSIDs) on a dual-band interface.
- The router allows you to share a mobile broadband network connection among several Wi-Fi clients with compatible third- and fourth-generation (3G and 4G, respectively) USB broadband modems.

Table 1. Key Features

<p>Provisioning: Support for TR-069 and TR-104 provisioning.</p>
<p>Toll-quality voice and carrier-grade feature support: The Cisco WRP500 delivers clear, high-quality voice communication in diverse network conditions. Excellent voice quality in a demanding IP network is consistently achieved with an advanced implementation of standard voice-coding algorithms. The WRP500 is interoperable with common telephony equipment such as voicemail, fax, and interactive-voice-response (IVR) systems.</p>
<p>Large-scale deployment and management: The WRP500 offers important features and capabilities that enable service providers to provide customized services to their subscribers. It can be remotely provisioned, and it supports dynamic, in-service software upgrades (ISSU). The ability to perform highly secure profile uploads saves providers the time and expense of managing and preconfiguring or reconfiguring customer premises equipment (CPE).</p>
<p>Ironclad security: Cisco understands that security for both end users and service providers is a fundamental requirement for a solid, carrier-grade telephony service. The Cisco WRP500 supports highly secure, encryption-based methods for communication, provisioning, and servicing.</p>

Figure 1. Cisco WRP500 Wireless-AC Broadband Router with 2 Phone Ports



Product Overview

Whether it's broadband Internet connectivity, voice over IP (VoIP), or bandwidth-intensive applications such as multimedia gaming, streaming media, or IPTV, the innovative Cisco WRP500 provides users with concurrent dual-band 802.11ac/n/b/g Wi-Fi interfaces with the QoS capabilities they need to support the latest generation of applications.

The WRP500 also includes a built-in, 4-port, full-duplex, 10/100/1000M Ethernet switch to connect personal computers directly or to attach additional hubs and switches. A robust firewall helps protect local computers and prevents malicious attacks from outside intruders. Two telephone ports enable high-quality feature-rich VoIP service using existing analog phones.

When mobile, take the Cisco WRP500 along with you to remote locations and share your mobile broadband network connection with your colleagues using a compatible USB broadband modem and support for 3G and 4G. At the office, the mobile broadband network can be configured on the Cisco WRP500 as an auto-failover and recovery connection if the Ethernet WAN port loses Internet connectivity.

As the center of a home or small business network, the Cisco WRP500 Wireless-AC Broadband Router with 2 phone ports can help provide a high-quality online experience with fault-tolerant data delivery; exceptional voice quality; and continuous, uninterrupted streaming media.

Specifications

Table 1 contains the specifications, package contents, and minimum requirements for the Cisco WRP500 Wireless-AC Broadband Router with 2 phone ports.

Table 2. Specifications for Cisco WRP500 Wireless-G Broadband Router with 2 Phone Ports

Hardware
<ul style="list-style-type: none">• One WAN 10/100/1000BASE-T Gigabit Ethernet port• Four LAN 10/100/1000BASE-T Gigabit Ethernet ports• Two RJ-11 foreign-exchange-station (FXS) phone ports for analog circuit telephone devices• Concurrent dual-band 802.11ac/n/b/g wireless access point supporting both voice and data applications• One USB 2.0 port (support for 3G and 4G mobile broadband modems^{***}, available separately)• Reset button to restore factory defaults• LEDs: Power, Internet, Ethernet, Wireless, Phone(s), Wi-Fi Protected Setup (WPS), and USB• Power: External, 12 VDC, and 1.67A (full-range switching power adapter)• WPS button
Software
<ul style="list-style-type: none">• Static and dynamic routing (Routing Information Protocol Versions 1 and [RIPv1 and v2, respectively])• Auto-failover and recovery of Ethernet WAN connection enabled with USB mobile broadband modem^{***}• IP Multicast pass-through and IP Multicast support through Network Address Translation (NAT)• Denial-of-service (DoS) prevention (ping of death, SYN flood, and IP spoofing)• Web-based configuration• VPN pass-through with IP Security (IPsec), Layer 2 Tunneling Protocol (L2TP), and Point-to-Point Tunneling Protocol (PPTP)• IPsec VPN tunneling• Event logging• Dynamic Host Configuration Protocol (DHCP) server• Access control lists (ACLs)• Universal Plug and Play (UPnP)• Password-protected configuration or management sessions for web access• Remote management (Session Initiation Protocol [SIP] SUBSCRIBE and NOTIFY messages; use NOTIFY message to reset the box remotely and remote web management)• Internet Group Management Protocol (IGMP) Multicast and IGMP Proxy (Versions 1, 2, and 3) support

- 802.1p prioritization QoS support
- Differentiated Services (DiffServ) and type-of-service (ToS) classification
- Network edge (demilitarized zone [DMZ]) hosting
- Wi-Fi Protected Access (WPA) and WPA Version 2 (WPA2)
- Wired Equivalent Privacy (WEP) (64- and 128-bit)
- Wi-Fi Multimedia (WMM)
- Dual SSIDs (8 SSIDs) and SSID broadcast disable and enable

Voice

- SIP v2 and RFCs 3261, 3262, 3263, and 3264
- Sending SIP messages through User Datagram Protocol (UDP)/TCP and transparent LAN service (TLS)
- G.711a, G.711u, and G.729 codecs
- Simple traversal of UDP through NAT (Serial Tunnel [STUN], RFC 3489)
- Session Description Protocol (SDP), RFC 2327
- Real-Time Transport Protocol (RTP) over UDP and Secure RTP (SRTP)
- Three-way conferencing
- Remote firmware upgrade through the browser
- Dual-tone multifrequency (DTMF) tone detection and generation
- Voice activity detection (VAD)
- Silence suppression
- Comfort noise generation (CNG)
- Caller ID generation and detecting (frequency shift keying [FSK] and DTMF)
- Media loopback
- SIP Transport Layer Security (TLS)
- SIP channels to support both UDP and TCP transport
- Support for two simultaneous T.38 or G.729 calls
- T.38 fax relay, including V.17, V.21, V.27ter, and V.29, and fax pass-through (pulse code modulation [PCM])
 - T.38 support dependent on fax machine and network and transport resilience
 - T.30 and modem pass-through

Package Contents

- Cisco WRP500 Wireless-G Broadband Router with 2 phone ports
- Setup CD-ROM with Norton Internet Security
- Documentation on CD-ROM
- Ethernet cable
- Power adapter
- Quick installation

Minimum Requirements

- High-speed Internet connection (Ethernet WAN and USB mobile network are supported)
- Activated VoIP service

Specifications

Data networking

- MAC address (IEEE 802.3)
- IPv4 (RFC 791)
- Address Resolution Protocol (ARP)
- Domain Name System (DNS) A record (RFC 1706) and Domain Name System Server (SRV) record (RFC 2782)
- DHCP client (RFC 2131)
- DHCP server (RFC 2131)
- Point-to-Point Protocol over Ethernet (PPPoE) client (RFC 2516)
- Internet Control Message Protocol (ICMP) (RFC 792)
- TCP (RFC 793)
- User Datagram Protocol (UDP) (RFC 768)
- RTP (RFCs 1889 and 1890)
- Trivial File Transfer Protocol (TFTP)
- HTTP
- NAT (RFC 1631)
- Session Description Protocol (SDP)

	<ul style="list-style-type: none"> • Simple Network Time Protocol (SNTP) (RFC 2030) • Type of service (ToS) (RFCs 791 and 1349) • QoS: Packet prioritization by type • MAC address cloning • Port forwarding • IP Multicast; IGMP Versions 1, 2, and 3; and IGMP proxy
Voice features	<ul style="list-style-type: none"> • Voice algorithms • G.711 (a-law and mu-law) • G.729 AB • Call forwarding: No answer, busy, and unconditional • Support for two simultaneous calls • SIP TLS • Call transfer • Call waiting, call hold, and call retrieve • Three-way conferencing • Caller ID number and name (primary-line and on-call waiting) • Caller ID block (prevents sending out the caller ID) • Anonymous call blocking • Distinctive ringing • Do not disturb setting • Call back on busy • Call return • Emergency call support • Dial plan • Speed dial • In-band and SIP-INFO DTMF translation
Provisioning, administration, and maintenance	<ul style="list-style-type: none"> • Web browser administration and configuration through integral web server • Telephone keypad configuration with interactive voice prompts • Automated provisioning and upgrade through HTTP, TFTP, and Secure HTTP (HTTPS) • Nonintrusive in-service upgrades • Report generation and event logging • Syslog and debug server records • Per-line and purpose-configurable syslog and debug options • Simple Network Management Protocol Versions 1 and 2c (SNMPv1 and v2c) (RFCs 1157 and 2011-2013) • Full compliance with DSL Forum TR-069 Remote Management • TR104 support: Voice provisioning
Physical interfaces	<ul style="list-style-type: none"> • One WAN 10/100/1000BASE-T RJ-45 Ethernet port • Four LAN 10/100/1000BASE-T RJ-45 Ethernet ports • Two RJ-11 FXS phone ports for analog circuit telephone device (tip and ring) • One USB 2.0 port (support for mobile broadband modem¹, available separately)
Buttons	Reset and WPS
Subscriber line interface circuit (SLIC)	<p>Ring voltage: 40 to 90 Vpk</p> <ul style="list-style-type: none"> • Ring frequency: 20 to 25 Hz • Ring waveform: Trapezoidal with 1.2 to 1.6 crest factor • Maximum ringer load: 5 ringer equivalence numbers (RENs) • On- and off-hook characteristics: • On-hook voltage (tip/ring): -46 to -56V <ul style="list-style-type: none"> ◦ Off-hook current: 18 to 25 mA ◦ Terminating impedance: <ul style="list-style-type: none"> ◦ 600-ohm resistive ◦ 270-ohm + 750 ohm/150 nF complex impedance • Frequency response: 300 to 3400 Hz
Regulatory compliance	FCC (Part 15 Class B), CE, ICES-003, and RoHS

Wi-Fi channels support	<p>PID: WRP500-A-K9 (NA region) -2.400 to 2.4835 GHz; 11 (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11) -5.150 to 5.250 GHz; 4 (36, 40, 44, and 48) -5.725 to 5.850 GHz; 5 (149, 153, 157, 161, and 165)</p> <p>PID: WRP500-E-K9 (EU region) -2.400 to 2.4835 GHz; 13 (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, and 13) -5.150 to 5.250 GHz; 4 (36, 40, 44, and 48)</p> <p>PID: WRP500-Z-K9 (NZ) -2.400 to 2.4835 GHz; 13 (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, and 13) -5.150 to 5.250 GHz; 4 (36, 40, 44, and 48) -5.725 to 5.850 GHz; 5 (149, 153, 157, 161, and 165)</p>
Number of antennas	2
Connector type	Fixed
Detachable (y/n)	No
Antenna gain	2 dBi
UPnP able/certified	No
Power supply	<ul style="list-style-type: none"> Switching type (100-240V) automatic DC input voltage: 12 VDC at 1.67A maximum Power consumption: 7.9W (average) Power adapter: 100-240V 50-60 Hz (26-34 VA) AC input, 1.5m cord
Indicator lights/LEDs	Power, Ethernet, Wireless, Phone 1, Phone 2, Internet, and WPS <ul style="list-style-type: none"> One WAN port link/activity LED, green color One USB status LED, green color
Documentation	<ul style="list-style-type: none"> Quick Installation Guide and User Guide are downloaded from: http://www.cisco.com/go/smallbiz SPA ATA Administration Guide - service providers only Provisioning Guide - service providers only
Security features	<ul style="list-style-type: none"> Password-protected configuration for web access URL filtering and keyword, Java, ActiveX, proxy, and cookie blocking VPN pass-through for IPsec, PPTP, and L2TP protocols 64- and 128-bit Wired Equivalent Privacy (WEP with pass-phrase WEP key generation) SSID broadcast disable Access restriction by MAC and IP addresses WPS, WPA, and WPA2
Security key bits	64 and 128
Environmental	
Dimensions H x W x D	170 x 170 x 33 mm (includes foot)
Weight	440g
Power	External, switching 12 VDC 1.67A
Certification	FCC, CE, CB,IC, UL Wi-Fi(802.11a/b/g/n/ac, WPA2, WMM, WMM Power Save, and WPS2.0)
Operating temperature	32 to 104°F (0 to 40°C)
Storage temperature	-22 to 140°F (-30 to 60°C)
Storage humidity	5 to 95%, noncondensing
Product Warranty	
1-year limited hardware warranty with return to factory replacement and 90-day limited software warranty.	

* Many specifications are programmable within a defined range or list of options. Please refer to the SPA ATA Administration Guide for details. The target configuration profile is uploaded to the WRP500 at the time of provisioning.

** USB mobile broadband modems are sold separately. For a current list of USB mobile broadband modems that are compatible with the Cisco WRP500, please visit <http://www.cisco.com/en/US/products/ps10028/index.html>. A voice service is sensitive to latency from network congestion. Voice quality over the mobile broadband network cannot be guaranteed.

Cisco Limited Warranty for Cisco Small Business Series Products

This Cisco Small Business product comes with a 1-year limited hardware warranty with return to factory replacement and a 90-day limited software warranty. In addition, Cisco offers software application updates for bug fixes and telephone technical support at no charge for the first 12 months following the date of purchase. To download software updates, go to: <http://www.cisco.com/go/smallbiz>.

Product warranty terms and other information applicable to Cisco products are available at: <http://www.cisco.com/go/warranty>.

For More Information

For more information about Cisco Small Business products and solutions, please visit: <http://www.cisco.com/smallbusiness>.



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