

Cisco Aironet 350 Series Access Points



The Cisco Aironet® 350 Series Access Point (AP) delivers a cost-effective, reliable, secure, and easily managed wireless LAN (WLAN) solution for enterprise, small, and medium-sized businesses. The Cisco Aironet 350 Series delivers ease-of-deployment features, reducing the total cost of ownership for wireless deployments. The Cisco Aironet 350 Series also combines industry-leading radio performance, range, and reliability with integrated network services for security, mobility, and management. The Cisco Aironet 350 Series AP is the first and only solution that delivers business-class WLAN services for enterprise and medium-sized businesses.

The Cisco Aironet 350 Series AP supports data rates up to 11 Mbps, is IEEE 802.11b compliant, and delivers the following key features to meet all enterprise requirements:

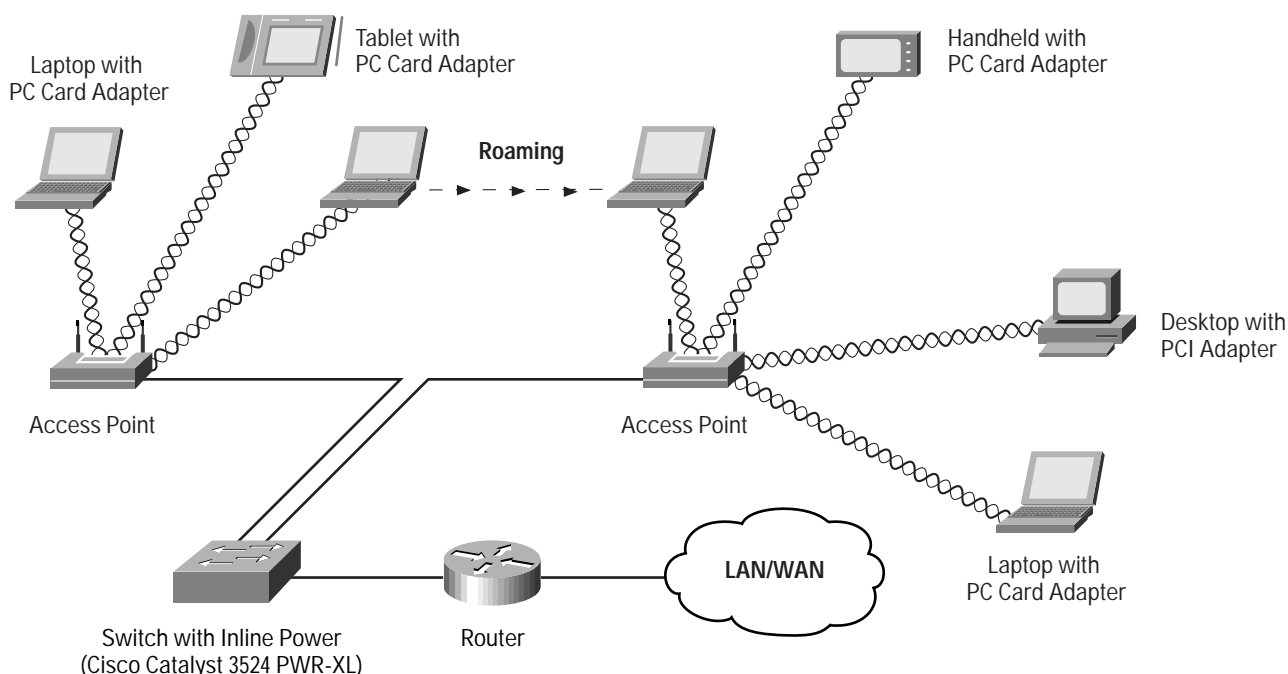
- Support for inline power over Ethernet, simplifying and reducing the total cost of installation and ownership
- High-performance 100 Milliwatt (mW) radio design, with power management capabilities, delivering industry-leading throughput, range, and reliability
- Future-proof architecture that can support additional software features for investment protection

As with all Cisco Aironet products, the Aironet 350 Series supports the following software features:

- 802.1x-based Extensible Authentication Protocol (EAP) services that provide centralized, user-based authentication for hassle-free security administration and user-based privacy
- Automatic channel selection, Cisco Discovery Protocol (CDP), Dynamic Host Configuration Protocol (DHCP), and BOOTP services to simplify installation and management of WLAN infrastructures
- High-availability services, such as load balancing and hot-standby redundancy, for dependable, performance, and reliability
- Rich filtering options on both the Ethernet and radio side to provide performance and application tuning to meet specific business requirements



Figure 1 An AP is the center point in an all-wireless network or a connection point between a wired and wireless network. Multiple APs can be placed throughout a facility to provide users equipped with WLAN adapters the ability to move freely throughout an extended area while maintaining uninterrupted access to all network resources.



Simplified Deployment and Reduced Total Cost of Installation and Ownership

The Cisco Aironet 350 Series AP includes a 10/100 Ethernet uplink for seamless integration with existing wired LANs. To minimize installation costs, the Cisco Aironet 350 Series AP draws its operating power from a powered Ethernet port. This line power configuration is compatible with the 802.3af inline power draft standard and works with all Cisco line power-enabled devices such as Catalyst® Switches and line power patch panels (see Figures 2-4). A line power injector, included with the product, can also be used to power the Cisco Aironet 350 Series AP.

Figure 2 The AP can utilize a Cisco Catalyst 3524-PWR-XL for its power.

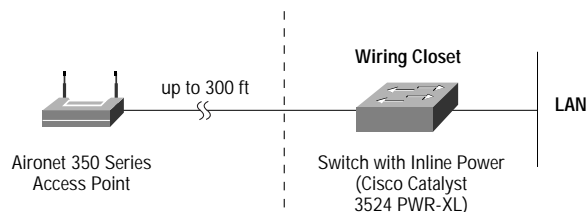




Figure 3 A Cisco Catalyst Inline Power Patch Panel may be used to power the AP.

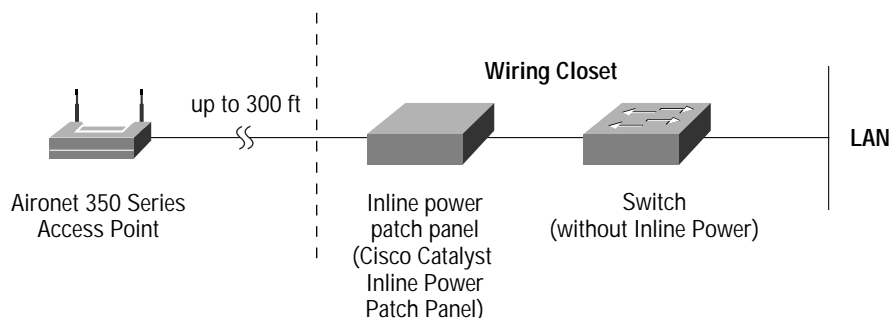
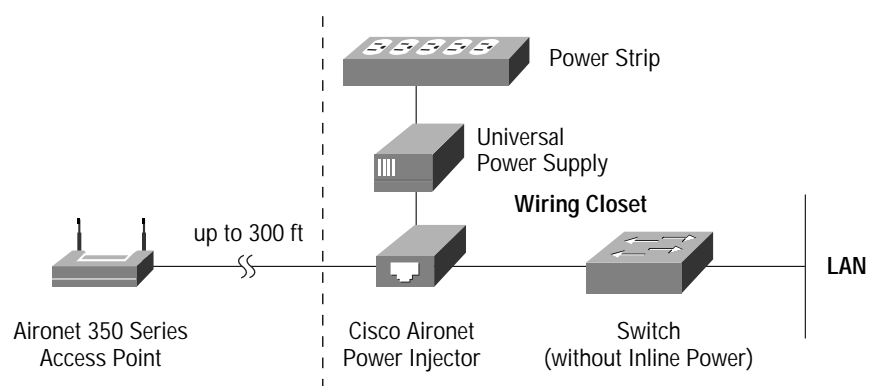


Figure 4 Cisco also offers a power injector to power the Cisco Aironet 350 Series AP.



Industry-Leading WLAN Performance, Range, and Reliability

The 100-mW transmit power and receive sensitivity of the Cisco Aironet 350 Series AP provides industry-leading range and reliability. Antenna diversity and superior delay spread (multipath) characteristics of the Cisco Aironet 350 Series deliver improved performance even in harsh environments such as warehouses, factories, and metal buildings.

Administrators can also configure the radio transmit power (1, 5, 20, 30, 50, 100 mW) on the Cisco Aironet 350 Series to meet the specific coverage requirements and minimize interference. A broad portfolio of removable antennas is available to further increase range and reliability.

Investment Protection

To protect the users' investment, all Cisco Aironet 350 Series APs and bridges feature sufficient Flash memory to handle firmware upgrades for years to come.

Wireless LAN Software Services Needed for Business-Class Applications

Centralized Security Architecture with Dynamic Session Key Management

Security is a primary concern for all WLAN installations. First-generation wireless security schemes based on service set identifier (SSID) and manual wired equivalent privacy (WEP) key management imposed significant administrative burdens precluding large-scale deployments. The Cisco solution leads the industry in providing scalable, standards-based, centralized security management that delivers dynamic single-session, single-user encryption keys integrated with the network logon.

The Cisco security architecture is based on the IEEE 802.1x proposed standard for wireless networks. The 802.1x standard is an extensible security framework that accommodates a variety of authentication and key management methods. Cisco Aironet APs interoperate with EAP-enabled Remote Access Dial-In User Service (RADIUS) servers such as the Cisco Access Control Server



2000 Version 2.6 and EAP-enabled client adapters such as Cisco Aironet Series clients providing user-level authentication over an encrypted link. After successful mutual authentication with the RADIUS server, the user derives a dynamic WEP encryption key that uniquely encrypts that user's traffic over the air, ensuring security from both outside sources and inside network users. The access control server (ACS) RADIUS server uses Lightweight Directory Access Protocol (LDAP) or open database connectivity services (ODBC) to take advantage of the enterprise identity server database, allowing IT managers to instantly enable secure wireless security to all users.

Integrated Management for Configuration, Monitoring, and Troubleshooting

For rapid, anytime, anywhere installation, configuration, and management, the Cisco Aironet Series offers services to simplify installation and configuration. The series supports Web-based management and Simple Network

Management Protocol (SNMP)-based features that aid in monitoring, troubleshooting, software download, and event logging.

The frequency agility option of the Cisco Aironet Series takes the guesswork out of channel configuration. In this mode, the AP automatically scans the area and selects the least-congested channel. The installer does not need to be aware of the settings of other wireless equipment in the coverage area.

For enterprise management, the Cisco Aironet Series provides support for Cisco Discovery Protocol (CDP) to enable auto-discovery of Cisco Aironet APs and bridges using Cisco enterprise management applications such as CiscoWorks2000. Additionally, Cisco Aironet APs support standard SNMP Management Information Base (MIB) II, Cisco Aironet Series private MIB, and 802.11b MIB. Cisco Aironet Series APs can also be managed via the console or the Telnet interface.

Figure 5 The 802.1x architecture implemented by Cisco is the first enterprise-ready security system for WLANs

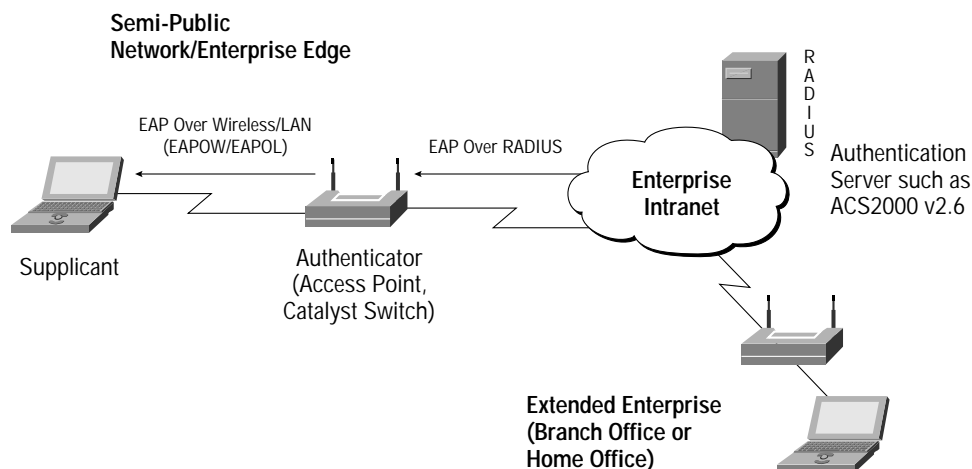




Figure 6 The Access Point Management System's Express Setup screen provides all the settings required for basic configuration of the Access Point.

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System Name:	<input type="text" value="Cisco AP350"/>
MAC Address:	00:40:96:25:85:4d
Configuration Server Protocol:	<input type="text" value="DHCP"/>
Default IP Address:	<input type="text" value="10.0.0.1"/>
Default IP Subnet Mask:	<input type="text" value="255.255.255.0"/>
Default Gateway:	<input type="text" value="10.0.0.1"/>
Radio Service Set ID (SSID):	<input type="text" value="tsunami"/>
Role in Radio Network:	<input type="text" value="Access Point/Root"/>
Optimize Radio Network For:	<input checked="" type="radio"/> Throughput <input type="radio"/> Range <input type="radio"/> Custom
Ensure Compatibility With:	<input type="checkbox"/> 2Mb/sec Clients <input type="checkbox"/> non-Aironet 802.11
SNMP Admin. Community:	<input type="text" value="admin"/>

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Industry-Leading WLAN Performance and Scalability

All Cisco Aironet Series APs feature enhanced infrastructure-based load-balancing services. Up to three APs, configured for different channels, can be colocated to achieve aggregate peak capacity of 33 Mbps for a single coverage area. Load-balancing policies based on number of users, error rates, or signal strengths redistribute users to deliver more balanced collision domains, resulting in improved overall performance for deployments that contain a large number of users.

Another scalability enhancement is the addition of broadcast and multicast filtering. This enables administrators to select the amount of such frames that enter the WLAN, conserving the shared bandwidth. Layer 3 IP Net and IP Socket filters are also provided.

Reliability and High-Availability that Enterprise Installations Count On

For business-critical deployments, Cisco Aironet APs can be configured as a redundant hot standby to another AP in the same coverage area. The hot-standby continually monitors the primary AP and assumes its role using the same channel in the rare case of a failure of the primary.

Comprehensive WLAN Solution

Cisco offers a comprehensive WLAN solution including APs and bridges, a variety of client adapters supporting all popular operating systems, a broad portfolio of antennas, as well as security server and enterprise management applications.

As part of the Cisco Aironet Series, the Cisco Aironet 350 AP delivers the security, manageability, scalability, and cost-effectiveness needed to deliver ubiquitous enterprise wireless services that extend user mobility and enhance overall productivity. Table 1 provides specifications on the Aironet 350 Series AP.



Table 1 Cisco Aironet 350 Series Specifications

Cisco Aironet 350 Series AP Specifications	
Data Rates Supported	1, 2, 5.5, and 11 Mbps
Network Standard	IEEE 802.11b
Uplink	Auto-sensing 10/100BaseT Ethernet
Frequency Band	2.4 to 2.4897 GHz
Network Architecture Types	Infrastructure
Wireless Medium	Direct Sequence Spread Spectrum (DSSS)
Media Access Protocol	Carrier sense multiple access with collision avoidance (CSMA/CA)
Modulation	DBPSK @ 1 Mbps DQPSK @ 2 Mbps CCK @ 5.5 and 11 Mbps
Operating Channels	North America: 11 ETSI: 13 Japan: 14
Nonoverlapping Channels	Three
Receive Sensitivity	1 Mbps: -94 dBm 2 Mbps: -91 dBm 5.5 Mbps: -89 dBm 11 Mbps: -85 dBm
Delay Spread	1 Mbps: 500 ns 2 Mbps: 400 ns 5.5 Mbps: 300 ns 11 Mbps: 140 ns
Available Transmit Power Settings	100 mW (20 dBm) 50 mW (17 dBm) 30 mW (15 dBm) 20 mW (13 dBm) 5 mW (7 dBm) 1 mW 0 dBm
Range (typical @ 100-mW transmit power setting with 2.2 dBi diversity dipole antenna)	Indoor: • 130 ft (39.6 m) @ 11 Mbps • 350 ft (107 m) @ 1 Mbps Outdoor: • 800 ft (244 m) @ 11 Mbps • 2000 ft (610 m) @ 1 Mbps
Compliance	Operates license free under FCC Part 15 and complies as a Class B device; complies with DOC regulations; complies with ETS 300.328, FTZ 2100, and MPT 1349 standards
SNMP Compliance	MIB I and MIB II
Antenna	AIR-AP35xE2C: Two nonremovable 2.2-dBi diversity dipoles AIR-AP35xE2R: Two RP-TNC connectors (antennas optional, none supplied with unit)
Encryption Key Length	AIR-AP351E2x: 40-bit AIR-AP352E2x: 128-bit

Table 1 Cisco Aironet 350 Series Specifications (Continued)

Cisco Aironet 350 Series AP Specifications	
Security	IEEE 802.1x (proposal includes EAP and RADIUS)
Status Indicators	Three indicators on the top panel provide information concerning association status, operation, error/warning, firmware upgrade, and configuration, network/modem, and radio status
Automatic Configuration Support	BOOTP and DHCP
Remote Configuration Support	Telnet, HTTP, FTP, TFTP, and SNMP
Local Configuration	Direct console port (with supplied serial cable)
Dimensions	6.30 in. (16 cm) wide x 4.72 in. (12 cm) deep x 1.45 in. (3.7 cm) high
Weight	12.3 oz (350g)
Plenum Rated Enclosure	None; for AP with metal enclosure for plenum rating, please refer to Cisco Aironet 350 Series Multifunction Bridge
Environmental	Temperature: 32 to 122 F (0 to 50 C) 10 to 90% (noncondensing)
Input Power Requirements	24 +/- 10% to 60 VDC (Ethernet line power)
Warranty	One year



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