

**Access
Points**



APOLLO : AIC-1200

1200AC Ceiling Mount Wave 2
MU-MIMO Enterprise Access Point

OVERVIEW

AIC1200 is a high-performance enterprise Wi-Fi AP (Access Point) introduced by AADONA under APOLLO series. This AP supports both 802.11ac Wave 2 and 802.11n standard with Gigabit Ethernet upstream connectivity. The maximum system combined throughput can be up to 1.167Gbps. This AP supports both 2.4GHz and 5GHz band with 2x2:2 MIMO and OFDM modulation technology. The 2.4GHz radio supports 802.11n standard with up to 300Mbps throughput; the 5GHz radio supports 802.11ac Wave 2 standard with up to 867Mbps throughput.

AIC1200 is based on 802.11ac Wave 2 standard with MU-MIMO technology, it greatly improves system performance as MU-MIMO can simultaneously transmit to multiple Wi-Fi clients compared with legacy technology that can only transmit to a single client at any single point of time. With improved system capacity, 802.11 Wave 2 AP is expected to have better client connectivity, therefore, deliver better Wi-Fi user experience.

AIC1200 is designed to use internal antennas, provides 1 Gigabit Ethernet port with PoE(Power over Ethernet), 1 USB 2.0 port; or can be power by DC 12V power adapter. The mechanical design of this AP enables it to be deployed in multiple scenarios like ceiling mount, wall mount or simply desktop deployment.

AIC1200 provides versatile functionality of radio, mobile, security, and traffic engineering, etc., and can work with physical, virtual or cloud AC (Access Controller) to provide enterprise, campus Wi-Fi network access as well as digital classroom, commercial Wi-Fi or hotel Wi-Fi coverage, etc.

HIGH-PERFORMANCE AND HIGH-RELIABILITY WIRELESS NETWORK

<p>High-speed wireless broadband access</p>	<p>The AIC1200 supports the 802.11a/b/g/n/ac standard, operates in a 2.4 GHz or 5 GHz band, and provides an access bandwidth up to 1167 Mbps. MU-MIMO technology supports 2 terminals' communication simultaneously, AIC1200 AP support 3 terminals simultaneously, which greatly improves the overall throughput of the WiFi network</p>
<p>Flexible installation</p>	<p>The AIC1200 supports wall mounting, ceiling mounting, T-keel mounting, desktop mounting, you can deploy it in almost any scenario.</p>
<p>High-performance RF characteristics</p>	<p>The professional optimized design is employed for the RF module of the AIC1200, so that a single antenna port supports 20 dB transmit power at all rate levels, thereby improving wireless coverage in high-rate access scenarios.</p>
<p>Automatic emergency mechanism of APs</p>	<p>In a centralized network architecture where thin APs and a wireless AC are deployed, the APs will be unable to operate normally when the wireless AC is down and then the entire wireless network will crash. APOLLO wireless APs support an automatic emergency mechanism that enables an AP to intelligently detect links. When detecting that the wireless AC is down, the AP quickly switches its operating mode so that it may continue to forward data while enabling new users to access the network. This mechanism attains high availability in the entire wireless network and allows wireless users to be online always.</p>
<p>Broad operating temperature range</p>	<p>Thanks to deliberate hardware design and the selection of dedicated components operating in a broad temperature range, APOLLO smart APs may operate in an environment with its temperature ranging from 0°C to +50°C.</p>
<p>Dual-OS backup mechanism</p>	<p>APOLLO smart APs support a dual-OS backup mechanism. When an AP fails to start from the active OS, it can immediately start from a standby OS, thereby improving the long-term running reliability of equipment in an adverse environment.</p>

WIRELESS NETWORK OF INTELLIGENT CONTROL AND AUTOMATIC PERCEPTION

<p>Support 802.11ac wave 2 standard</p>	<p>Downward compatible with the 802.11a/b/g/n protocol, Perfect for existing and future Wi-Fi devices. It can support data transmission rate up to 1.167Gbps and simultaneous dual-band technology.</p>
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<p>Intelligent RF management</p>	<p>APOLLO smart APs may be used with a wireless AC to perform automatic power and channel adjustment. They employ particular RF detection and management algorithms to attain a better RF coverage effect. When the signals of an AP are interfered by strong external signals, the AP may automatically switch to an appropriate operating channel under AC management to avoid such interference, thereby guaranteeing wireless network communications. The system also supports wireless network blackhole compensation. When an AP on the network accidentally stops operating, the RF management function of the AC compensates the resulting blind area of signals so that the wireless network can still operate normally.</p>
<p>Intelligent control of terminals based on airtime fairness</p>	<p>When some outdated 802.11b and 802.11g terminals are connected to a wireless network or some clients are far away from APs, negotiation rates will be low, causing a large number of users to experience a long WLAN access delay, low rates, or poor overall AP performance. The AP performance challenge in a low-rate terminal access environment, however, cannot be resolved by simply configuring rate control and traffic shaping. APOLLO smart APs have essentially resolved this challenge by using intelligent control of terminals based on airtime fairness, ensuring that a user can always enjoy WLAN experience in the same location, no matter what type of the client device is used.</p> <p>The intelligent control of terminals based on airtime fairness greatly improves the performance of both the client and the entire network. It enables all clients with high data transmission rates to attain strikingly higher performance while low-rate clients are almost not affected at all. The performance will be even more obviously higher on an open wireless network. Once high-rate clients finish data transmission, fewer clients will be transmitting data on the wireless network. In this case, there will be less contention and retry on the network, thereby greatly improving overall AP performance.</p>
<p>Intelligent load balancing mechanism</p>	<p>In general, a wireless client will select an AP according to the signal strength of APs. When this uncontrolled access mode is applied, however, a large number of clients could be connected to the same AP simply because the AP provides strong signals. As more clients are connected to an AP, the bandwidth available to each client will be less, thereby affecting user experience. APOLLO wireless products support diversified intelligent load balancing:</p> <ol style="list-style-type: none"> 1. AP load balancing based on traffic 2. AP load balancing based on the number of users 3. AP load balancing based on frequency bands 4. Access control based on signal strength of terminals 5. Mandatory roaming control of terminals to direct terminals to APs with stronger signals

<p>Intelligent identification of terminals</p>	<p>APOLLO smart APs may be used with APOLLO wireless ACs and a unified authentication platform to intelligently identify the size, system type, and type of each terminal; and comprehensively support mainstream smart terminal operating systems, such as Apple iOS, Android, and Windows. They intelligently identify the size of a terminal and adaptively present a portal authentication page of the corresponding size and page pattern, freeing users from multiple times of dragging to adjust the screen and enabling users to enjoy more intelligent wireless experience. They can also intelligently identify the system type of each terminal and display the system OS such as Windows, MAC OS, or Android on the unified authentication platform, exhibiting every detail of intelligence to users. In addition, they can intelligently identify the type of each terminal such as the mobile phone, tablet, or PC, and implement dynamic policy control of terminals according to different types of the terminals, making possible more intelligent user control with fine granularity.</p>
<p>Comprehensive support for IPv4/v6 dual-stack networks</p>	<p>Powered by APOLLO cutting-edge IPv6 technology, APOLLO smart APs may be deployed on an IPv6 network, with IPv6 tunnels established through auto-negotiation between a wireless AC and an AP. When the wireless AC and the AP completely operate in IPv6 mode, the wireless AC can still correctly identify IPv4 terminals and process IPv4 packets from wireless clients. Featuring flexible adaptability to IPv4/6, APOLLO smart APs cater to complex applications involved in migration from an IPv4 network to an IPv6 network. They not only provide IPv4 service to customers on an IPv6 network but also enable users on an IPv4 network to log in to the network through the IPv6 protocol at ease.</p>
<p>Network-wide seamless roaming</p>	<p>APOLLO wireless ACs support an advanced wireless AC cluster technology to support network-wide seamless roaming, the continuity of real-time mobile services is well guaranteed.</p>
<p>Support WDS mode</p>	<p>Support WDS mode under both thin/fat AP mode. Use 2.4GHz and 5GHz achieve wireless bridging function.</p>
<p>SECURED WIRELESS NETWORK</p>	
<p>User isolation policy</p>	<p>APOLLO wireless APs support the isolation of wireless users from one another. If this user isolation function is enabled, two wireless clients cannot directly communicate with each other but can only access an upstream wired network. This further guarantees the security of wireless network applications.</p>
<p>Wireless intrusion detection and intrusion defense</p>	<p>APOLLO wireless APs support wireless intrusion detection and intrusion defense features, such as detection of unauthorized wireless devices, intrusion detection, blacklist, and white list, thereby greatly improving security management of an entire wireless network.</p>

<p>Wireless user management at a fine granularity</p>	<p>Each AP supports a maximum of 32 WLANs to implement multi-layer multi-service management of wireless users at a fine granularity. Each WLAN supports access control and uplink/downlink rate limit based on MAC or IP addresses. These WLANs may be bound to virtual local area networks (VLANs). In addition, different authentication and accounting policies can be implemented. This feature is practically significant in a multi-WLAN environment.</p>
<p>Secure user admission</p>	<p>APOLLO smart APs may be used with wireless ACs to provide multiple secure access, authentication, and accounting mechanisms for various application environments. These mechanisms include:</p> <ol style="list-style-type: none"> 1. 802.1x authentication 2. Captive portal authentication, including built-in portal, external portal, and custom portal authentication modes 3. MAC address authentication 4. LDAP authentication 5. WAPI encryption and authentication 6. Wired/wireless integrated authentication and accounting
<p>Wireless SAVI</p>	<p>APOLLO wireless network products support a source address validation (SAVI) technology to deal with spoofed packet attacks that keep emerging in today's campus networks. As users' IP addresses are obtained through an address allocation protocol, users access the Internet using correct addresses in subsequent applications and cannot spoof others' IP addresses, thereby guaranteeing the reliability of source addresses. In addition, the SAVI technology is combined with a portal technology to further guarantee the authenticity and security of packets of all users accessing the Internet.</p>
<p>PEAP user authentication</p>	<p>With the popularity and application of smart terminals, wireless terminal users require authentication mechanisms of higher usability and convenience. Using a mechanism that combines portal authentication and MAC address authentication, APOLLO wireless network products support Protected Extensible Authentication Protocol (PEAP) authentication to attain better user experience. Initially, a user needs to manually perform portal authentication and later the user gets authenticated through PEAP in automatic mode. APOLLO wireless network products feature high terminal adaptation and provide good authentication compatibility. They adapt to the majority of WLAN terminals. APOLLO wireless network products are compatible with existing portal authentication modes.</p>
<p>Secure access mechanism</p>	<p>An AP is usually deployed in a public area and therefore requires a strict security mechanism to guarantee the legality of access devices. The following secure access mechanisms may be applied between an APOLLO smart AP and a wireless AC:</p> <ol style="list-style-type: none"> 1. AP MAC address authentication 2. AP password authentication 3. Bidirectional digital certificate authentication

EASY-TO-MANAGE WIRELESS NETWORK

Plug-and-play	<p>APOLLO smart APs are able to automatically discover APOLLO wireless ACs. A wireless network function can be enabled on an AP without performing any configuration on the AP at all. The AP can be seamlessly integrated with existing switches, firewalls, authentication servers, and other network devices without changing existing network architecture.</p> <p>When used with an APOLLO wireless AC, APOLLO smart APs support plug-and-play with zero configuration. The wireless AC undertakes all the management, control, and configuration of the APs. Network administrators do not need to separately manage or maintain a huge number of wireless APs. All actions, such as configuration, firmware upgrade, and security policy updating, are performed uniformly under wireless AC management.</p>
Thin and Fat modes	<p>APOLLO smart APs may work in thin or fat mode and can flexibly switch between the thin mode and the fat mode according to network planning requirements. APs working in thin mode are managed by a wireless AC in a centralized manner. System administrators may easily manage the entire network as the states of all the APs are clear at a glance.</p>
Remote probe analysis	<p>APOLLO smart APs support a remote probe analysis function, which listens to and captures Wi-Fi packets in the coverage and mirrors them to a local analysis device in real-time to help network administrators better perform troubleshooting or optimization analysis. The remote probe analysis function can perform non-convergence mirroring of a working channel and sampling of all channels in polling mode as well to flexibly meet various wireless network monitoring, operation, and maintenance requirements.</p>
Energy efficiency mode	<p>Support U-APSD power-saving mode can flexibly control USB and Ethernet port and a second spatial MIMO stream. AIC1200 80% of the material can be recycled to achieve real environmental protection.</p>

Model Name	AIC-1200
Product Series	APOLLO
HARDWARE SPECIFICATIONS	
Dimensions (mm)	247 x 153 x 30
10/100 /1000Base-T port	1
Console port (RJ-45)	N/A
USB 2.0	1
PoE	802.3af
Local	External power adapter Input: 100V ~ 240V V AC , Output: 5V
Maximum power consumption	<15W
RF port	Built-in 2.4 GHz 4 dBi antenna and 5 GHz 5 dBi antenna
Working frequency band	802.11a/n: 5.150 GHz to 5.850 GHz 802.11b/g/n: 2.4 GHz to 2.483 GHz 802.11ac: 5.150GHz to 5.250GHz 5.250GHz to 5.350GHz 5.725GHz to 5.850GHz
Modulation technology	802.11b: BPSK , QPSK , CCK 802.11a/g/n: BPSK , QPSK , 16-QAM , 64-QAM 802.11ac: BPSK , QPSK , 16-QAM , 64-QAM
Transmit power	18 dBm (Per Chain) 16 dBm (Per Chain) (Note: final output power compliance to deployment regulation might be different)
Power adjustment granularity	1 dBm
Working/Storage temperature	-0°C to +50°C -40°C to +70°C
Working/Storage RH	5% to 95% (non-condensing)

Protection level	IP41
Warranty	3 Year Default + 2 Year Extended, Total 5 Year
SOFTWARE SPECIFICATIONS	
WLAN	
Product positioning	Indoor dual-frequency
Working frequency band	2.4 GHz and 5 GHz
Virtual AP (BSSID)	32
Number of spatial streams	2
Dynamic channel adjustment (DCA)	Yes
Transmit power control (TPC)	Yes
Blind area detection and repair	Yes
SSID hiding	Yes
RTS/CTS	Yes
RF environment scanning	Yes
Hybrid access	Yes
Restriction on the number of access users	Yes
Link integrity check	Yes
Intelligent control of terminals based on airtime fairness	Yes
High-density application optimization	Yes
11N ENHANCEMENTS	
40 MHz bundling	Yes
300 Mbps (PHY)	Yes
Frame aggregation (A-MPDU)	Yes
Maximum likelihood demodulation (MLD)	Yes

Transmit beamforming (TxBF)	Yes
Maximum ratio combining (MRC)	Yes
Space-time block coding (STBC)	Yes
Low-density parity-check code (LDPC)	Yes
SECURITY	
Encryption	64/128 WEP, TKIP, and CCMP encryption
802.11i	Yes
WAPI	Yes
MAC address authentication	Yes
LDAP authentication	Yes
PEAP authentication	Yes
WIDS/WIPS	Yes
Protection against DoS attacks	Anti-DoS for wireless management packets
Forwarding security	Frame filtering, white list, static blacklist, and dynamic blacklist
User isolation	AP L2 forwarding suppression Isolation between virtual APs (multiple SSIDs)
Periodic SSID enabling and disabling	Yes
Access control of free resources	Yes
Secure admission control of wireless terminals	Secure admission control of wireless terminals based on DCSM
Wireless SAVI	Yes
ACL	Access control of various data packets such as MAC, IPv4, and IPv6 packets
Secure access control of APs	Secure access control of APs, such as MAC authentication, password authentication, or digital certificate authentication between an AP and an AC
FORWARDING	

IP address setting	Static IP address configuration or dynamic DHCP address allocation
IPv6 forwarding	Yes
IPv6 portal	Yes
Local forwarding	Yes
Multicast	IGMP Snooping
Roaming	YES
AP switching reference	Signal strength, bit error rate, RSSI, S/N, whether neighboring APs are normally operating, etc.
WDS	Yes
	QOS
WMM	Yes
Priority mapping	Ethernet port 802.1P identification and marking. Mapping from wireless priorities to wired priorities
QoS policy mapping	Mapping of different SSIDs/VLANs to different QoS policies Mapping of data streams that match with different packet fields to different QoS policies
L2-L4 packet filtering and flow classification	Yes: MAC, IPv4, and IPv6 packets
Load balancing	Load balancing based on the number of users Load balancing based on user traffic Load balancing based on frequency bands
Bandwidth limit	Bandwidth limit based on APs Bandwidth limit based on SSIDs Bandwidth limit based on terminals Bandwidth limit based on specific data streams
Call admission control (CAC)	CAC based on the number of users
Power saving mode	Yes
Automatic emergency mechanism of APs	Yes
Intelligent identification of terminals	Yes

Wireless network VAS	Abundant wireless network VASs; applications based on smart terminals; advertisement push based on site locations; personalized push of the portal
Multicast enhancement	Multicast to unicast
MANAGEMENT	
Network management	Centralized management through an AC; both thin and fat modes
Maintenance mode	Both local and remote maintenance
Log function	Local logs, Syslog, and log file export
Alarm	Yes
Fault detection	Yes
Statistics	Yes
Switching between the fat and thin modes	An AP working in thin mode can switch to fat mode through a wireless AC; An AP working in fat mode can switch to the thin mode through a local control port or Telnet.
Remote probe analysis	Yes
Dual-image (dual-OS) backup mechanism	Yes
Watchdog	Yes

*All specifications are subject to change without notice.