Overview

Aruba 300 Series Access Points
Entry-level 802.11ac Wave 2 Access Points

Product overview

The entry-level Aruba 300 Series Wave 2 access points deliver high performance and superb user experience for medium density environments. Featuring 3x3:3SS MU-MIMO capability, Aruba advanced ClientMatch radio management, and integrated Aruba Beacons, the 300 Series enables an all wireless digital work environment in a cost-effective manner.

With a maximum concurrent data rate of 1,300 Mbps in the 5GHz band and 400 Mbps in the 2.4GHz band (for an aggregate peak data rate of 1.7Gbps), the entry-level 300 Series brings an always-on wireless network experience with the performance required for enterprises. It is ideal for cost-sensitive high density environments across verticals.

The high performance and medium density 802.11ac 300 Series supports multi-user MIMO (MU-MIMO) and 3 spatial streams (3SS). It provides simultaneous data transmission to multiple devices (up to two), maximizing data throughput and improving network efficiency.

The 300 Series includes the enhanced ClientMatch technology that extends the client steering technology with MU-MIMO client awareness. It automatically identifies MU-MIMO capable mobile devices and steers those devices to the closest MU-MIMO capable Aruba access point. By grouping MU-MIMO capable mobile devices together, the network starts taking advantage of the simultaneous transmission to these devices, increasing its overall capacity. These dynamic roaming policies that are based on device types, help customers achieve the best WLAN performance in a mixed device environment during the technology transition period.

The 300 Series also has an integrated Bluetooth Aruba Beacon that simplifies the remote management of a network of large-scale battery-powered Aruba Beacons while also providing advanced location and indoor way finding, and proximity-based push notification capabilities. It enables businesses to leverage mobility context to develop applications that will deliver an enhanced user experience and increase the value of the wireless network for organizations.

Features and Benefits

Unique Benefits
- Dual Radio 802.11ac Access Point with Multi-User MIMO
    - Supports up to 1,300Mbps in the 5GHz band (with 3SS/VHT80 clients) and up to 400Mbps in the 2.4GHz band (with 2SS/VHT40 clients).
- Built-in Bluetooth Low-Energy (BLE) radio
    - Enables location-based services with BLE-enabled mobile devices receiving signals from multiple Aruba Beacons at the same time.
    - Enables management of your deployment of battery-powered Aruba Beacons.
- Advanced Cellular Coexistence (ACC)
    - Minimizes interference from 3G/4G cellular networks, distributed antenna systems and commercial small cell/femtocell equipment.
- Quality of service for Unified Communication apps
    - Supports priority handling and policy enforcement for unified communication apps, including Microsoft Skype for Business with encrypted videoconferencing, voice, chat and desktop sharing.

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- RF Management
    - Adaptive Radio Management (ARM) technology automatically assigns channel and power settings, provides airtime fairness, and ensures that APs stay clear of all sources of RF interference to deliver reliable, high-performance WLANs.
    - The Aruba 300 Series APs can be configured to provide part-time or dedicated air monitoring for spectrum analysis and wireless intrusion protection, VPN tunnels to extend remote locations to corporate resources, and wireless mesh connections where Ethernet drops are not available.
- Intelligent app visibility and control
    - AppRF technology leverages deep packet inspection to classify and block, prioritize or limit bandwidth for over 2,500 enterprise apps or groups of apps.
- Security
    - Integrated wireless intrusion protection offers threat protection and mitigation, and eliminates the need for separate RF sensors and security appliances.
    - IP reputation and security services identify, classify, and block malicious files, URLs and IPs, providing comprehensive protection against advanced online threats.
    - Integrated Trusted Platform Module (TPM) for secure storage of credentials and keys.
- Intelligent Power Monitoring (IPM):
    - Enables the AP to continuously monitor and report its actual power consumption and optionally make autonomous decisions to disable certain capabilities.
    - For the 300 Series Access Points, the IPM power-save feature applies when the unit is powered by an 802.3af PoE source. By default, the USB interface will be the first feature to turn off if AP power consumption exceeds the available power budget. In rare cases it may be necessary to take additional power saving measures, but in most cases, the 300 Series APs will operate in unrestricted mode.

Choose your Operating Mode

Aruba 300 Series APs offer a choice of operating modes to meet your unique management and deployment requirements.

- Controller-managed mode - When managed by Aruba Mobility Controllers, Aruba 300 Series APs offer centralized configuration, data encryption, policy enforcement and network services, as well as distributed and centralized traffic forwarding.
- Aruba Instant mode - In Aruba Instant mode, a single AP automatically distributes the network configuration to other Instant APs in the WLAN. Simply power-up one Instant AP, configure it over the air, and plug in the other APs - the entire process takes about five minutes. If WLAN requirements change, a built-in migration path allows 300 Series instant APs to become part of a WLAN that is managed by a Mobility Controller.
- Remote AP (RAP) for branch deployments.
- Air monitor (AM) for wireless IDS, rogue detection and containment.
- Spectrum analyzer, dedicated or hybrid, for identifying sources of RF interference.
- Secure enterprise mesh.

For large installations across multiple sites, the Aruba Activate service significantly reduces deployment time by automating device provisioning, firmware upgrades, and inventory management. With Aruba Activate, Instant APs are factory-shipped to any site and configure themselves when powered up.

300 Series Access Point

- AP-304 (controller-managed) and IAP-304 (Instant):
    - 802.11ac - 5GHz 3x3 MIMO (1,300Mbps max rate) and 2.4GHz 2x2 MIMO (400Mbps max rate) radios, with a total of three dual-band RP-SMA connectors for external antennas

- AP-305 (controller-managed) and IAP-305 (Instant):
    - 802.11ac - 5GHz 3x3 MIMO (1,300Mbps max rate) and 2.4GHz 2x2 MIMO (400Mbps max rate) radios, with a total of three integrated omni-directional downtilt dual-band antennas

WI-FI Radio Specifications

- AP type: Indoor, dual radio, 5GHz 802.11ac 3x3 MIMO and 2.4GHz 802.11n 2x2 MIMO
- Software-configurable dual radio supports 5GHz (Radio 0) and 2.4GHz (Radio 1)

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- 5GHz: Three spatial stream Single User (SU) MIMO for up to 1,300Mbps wireless data rate to individual 3x3 VHT80 client devices
- 5GHz: Two spatial stream Multi User (MU) MIMO for up to 867Mbps wireless data rate to up to two (1x1 VHT80) MU-MIMO capable client devices simultaneously
- 2.4GHz: Two spatial stream Single User (SU) MIMO for up to 400Mbps wireless data rate to individual 2x2 VHT40 client devices (300Mbps for HT40 802.11n client devices)
- Support for up to 255 associated client devices per radio, and up to 16 BSSIDs per radio
- Supported frequency bands (country-specific restrictions apply):
  - 2.400 to 2.4835GHz
  - 5.150 to 5.250GHz
  - 5.250 to 5.350GHz
  - 5.470 to 5.725GHz
  - 5.725 to 5.850GHz

- Available channels: Dependent on configured regulatory domain
- Dynamic frequency selection (DFS) optimizes the use of available RF spectrum
- Supported radio technologies:
  - 802.11b: Direct-sequence spread-spectrum (DSSS)
  - 802.11a/g/n/ac: Orthogonal frequency-division multiplexing (OFDM)

- Supported modulation types:
  - 802.11b: BPSK, QPSK, CCK
  - 802.11a/g/n/ac: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM

- Transmit power: Configurable in increments of 0.5 dBm
- Maximum (conducted) transmit power (limited by local regulatory requirements):
  - 2.4GHz band: +18 dBm per chain, +21 dBm aggregate (2x2)
  - 5GHz band: +18 dBm per chain, +23 dBm aggregate (3x3)
  - **NOTE:** conducted transmit power levels exclude antenna gain. For total (EIRP) transmit power, add antenna gain

- Advanced Cellular Coexistence (ACC) minimizes interference from cellular networks
- Maximum ratio combining (MRC) for improved receiver performance
- Cyclic delay/shift diversity (CDD/CSD) for improved downlink RF performance
- Short guard interval for 20MHz, 40MHz and 80MHz channels
- Space-time block coding (STBC) for increased range and improved reception
- Low-density parity check (LDPC) for high-efficiency error correction and increased throughput
- Transmit beam-forming (TxBF) for increased signal reliability and range
- Supported data rates (Mbps):
  - 802.11b: 1, 2, 5.5, 11
  - 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54
  - 802.11n (2.4GHz): 6.5 to 300 (MCS0 to MCS15)
  - 802.11n (5GHz): 6.5 to 450 (MCS0 to MCS23)
  - 802.11ac: 6.5 to 1,300 (MCS0 to MCS9, NSS = 1 to 3 for VHT20/40/80)

- 802.11n high-throughput (HT) support: HT 20/40
- 802.11ac very high throughput (VHT) support: VHT 20/40/80
- 802.11n/ac packet aggregation: A-MPDU, A-MSDU

WI-FI Antennas

- AP-304/IAP-304: Three RP-SMA connectors for external dual band antennas. Worst-case internal loss between radio interface and external antenna connectors (due to diplexing circuitry): 0.8dB in 2.4GHz and 1.6dB in 5GHz.
- AP-305/IAP-305: Three integrated dual-band downtilt omni-directional antennas for 3x3 MIMO with maximum antenna gain of 3.9dBi in 2.4GHz and 5.4dBi in 5GHz. Built-in antennas are optimized for

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horizontal ceiling mounted orientation of the AP. The downtilt angle for maximum gain is roughly 30 degrees.
- The maximum gain of the combined (summed) antenna patterns for all elements operating in the same band is 5.4dBi in 2.4GHz and 7.6dBi in 5GHz.

Other Interfaces

- One 10/100/1000BASE-T Ethernet network interface (RJ-45)
    - Auto-sensing link speed and MDI/MDX

- 802.3az Energy Efficient Ethernet (EEE)
- USB 2.0 host interface (Type A connector)
- Bluetooth Low Energy (BLE) radio
- Up to 3dBm transmit power (class 2) and -92dBm receive sensitivity
- Integrated antenna with roughly 30 degrees downtilt and peak gain of 2.3dBi (AP-304/IAP-304) or 3.4dBi (AP-305/IAP-305)
- Visual indicators (multi-color LEDs): for System and Radio status
- Reset button: factory reset (during device power up)
- Serial console interface (proprietary; optional adapter cable available)
- Kensington security slot

Power Sources and Consumption

- The AP supports direct DC power and Power over Ethernet (POE)
- When both power sources are available, DC power takes priority over POE
- Power sources are sold separately
- Direct DC source: 12Vdc nominal, +/- 5%
    - Interface accepts 2.1/5.5-mm center-positive circular plug with 9.5-mm length

- Power over Ethernet (POE): 48 Vdc (nominal) 802.3af/802.3at compliant source
    - Unrestricted functionality with 802.3at POE
    - When using IPM, the AP may enter power-save mode with reduced functionality when powered by an 802.3af POE source (see details on Intelligent Power Monitoring elsewhere in this datasheet)
    - Without IPM, the USB port is disabled when the AP is powered by and 802.3af POE source

- Maximum (worst-case) power consumption: 13W (POE) or 11W (DC)
    - Excludes power consumed by external USB device (and internal overhead); this could add up to 6.5W (POE) or 5.5W (DC) for a 5W/1A USB device

- Maximum (worst-case) power consumption in idle mode: 3.7W (POE) or 2.6W (DC)

Mounting
- The AP ships with two (white) mounting clips to attach to a 9/16-inch or 15/16-inch flat T-bar drop-tile ceiling.
- Several optional mount kits are available to attach the AP to a variety of surfaces; see the Ordering Information section below for details

Mechanical

- Dimensions/weight (unit, excluding mount accessories):
    - 165mm x 165mm x 38mm
    - 460g

- Dimensions/weight (shipping):
    - 205mm x 205mm x 52mm
    - 620g

Environmental

- Operating:

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- Temperature: 0° C to +50° C (+32° F to +122° F)
- Humidity: 5% to 95% non-condensing

- Storage and transportation:
  - Temperature: -40° C to +70° C (-40° F to +158° F)

Regulatory

- FCC/Industry of Canada
- CE Marked
- R&TTE Directive 1995/5/EC
- Low Voltage Directive 72/23/EEC
- EN 300 328
- EN 301 489
- EN 301 893
- UL/IEC/EN 60950
- EN 60601-1-1 and EN 60601-1-2

For more country-specific regulatory information and approvals, please see your Aruba representative.

Reliability

- MTBF: 1,116,000hrs (127yrs) at +25C operating temperature

Regulatory Model Numbers

- AP-304 and IAP-304: APIN0304
- AP-305 and IAP-305: APIN0305

Certifications

- CB Scheme Safety, cTUVus
- UL2043 plenum rating
- Wi-Fi Alliance (WFA) certified 802.11a/b/g/n/ac

Warranty

- **Aruba Limited lifetime warranty**

Minimum Software Versions

- ArubaOS 6.5.1.0
- Aruba InstantOS 4.3.1.0

Ordering Guide

Step 1: Select AP Model

Description	Part Number	Configuration Impact
Controller-based Access Points		
Aruba AP-304 802.11n/ac 2x2:2/3x3:3 MU-MIMO Dual Radio Antenna Connectors AP	JX935A	Add POE injector or AC adapter, antennas
Aruba AP-304 FIPS/TAA-compliant 802.11n/ac Dual 2x2:2/3x3:3 MU-MIMO Dual Radio Antenna Connectors AP	JX937A	Add POE injector or AC adapter
Aruba AP-305 802.11n/ac 2x2:2/3x3:3 MU-MIMO Dual Radio Integrated Antenna AP	JX936A	Add POE injector or AC adapter, antennas
Aruba AP-305 FIPS/TAA-compliant 802.11n/ac Dual 2x2:2/3x3:3 MU-MIMO Dual Radio Integrated Antenna AP	JX938A	Add POE injector or AC adapter

NOTE: All models ship with ceiling rail adapters (for flat rails) in the box.

Step 2: Add Powering Accessories (Optional)

Description	Part Number	Configuration Impact
Select one of the following:		
PD-3510G-AC 15.4W 802.3af PoE 10/100/1000Base-T Ethernet Midspan Injector	JW627A	Add AC power cord AP will operate in restricted (power-save) mode with this injector
PD-9001GR-AC 30W 802.3at PoE+ 10/100/1000 Ethernet Indoor Rated Midspan Injector	JW629A	Add AC power cord
AP-AC-12V30B 12V/30W AC/DC Desktop Style 2.1/5.5/9.5mm Circular 90 Deg Plug DoE Level VI Adapter	JX990A	Add AC power cord
Select three-prong AC power cord for injector or AC adapter		
PC-AC-ARG Argentina 220V AC 10A 2-meter AC Power Cord	JW113A	
PC-AC-AUS Australian AC Power Cord	JW114A	
PC-AC-BR Brazil AC Power Cord	JW115A	
PC-AC-CHN China AC Power Cord	JW116A	
PC-AC-DEN Denmark 220V AC 10A 2-meter AC Power Cord	JW117A	
PC-AC-EC Continental European/Schuko AC Power Cord	JW118A	
PC-AC-IN India AC Power Cord	JW119A	
PC-AC-IL Israel 250V AC 10A 2-meter AC Power Cord	JW120A	
PC-AC-IT Italian AC Power Cord	JW121A	
PC-AC-JP Japanese AC Power Cord	JW122A	
PC-AC-KOR Korea AC Power Cord	JW123A	
PC-AC-NA North America AC Power Cord	JW124A	
PC-AC-SWI Switzerland 220V AC 10A 2-meter AC Power Cord	JW125A	

Configuration

PC-AC-TW Taiwan AC Power Cord	JW126A
PC-AC-UK UK AC Power Cord	JW127A
PC-AC-ZA South Africa 250V AC 10A 2-meter AC Power Cord	JW128A

Step 3: Add Mount Accessories (Optional)

Description	Part Number
AP-220-MNT-C2 2x Ceiling Grid Rail Adapter for Interlude and Silhouette Mt Kit	JW045A
AP-MNT-CM1 Industrial Grade Indoor Access Point Metal Suspended Ceiling Rail Mount Kit	JX961A
AP-220-MNT-W1 Flat Surface Wall/Ceiling Black AP Basic Flat Surface Mount Kit	JW046A
AP-220-MNT-W1W Flat Surface Wall/Ceiling White AP Basic Flat Surface Mount Kit	JW047A
AP-220-MNT-W3 White Low Profile Box Style Secure Large AP Flat Surface Mount Kit	JY706A

Step 4: Select Antennas (AP-324 Only)

Description	Part Number	Qty	Interface(s)	Target Environment	Mounting
AP-314 antenna interface: 4x RP-SMA female, concurrent dual-band.					
AP-ANT-1W 2.4-2.5GHz (4dBi)/4.9-5.875GHz (6dBi) Hi Gain Dual-band Omni-Dir Indoor Antenna	JW009A	3	1x RP-SMA male connector	Indoor	Direct-mount
AP-ANT-13B 2.4-2.5GHz (4.4dBi)/4.9-5.9GHz (3.3dBi) Downtilt Smallest Omni-Dir Single Antnna	JW001A	3	1x RP-SMA male pigtail	Indoor	Direct, using pigtails
AP-ANT-16 2.4-2.5Ghz (3.9dBi)/4.9-5.9GHz (4.7dBi) 3 Elmt MIMO Ant w/Downtilt Omni-Dir Antenna	JW003A	1	3x RP-SMA male pigtail	Indoor	Direct, using pigtails
AP-ANT-19 2.4/5G Dual Band Omni-Dir 3dBi/6dBi Indr/Otdr RPSMA Cnctr Ant w/36in Intgrtd Cable	JW004A	3	1x RP-SMA male pigtail	Indoor/outdoor	Direct, using pigtails
AP-ANT-20W 2.4-2.5GHz (2dBi)/4.9-5.875GHz (2dBi) Compact Omni-Dir DMt Indr White Antenna	JW011A	3	1x RP-SMA male connector	Indoor	Direct-mount
AP-ANT-35A Dual Band 90x90deg 5dBi +/- 45 and V Pol 3 Element MIMO 3xRPSMA Pigtail Antenna	JW015A	1	3x RP-SMA male pigtail	Indoor/outdoor	Direct, using pigtails
AP-ANT-38 Dual Band 60x60deg 8dBi +/- 45 and V Pol 3 Element MIMO 3xRPSMA Pigtail Antenna	JW016A	1	3x RP-SMA male pigtail	Indoor/outdoor	Direct, using pigtails

Step 5: Add Antenna Mount Kit (Optional)

Description	Part Number	Comments

Configuration

AP-ANT-MNT-3 AP-ANT-25A/28/35A/38 Azimuth and Elevation Adjustable Mount Kit	JW020A	Compatible with AP-ANT-25A, AP-ANT-28, AP-ANT-35A and AP-ANT-38

Step 6: Add Cosmetic Snap-on Cover (AP-305 Only, Optional)

Description	Part Number	Comments
AP-305-CVR-20 20-pk for AP-305 with Holes for LED Indicators White Non-glossy Snap-on Covers	JX951A	One kit per 20 access points

Technical Specifications

RF Performance Table		
	Maximum transmit power (dBm) per transmit chain	**Receiver sensitivity (dBm) per receive chain**
802.11b 2.4GHz		
1 Mbps	18.0	-95.0
11 Mbps	18.0	-88.0
802.11g 2.4GHz		
6 Mbps	18.0	-92.0
54 Mbps	18.0	-74.0
802.11n HT20 2.4GHz		
MCS0/8	18.0	-91.0
MCS7/15	18.0	-71.0
802.11n HT40 2.4GHz		
MCS0/8	18.0	-88.0
MCS7/15	18.0	-68.0
802.11a 5GHz		
6 Mbps	18.0	-92.0
54 Mbps	18.0	-74.0
802.11n HT20 5 GHz		
MCS0/8/16	18.0	-91.0
MCS7/15/23	18.0	-71.0
802.11n HT40 5GHz		
MCS0/8/16	18.0	-88.0
MCS7/15/23	17.0	-68.0
802.11ac VHT20 5GHz (SU-MIMO)		
MCS0	18.0	-91.0
MCS8	18.0	-67.0
802.11ac VHT40 5GHz (SU-MIMO)		
MCS0	18.0	-88.0
MCS9	17.0	-63.0
802.11ac VHT80 5GHz (SU-MIMO)		

Technical Specifications

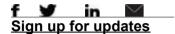|		
MCS0	18.0	-85.0
MCS9	17.0	-58.0

Maximum capability of the hardware provided (excluding antenna gain). Maximum transmit power is limited by local regulatory settings.

Summary of Changes

Date	Version History	Action	Description of Change
01-Nov-2016	Version 1	Created	Document creation.

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