HPE Aruba Networking 518 Series ruggedized access points

High performance Wi-Fi 6 (802.11ax) for harsh, weather-protected and indoor environments

The hardened, HPE Aruba Networking 518 Series access point delivers high Wi-Fi 6 performance in harsh, weather-protected environments such as warehouses, industrial freezers or enclosures in extreme environments such as stadiums. It delivers 4x4:4SS MU-MIMO capability, HPE Aruba Networking's advanced ClientMatch and integrated Bluetooth to enable HPE Aruba Networking location services.

Purpose-built to survive in the harshest weather-protected environments, 518 Series APs withstand exposure to extreme high and low temperatures, persistent (non-precipitant) moisture, and are sealed to keep out airborne contaminants. All electrical interfaces include industrial strength surge protection.

HPE Aruba Networking Wi-Fi 6 access points provide high-performance connectivity in dense mobile and IoT environments. With maximum aggregate on air data rate of 3 Gbps (HE80/HE40), the 518 Series APs deliver the speed and reliability needed for demanding environments.

Incredible efficiency

The 518 Series APs are designed to optimize user experience by maximizing Wi-Fi efficiency and dramatically reducing airtime contention between clients.

Features include Uplink and Downlink Orthogonal Frequency Division Multiple Access (OFDMA), Downlink Multi-User MIMO (MU MIMO) and cellular co-location. With up to 4 spatial stream and 160 MHz channel capability, the 518 provides groundbreaking wireless capabilities for any application.

Read the Multi-User 802.11ax white paper for further information.

Advantages of OFDMA
This capability allows HPE Aruba Networking's APs to handle multiple Wi-Fi 6 enabled clients simultaneously on a single radio.

Channel utilization is optimized per transaction by matching allocated bandwidth in a channel to the offered user load. These sub divisions of the channel are referred to as Resource Units (RU).

Multi-user MIMO (MU-MIMO)
The 518 Series APs support downlink MU-MIMO similar to Wi-Fi 5 (802.11ac Wave 2) APs. With the introduction OFDMA in Wi-Fi 6, the overhead for this capability is reduced and MU-MIMO effectiveness is substantially improved for large client counts.

Wi-Fi 6 and MU-MIMO aware client optimization
HPE Aruba Networking's patented AI powered ClientMatch technology ensures that all clients are attached to their best serving Access Point. Session metrics, network metrics, applications and client type are used to identify and maintain the best connection.

HPE Aruba Networking Advanced Cellular Coexistence (ACC)
The ACC feature uses built in filtering to automatically minimize the impact of interference of high power cellular base stations, in building distributed antenna systems as well as small cell and femtocell equipment.

Intelligent Power Monitoring (IPM)
HPE Aruba Networking APs continuously monitor and report hardware energy consumption. They can also be configured to enable or disable capabilities based on available PoE power—ideal when wired switches have exhausted their power budget.

IOT platform capabilities

HPE Aruba Networking Wi-Fi 6 APs include an integrated Bluetooth 5 and 802.15.4 radio (for Zigbee support) to simplify deploying and managing IoT-based location services, asset tracking services, security solutions and IoT sensors. This allow organizations to leverage the 518 as an IoT platform, which eliminates the need for an overlay infrastructure and additional IT resources.

Target Wake Time (TWT)
Ideal for IoT solutions that communicate infrequently, this Wi-Fi 6 capability allows IoT devices to use 802.11ax protocol. TWT coordinates with client devices to allow them to sleep for extended periods and use shorter wake times to communicate before returning to sleep. This substantially extends the useful operating life of Wi-Fi 6 based battery powered sensors.

HPE Aruba Networking secure infrastructure

The 518 Series is an integral part of HPE Aruba Networking's zero trust security approach to help protect user authentication and wireless traffic. Select capabilities include:

WPA3 and Enhanced Open
With the introduction of WPA3 and Enhanced Open, a Wi-Fi 6 certified client will never send unencrypted traffic over the air. Even with an open authenticated network, Enhanced Open still provides strong encryption over the air.

In all Wi-Fi 6 user sessions, each user is uniquely encrypted and if they disconnect and reconnect, the encryption changes from session to session.

WPA2-MPSK
MPSK enables simpler passkey management for WPA2 devices—should the Wi-Fi password on one device change, no additional changes are needed for other devices. This feature is enabled when networks are deployed with ClearPass Policy Manager.

VPN tunnels
In Remote AP (RAP) and IAP-VPN deployments, the HPE Aruba Networking 518 can be used to establish a secure SSL/IPSec VPN tunnel to a Gateway or Mobility Controller that is configured as a VPN concentrator.

Trusted Platform Module (TPM)
For enhanced device assurance, all HPE Aruba Networking APs have an installed TPM for secure storage of credentials and keys, and boot code.

Simple and secure access

To simplify policy enforcement, the HPE Aruba Networking 518 uses HPE Aruba Networking's Policy Enforcement Firewall (PEF) to encapsulate all traffic from the AP to the Mobility Controller (gateway) for end-to-end encryption and inspection. Policies are applied based on context including user role, device type, application, and location. This reduces the manual configuration of SSIDs, VLANs, and ACLs. PEF also serves as the underlying technology for HPE Aruba Networking Dynamic Segmentation.

High density connectivity

Each 518 Series AP provides connectivity for a maximum of 512 associated clients per radio (1024 total).

Flexible operation and management
A unique feature of HPE Aruba Networking APs is the ability to operate in either controller-less or controller-based mode.

Controller-less (instant) mode
In controllerless mode, one AP serves as a virtual controller for the entire network. Learn more about Instant mode in this technology brief.

Mobility controller mode
For optimized network performance, roaming and security, APs tunnel all traffic to a mobility controller for centrally managed traffic forwarding and segmentation, data encryption, and policy enforcement. Learn more in the HPE Aruba Networking Operating System data sheet.

Management options
Available management choices include HPE Aruba Networking Central (cloud-based) or HPE Aruba Networking AirWave (multi-vendor, on prem) solutions.

For large installations across multiple sites, HPE Aruba Networking APs can be shipped and activated with Zero Touch Provisioning through HPE Aruba Networking Central or HPE Aruba Networking [Legacy] Management Software. This reduces deployment time, centralizes configuration, and provides inventory visibility.

Additional Wi-Fi features

Transmit Beamforming (TxBF)
Increased signal reliability and range

Passpoint Release 2
Seamless cellular-to-Wi-Fi carryover for guests

Dynamic Frequency Selection (DFS)
Optimized use of available RF spectrum

Maximum Ratio Combining (MRC)
Improved receiver performance for multi antenna access points

Cyclic Delay/Shift Diversity (CDD/CSD)
Enable use of multiple transmit antennas

Space-Time Block Coding
Increased connection robustness

Low-Density Parity Check (LDPC)
High performance error detection and correction coding for enhanced receiver performance

AP-518 specifications

Hardware variants
- AP-518
  - 5 GHz: Four RP-SMA connectors for external antenna operation
  - 2.4 GHz Two RP-SMA connectors for external antenna operation

Wi-Fi radio specifications
- AP type: Indoor, dual radio, 5GHz 802.11ax 4x4 MIMO and 2.4GHz 802.11ax 2x2 MIMO
- Software-configurable dual radio supports 5 GHz (Radio 0) and 2.4 GHz (Radio 1)

5GHz:
- Four spatial stream Single User (SU) MIMO for up to 4.8 Gbps wireless data rate to individual 4SS HE160 Wi-Fi 6 client device (max)
- Two spatial stream Single User (SU) MIMO for up to 1.2 Gbps wireless data rate to individual 2SS HE80 Wi-Fi 6 client device (typical)
- Four spatial stream Multi User (MU) MIMO for up to 4.8 Gbps wireless data rate to up to four 1SS or two 2SS HE160 Wi-Fi 6 DL-MU-MIMO capable client devices simultaneously (max)
- Four spatial stream Multi User (MU) MIMO for up to 2.4 Gbps wireless data rate to up to four 1SS or two 2SS HE80 Wi-Fi 6 DL-MU-MIMO capable client devices simultaneously (typical)

2.4GHz:
- Two spatial stream Single User (SU) MIMO for up to 575 Mbps wireless data rate to individual 2SS HE40 Wi-Fi 6 client device (max)
- Two spatial stream Single User (SU) MIMO for up to 287 Mbps wireless data rate to individual 2SS HE20 Wi-Fi 6 client device (typical)
- Two spatial stream Multi User (MU) MIMO for up to 575 Mbps wireless data rate to up to two 1SS HE40 Wi-Fi 6 DL-MU-MIMO capable client devices simultaneously (max)
- Two spatial stream Single User (SU) MIMO for up to 287Mbps wireless data rate to 2SS HE20 802.11ax client devices (typical)
- Support for up to 512 associated client devices per radio, and up to 16 BSSIDs per radio
- Supported frequency bands (country-specific restrictions apply):
  - 2.400 to 2.4835GHz ISM
  - 5.150 to 5.250GHz U-NII-1

  - 5.250 to 5.350GHz U-NII-2A
  - 5.470 to 5.725GHz U-NII-2C
  - 5.725 to 5.850GHz U-NII-3/ISM
- 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)
  - 802.11ax: Orthogonal frequency-division multiple access (OFDMA) with up to 16 resource units (RU)
- Supported modulation types:
  - 802.11b: BPSK, QPSK, CCK
  - 802.11a/g/n: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM (proprietary extension)
  - 802.11ac: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM (proprietary extension)
  - 802.11ax: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM
- 802.11n high-throughput (HT) support: HT 20/40
- 802.11ac very high throughput (VHT) support: VHT20/40/80/160
- 802.11ax high efficiency (HE) support: HE20/40/80/160
- 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, HT20 to HT40)
  - 802.11n (5GHz): 6.5 to 600 (MCS0 to MVC31, HT20 to HT40)
  - 802.11ac: 6.5 to 3,467 (MCS0 to MCS9, NSS = 1 to 4, VHT20 to VHT160)
  - 802.11ax (2.4GHz): 3.6 to 574 (MCS0 to MCS11, NSS = 1 to 2, HE20 to HE40)
  - 802.11ax (5GHz): 3.6 to 4,803 (MCS0 to MCS11, NSS = 1 to 4, HE20 to HE160)
- 802.11n/ac/ax packet aggregation: A-MPDU, A-MSDU
- Transmit power: Configurable in increments of 0.5 dBm
- Maximum (conducted) transmit power (limited by local regulatory requirements):
  - 2.4 GHz band: +22 dBm per chain, +25dBm aggregate (2x2)
  - 5 GHz band: +22 dBm per chain, +28dBm aggregate (4x4)
  - Note: conducted transmit power levels exclude antenna gain.
- Maximum EIRP (limited by local regulatory requirements):
  - 2.4 GHz band:
    - 518: 25.0dBm + Antenna Gain
  - 5 GHz band:
    - 518: 28.0dBm + Antenna Gain
- Advanced Cellular Coexistence (ACC) minimizes the impact of interference from cellular networks
- Maximum Ratio Combining (MRC) for improved receiver performance
- Cyclic Delay/Shift Diversity (CDD/CSD) to enable the use of multiple transmit antennas
- Short guard interval for 20-MHz, 40-MHz, 80-MHz and 160-MHz 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
- 802.11mc Fine Timing Measurement (FTM) for precision distance ranging

Power

- Maximum (worst-case) power consumption:
  - PoE powered (dual ports): 32.0W
  - PoE powered (single port, full function): 26.1W
- Maximum (worst-case) power consumption in idle mode: 14.0W (single PoE) or 16.0W (dual PoE)
- Maximum (worst-case) power consumption in deep-sleep mode: 2.9W (single PoE) or 3.9W (dual PoE)
- The AP supports Power over Ethernet (PoE) on port E0 and/or E1

- When PoE power is supplied to both Ethernet ports, the AP can be configured to combine or prioritize power sources
- Power sources are sold separately; see the ordering Information section below for details
- When powered by 1x 802.3at (class 4) PoE and with the IPM feature disabled, the AP will disable the other Ethernet port. In the same configuration but with IPM enabled, the AP will start up in unrestricted mode, but may dynamically apply restrictions depending on the PoE budget and actual power. The feature restrictions and order can be programmed.
- Operating the AP with single or dual 802.3af (class 3 or lower) PoE source is not supported.

Additional interfaces

- E0: HPE SmartRate port (RJ-45)
  - Auto-sensing link speed (100/1000/2500BASE-T) and MDI/MDX
  - 2.5Gbps speed complies with NBase-T and 802.3bzspecifications
  - PoE-PD: 48vDC (nominal) 802.3at/bt (Class4or higher)
  - 802.3az Energy Efficient Ethernet (EEE)
- E1: 100/1000BASE-T (RJ-45)
  - Auto-sensing link speed and MDI/MDX
  - 802.3az Energy Efficient Ethernet (EEE)
  - PoE-PD: 48vDC (nominal) 802.3at/bt (Class4 or higher)
- Link Aggregation (LACP) support between both network ports for redundancy and increased capacity
- Bluetooth 5 and 802.15.4 radio
  - 2.4 GHz
  - Bluetooth 5: up to 8dBm transmit power and -95dBm receive sensitivity
  - Zigbee: up to 8 dBm transmit power and -97dBm receive sensitivity
  - Up to 4dBm transmit power (class 2) and -91 dBm receive sensitivity
- Visual indicator (multi-color LED): For system and radio status
- Reset button: Factory reset (during device power up)
- USB-C console interface

Mounting

- Optional mounting kits:
  - Compatible with the AP-MNT-A/B/C/D/E and AP-MNT- MP10 mounting kits supported on the AP-5xx indoor APs
  - Outdoor AP mounts (AP-OUT-MNT-V1A, AP-270-MNT-V2, AP-270-MNT-H1, AP-270-MNT-H2, and AP-270-MNT-H3) are compatible when the AP-270-MNT-ADP adapter is utilized

Mechanical specifications
AP-518

- Dimensions/weight (excluding mount):
  - 211mm (W) x 211 mm (D) x 70 mm (H)
  - 8.31" (W) x 8.31" (D) x 2.76" (H)
  - 1.5 kg/3.3 lbs

Environmental

- Operating
  - Temperature: 0C to +55C/+32F to +140F
  - Humidity: 5% to 93% non-condensing internal to chassis
- Storage and transportation
  - Temperature: -40C to +70C/-40F to +158F
- Operating Altitude: 3,000 m
- Water and Dust
  - IP55
- Shock and Vibration ETSI 300-19-2-4

Regulatory

- FCC/ISED
- CE Marked
- RED Directive 2014/53/EU
- EMC Directive 2014/30/EU
- Low Voltage Directive 2014/35/EU
- UL/IEC/EN 60950
- EN 60601-1-1, EN60601-1-2

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

Regulatory model numbers

- AP-518: APIN0518

Certifications

- CB Scheme Safety, cTUVus
- UL2043 plenum rating
- Wi-Fi Alliance certified 802.11a/b/g/n/
- Wi-Fi CERTIFIED™ 6 (802.11ax)
- Wi-Fi CERTIFIED™ ac (with Wave 2 features)
- Passpoint® (Release 2) with HPE Aruba Networking Operating System and InstantOS
- Wi-Fi CERTIFIED Location™

Warranty

HPE Aruba Networking's hardware limited lifetime warranty.

Minimum operating system software versions

- HPE Aruba Networking Wireless Operating System & HPE Aruba Networking InstantOS 8.7.0.0
- HPE Aruba Networking Wireless Operating System 10.0.0.0

RF performance table

Band, rate	Maximum transmit power (dBm) per transmit chain	Receiver sensitivity (dBm) per receive chain
2.4GHz, 802.11b		
1 Mbps	22	-97
11 Mbps	22	-89
2.4GHz, 802.11g		
6 Mbps	22	-94
54 Mbps	20	-76
2.4GHz, 802.11n/ac HT20		
MCS0	22	-93
MCS8	19	-72
2.4GHz, 802.11ax HE20		
MCS0	22	-93
MCS11	17	-62
5GHz, 802.11a		
6 Mbps	22	-95
54 Mbps	20	-76

Band, rate	Maximum transmit power (dBm) per transmit chain	Receiver sensitivity (dBm) per receive chain
5GHz, 802.11n/ac HT20/VHT20		
MCS0	22	-94
MCS8	19	-72
5GHz, 802.11n/ac HT40/VHT40		
MCS0	22	-92
MCS9	19	-68
5GHz, 802.11ac VHT80		
MCS0	22	-90
MCS9	19	-65
5GHz, 802.11ac VHT160		
MCS0	22	-84
MCS9	19	-59
5GHz, 802.11ax HE20		
MCS0	22	-94
MCS11	17	-62
5GHz, 802.11ax HE40		
MCS0	22	-91
MCS11	17	-60
5GHz, 802.11ax HE80		
MCS0	22	-87
MCS11	17	-57
5GHz, 802.11ax HE160		
MCS0	22	-85
MCS11	17	-53

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

Ordering information

Part number	Description
AP-518 Unified hardened access points	
R4G99A	HPE Aruba Networking AP-518 (EG) 802.11ax 2x2:2/4x4:4 Dual Radio 6xRPSMA Connectorized Indoor Hardened AP
R4H00A	HPE Aruba Networking AP-518 (IL) 802.11ax 2x2:2/4x4:4 Dual Radio 6xRPSMA Connectorized Indoor Hardened AP
R4H01A	HPE Aruba Networking AP-518 (JP) 802.11ax 2x2:2/4x4:4 Dual Radio 6xRPSMA Connectorized Indoor Hardened AP
R4H02A	HPE Aruba Networking AP-518 (RW) 802.11ax 2x2:2/4x4:4 Dual Radio 6xRPSMA Connectorized Indoor Hardened AP
R4H03A	HPE Aruba Networking AP-518 (US) 802.11ax 2x2:2/4x4:4 Dual Radio 6xRPSMA Connectorized Indoor Hardened AP
AP-518 Unified hardened access points FIPS/TAA	
R4H04A	HPE Aruba Networking AP-518 (EG) TAA 802.11ax 2x2:2/4x4:4 Dual Radio 6xRPSMA Connectorized Indoor Hardened AP
R4H05A	HPE Aruba Networking AP-518 (IL) TAA 802.11ax 2x2:2/4x4:4 Dual Radio 6xRPSMA Connectorized Indoor Hardened AP
R4H06A	HPE Aruba Networking AP-518 (JP) TAA 802.11ax 2x2:2/4x4:4 Dual Radio 6xRPSMA Connectorized Indoor Hardened AP
R4H07A	HPE Aruba Networking AP-518 (RW) TAA 802.11ax 2x2:2/4x4:4 Dual Radio 6xRPSMA Connectorized Indoor Hardened AP
R4H08A	HPE Aruba Networking AP-518 (US) TAA 802.11ax 2x2:2/4x4:4 Dual Radio 6xRPSMA Connectorized Indoor Hardened AP

For more ordering information and compatible accessories, please refer to the ordering guide.

Make the right purchase decision.
Contact our presales specialists.

Contact us

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