AP63 ACCESS POINT DATASHEET

Product Overview

The Wi-Fi 6 (802.11ax) AP63 Series access points driven by Mist AI™ offer high-performance Wi-Fi that ensures business continuity and operational efficiency in outdoor environments.

Product Description

The Juniper® AP63 is a ruggedized and weather-resistant outdoor Wi-Fi 6 (802.11ax) access point that delivers fast and reliable Wi-Fi experiences in extremely harsh environments. The AP63 integrates AI for AX capabilities and dynamic virtual Bluetooth LE (vBLE) antenna array to automate network operation and boost Wi-Fi performance while providing real-time network insights and location services. Managed by the Juniper Mist™ cloud architecture, the outdoor AP63 is ideal for retail curbside, enterprise campus, public venue, outdoor station, and industrial environments.

While wired and wireless networks are business critical, without the right architecture they can be harder to operate given the sheer number of mobile and IoT devices—not to mention the extensive variety of hardware, operating systems, and applications currently in use. Traditional architectures—highly manual and network-centric—lack the scale, flexibility, and end-to-end visibility required to support modern mobility requirements and the IT departments that manage them.

Juniper AI-Driven Network

Juniper Mist brings true innovation to wireless networking with the world's first AI-driven wireless LAN (WLAN). The Juniper AI-Driven Enterprise makes Wi-Fi predictable, reliable, and measurable, offering unprecedented visibility into the user experience through the use of unique SLE metrics. Proactive, AI-driven automation and a self-healing network replace time-consuming manual tasks, lowering Wi-Fi operational costs and saving substantial time and money.

All operations are managed using the open and programmable microservices that are based on the Juniper Mist™ cloud architecture. The system delivers maximum network scalability and performance while also bringing DevOps agility to wireless networking and location services.

The Juniper Mist Cloud Architecture

The Juniper Mist cloud-native, AI-driven microservices architecture delivers unparalleled agility, scale, and resiliency to your network. It lowers OpEx and delivers unprecedented insights into network performance, behaviors, traffic patterns, and potential trouble spots by using data science to analyze large amounts of rich metadata collected by the Juniper Access Points.

Juniper Access Point Family

The Juniper enterprise-grade access point family consists of:

- AP45 Series, AP34 , and AP24, which support Wi-Fi 6E, 802.11ax (Wi-Fi 6), and Bluetooth LE
- AP43 Series, AP33, AP32, AP12, and AP63 Series, which support 802.11ax (Wi-Fi 6) and Bluetooth LE

The real-time microservices in Juniper Mist cloud manage all these access points.

Table 1 compares the supported major functions of the Juniper Wi-Fi 6E and Wi-Fi 6 access points to help in selecting the most appropriate model(s).

Table 1: Juniper Wi-Fi 6E and Wi-Fi 6 Access Points

	AP45	AP34	AP24	AP43	AP33	AP12	AP63	AP64
Deployment	Indoor	Indoor	Indoor	Indoor	Indoor	Indoor Wall Plate/ Desk Mount	Outdoor	Indoor/Outdoor
Wi-Fi Standard	Wi-Fi 6E 802.11ax (Wi-Fi 6E) 4x4:4	Wi-Fi 6E 802.11ax (Wi-Fi 6E) 2x2:2	Wi-Fi 6E 802.11ax (Wi-Fi 6E) 2x2:2 2.4/6 + 5 GHz	802.11ax (Wi-Fi 6) 4x4:4	802.11ax (Wi-Fi 6) 5 GHz: 4x4:4 2.4 GHz: 2x2:2	802.11ax (Wi-Fi 6) 2x2:2	802.11ax (Wi-Fi 6) 4x4:4	802.11ax (Wi-Fi 6E) 2x2:2
Wi-Fi Radios	Dedicated fourth radio for scanning	Dedicated fourth radio for scanning	Dedicated third radio for scanning	Dedicated third radio for scanning	Dedicated third radio for scanning	Dedicated third radio for scanning	Dedicated third radio for scanning	Dedicated third radio for scanning
Antenna Options	Internal/External	Internal	Internal	Internal/External	Internal	Internal	Internal/External	Internal
Virtual BLE	✓	—	—	✓	✓	—	✓	—
USB	✓	✓	✓	✓	✓	—	—	—
IoT Sensors	Temperature, Accelerometer	Temperature, Accelerometer	Temperature, Accelerometer	Humidity, Pressure, Temperature	Temperature, Accelerometer	—	Humidity, Pressure, Temperature	Temperature, Accelerometer
GPS/GNSS	—	—	—	—	—	—	—	✓
Warranty	Limited Lifetime	Limited Lifetime	Limited Lifetime	Limited Lifetime	Limited Lifetime	Limited Lifetime	One Year	One Year
Frequencies Supported	2.4 GHz, 5 GHz, 6 GHz	2.4 GHz, 5 GHz, 6 GHz	2.4 GHz, 5 GHz, 6 GHz	2.4 GHz, 5 GHz	2.4 GHz, 5 GHz	2.4 GHz, 5 GHz	2.4 GHz, 5 GHz	2.4 GHz, 5 GHz, 6 GHz

Services Available for the Juniper AP63

Wi-Fi Cloud Services

Juniper Mist Wi-Fi Assurance

For IT and NOC Teams

- Predictable and Measurable Wi-Fi
- Service-Level Expectations (SLEs) Support
- WxLAN Policy Fabric for Role-Based Access
- Customizable Guest Wi-Fi Portal
- Radio Resource Management (RRM) Driven by AI

Marvis™ Virtual Network Assistant

For IT Helpdesk Teams

- AI-Powered Virtual Network Assistant
- Natural Language Processing Interface
- Anomaly Detection
- Client SLE Visibility and Enforcement
- Data Science-Driven Root-Cause Analysis

Bluetooth Cloud Services

Juniper Mist Mobile Engagement

For Digital Experience Teams

- Accurate (1-3m) Turn-by-Turn Navigation
- Sensor Fusion with Dead Reckoning
- Unsupervised Machine Learning
- Virtual Beacons with Custom Notifications
- Mobile SDK for iOS and Android

Juniper Mist Asset Visibility

For Process and Resource Improvement Teams

- Identification of Assets by Name and Location Visibility
- Zonal/Room Accuracy for Third-Party Tags
- Historical Analytics for Asset Tags
- Telemetry for Asset Tags (temperature, motion, and other data)
- APIs for Viewing Assets and Analytics

Analytics Cloud Services

Juniper Mist Premium Analytics

For Network Teams

- Baseline Analytics Features Come Included with Wi-Fi Assurance, Mobile Engagement, and Asset Visibility Subscriptions
- End-to-End Network Visibility
- Orchestrated Networking and Application
- Performance Queries
- Simplified Network Transparency

For Business Teams

- Baseline Analytics Features Come Included with Wi-Fi Assurance, Mobile Engagement, and Asset Visibility Subscriptions
- Customer Segmentation and Reporting Based on Visitor Telemetry
- Customized[1] Dwell and Third-Party Reporting for Traffic and Trend Analysis
- Correlation of Customer-Guest Traffic and Trend Analysis

Access Point Features

High-Performance Wi-Fi

The outdoor AP63 Series comprises tri-radio 4x4 802.11ax access points with maximum data rates of 2,400 Mbps in the 5 GHz band and 1,148 Mbps in the 2.4 GHz band. The third radio functions as a network, location, and security sensor, a synthetic test client radio, as well as a spectrum monitor.

With 802.11ax Orthogonal Frequency Division Multiple Access (OFDMA), Multi-User Multiple Input Multiple Output (MU-MIMO), and BSS Coloring technologies, the AP63 Series offers performance at unprecedented levels to support new bandwidth-hungry applications and soaring device densities.

AI for AX

With the new features that 802.11ax (Wi-Fi 6) introduces to boost performance and efficiency, configuring and operating an access point has grown far more complex. Juniper automates and optimizes these features with AI for AX capabilities to optimize BSS Coloring, improve data transmission scheduling within OFDMA and MU-MIMO, and assign clients to the best radio to boost the overall performance of the network.

Greater Spectral Efficiency

OFDMA improves spectral efficiency so that an increasing density of devices can be supported on the network. Density has become an issue with the rapid growth of IoT devices, which often utilize smaller data packets than mobile devices and hence increase the burden and contention on the network. Additionally, BSS Coloring improves the coexistence of overlapping BSSs and allows spatial reuse within a given channel by reducing packet collisions.

Automatic RF Optimization

Radio Resource Management automates dynamic channel and power assignment, taking Wi-Fi and external sources of interference into account with a dedicated sensor radio. The AI engine continuously monitors coverage and capacity SLE metrics to learn and optimize the RF environment. A learning algorithm uses hysteresis on a 24-hour window to conduct a sitewide rebalancing for optimal channel and power assignment.

Proactive Insight and Action

A dedicated, dual-band third radio collects data for Juniper's patent-pending Proactive Analytics and Correlation Engine (PACE), which uses machine learning to analyze user experiences, correlate problems, and automatically detect their root cause. These metrics are used to monitor SLEs and provide proactive recommendations to ensure problems don't occur (or are fixed as quickly as possible when they do). This radio also functions as a synthetic test client to proactively detect and mitigate network anomalies.

Improved IoT Battery Efficiency

By incorporating the 802.11ax target wake time (TWT) capability and Bluetooth 5.0, AP63 access points help extend the battery life of IoT devices, particularly as additional ones join the network.

Dynamic Debugging

Constantly monitor services running on the AP63 and send alerts whenever a service behaves abnormally. Dynamic debugging relieves IT of having to worry about an AP going offline or any services running on it becoming unavailable.

Dynamic Packet Capture

The Juniper Mist platform automatically captures packets and streams them to the cloud when major issues are detected. This saves IT time and effort and eliminates the need for truck rolls with sniffers to reproduce and capture data for troubleshooting.

Marvis Virtual Network Assistant

Marvis is a natural language processing (NLP)-based assistant with a conversational interface that helps with understanding user intent

and goals, simplifies troubleshooting, and collects network insights. It uses AI and data science to proactively identify issues, determine the root causes and scope of impact, and gain insights into your network and user experiences. It eliminates the need to manually hunt through endless dashboards and CLI commands.
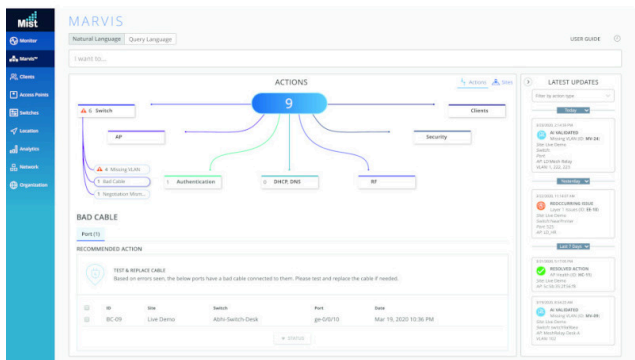

Effortless, Cloud-Based Setup and Updates

The AP63 automatically connects to the Juniper Mist cloud, downloads its configuration, and joins the appropriate network. Firmware updates are retrieved and installed automatically, ensuring that the network is always up to date with new features, bug fixes, and security updates.

Premium Analytics

Juniper Mist Wireless Assurance, User Engagement, and Asset Visibility services include a base analytics capability for analyzing up to 30 days of data, which enables you to simplify the process of extracting network insights across your enterprise. If you require dynamic insights like motion paths1 and other third-party1 data and would like the option of customized reports, the Juniper Mist Premium Analytics service is available as an additional subscription.
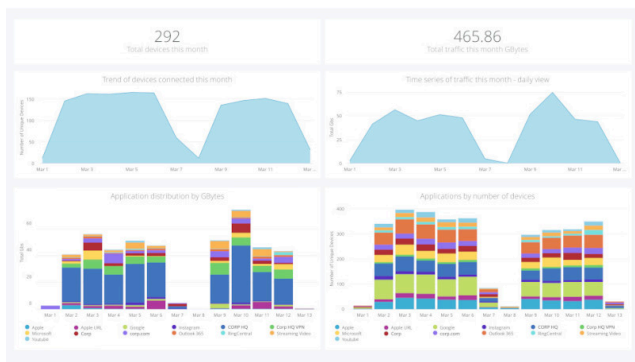

High-Accuracy Indoor Location

The AP63 has a 16-element vBLE antenna array controlled from the Juniper Mist cloud. Passive antennas enhance the power of a single transmitter and produce directional beams (or can be

combined to act as an omnidirectional radio) to accurately detect distance and location with 1-3 meter accuracy. With Juniper's patented vBLE technology, you can deploy an unlimited number of virtual beacons in your physical environment with no need to install battery-powered physical BLE beacons. Support for Bluetooth5.0 boosts IoT device range and battery life.

Patented vBLE Technology

In addition to the industry-leading Wi-Fi technology at the heart of the AP63 access point, our second-generation, patented, and dynamic, 16-element vBLE antenna array combines with machine learning to eliminate the need for battery-powered beacons. This maximizes scalability and optimizes your deployment investment in location-based services.
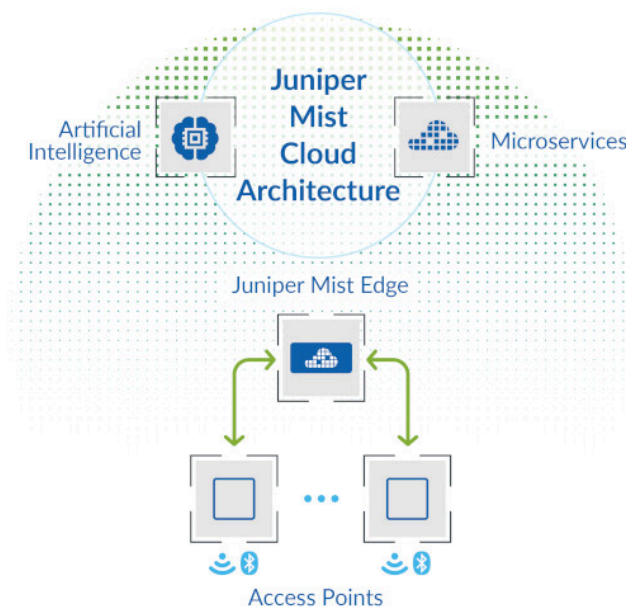
vBLE enables businesses to provide rich location-based experiences that are engaging, accurate, real-time, and scalable.

Juniper Mist Edge

Juniper APs offer a flexible data plane. Juniper Mist Edge is an on-premises appliance that runs a tunnel termination service. Traffic can be broken out locally or tunneled to Juniper Mist Edge.

Juniper Mist Edge use cases include: seamless mobility in large campus environments, tunneling of guest traffic to a DMZ, IoT segmentation, and teleworker services.

[1]Juniper Mist Premium Analytics service subscription is needed

AP63   AP63E

Specifications

Wi-Fi Standard	802.11ax (Wi-Fi 6), including support for OFDMA, 1024-QAM, MU-MIMO, Target Wake Time (TWT), Spatial Frequency Reuse (BSS Coloring). Backwards compatibility with 802.11a/b/g/n/ac
Combined Highest Supported Data Rates	Dual-Band: 3.5 Gbps Dual-5 GHz (internal antenna model): 4.8 Gbps
2.4 GHz	4x4:4 802.11ax up to 1,148 Mbps data rate
5 GHz	4x4:4 802.11ax up to 2,400 Mbps data rate
MIMO Operation	Four spatial stream SU-MIMO for up to 2,400 Mbps wireless data rate to individual 4x4 HE80 Four spatial stream MU-MIMO for up to 2,400 Mbps wireless data rate to up to four MU-MIMO capable client devices simultaneously
Dedicated Third Radio	2/2:2 SS, dual-band WIDS/WIPS, spectrum analysis, synthetic client and location analytics radio
Internal Antennas	Four 2.4 GHz omnidirectional antennas with 4 dBi peak gain Four 5 GHz omnidirectional antennas with 6 dBi peak gain
Bluetooth 5.0	vBLE 16-element Directional Antenna Array + Omni Bluetooth Antenna
Beam Forming	Transmit Beamforming and Maximal Ratio Combining
Power Options	802.3at PoE (no PoE out), 802.3bt PoE
Dimensions	285 x 285 x 86 mm (11.2 x 11.2 x 3.4 in)
Weight	AP63: 3.4 kg (7.5 lbs) excluding mount and accessories AP63E: 3.9 kg (8.6 lbs) excluding mount and accessories
Operating Temperature	-40° to 55° C with solar loading -40° to 65° C without solar loading
Operating Humidity	10% to 90% maximum relative humidity, non-condensing
Enclosure	IP67 / NEMA 4 compliant
Electromagnetic Emission	FCC Part 15 Class B
Operating Altitude	3,048 m (10,000 ft)
Mean Time Between Failures (MTBF)	Indoor MTBF in hours is 999,958* Outdoor MTBF in hours is 265,318*
Trusted Platform Module (TPM)	Includes a TPM for infrastructure security

*Based on Telcordia SR-332 issue 3, Method I, Case 3 and measured at temperature of 25°C (77°F) for indoor access points, and 65°C (149°F) for outdoor access points.

I/O and Indicators

Eth0	100/1000Base-T, 2.5GBase-T (802.3bz); RJ45; PoE PD (requires 802.3bt)
Eth1	10/100/1000Base-T; RJ45 optional 802.3af PoE PSE mode (requires 802.3bt on Eth0)
External Antennas (AP63E)	Six N-type female connectors (four dual-band for client radios; two dual-band for the third radio)
Reset	Reset to the factory default settings
Indicators	One multicolor status LED
Compliance Standards	CSA/UL 62368-1 FCC Part 15.247, 15.407, 15.107, and 15.109 RSS247 ICES003 (Canada)

Mounting Brackets

APOUTBR-KIT	Contains Flush Mount and Articulating Mount Brackets

[2]The AP package includes one Universal Bracket. APBR-U is available separately as an accessory.

Ordering Information

United States Only	AP63-US (Internal Antenna) AP63E-US (External Antenna)
Outside of United States	AP63-WW (Internal Antenna) AP63E-WW (External Antenna)

Juniper products are manufactured in accordance with electrical and environmental regulations specific to certain regions and countries. Customers are responsible for ensuring that any regional or country-specific SKUs are only used in the specified authorized area. Failure to do so may void the warranty of the Juniper products.

About Juniper Networks

Juniper Networks believes that connectivity is not the same as experiencing a great connection. Juniper's AI-Native Networking Platform is built from the ground up to leverage AI to deliver exceptional, highly secure, and sustainable user experiences from the edge to the data center and cloud. Additional information can be found at juniper.net or connect with Juniper on X (formerly Twitter), LinkedIn, and Facebook.

Corporate and Sales Headquarters

Juniper Networks, Inc.

1133 Innovation Way

Sunnyvale, CA 94089 USA

Phone: 888.JUNIPER (888.586.4737)

or +1.408.745.2000

www.juniper.net

APAC and EMEA Headquarters

Juniper Networks International B.V.

Boeing Avenue 240 1119 PZ Schiphol-Rijk

Amsterdam, The Netherlands

Phone: +31.207.125.700