

HP 870 Unified Wired-WLAN Switch Series



Product overview

The IEEE 802.11ac-ready HP 870 Unified Wired-WLAN Appliance delivers enterprise-scale features, capacity, and high reliability, as well as offering substantial data processing capacity for wireless networks.

The HP 870 Unified Wired-WLAN Appliance provides 24 1000 Mb/s Ethernet ports and four 10GbE ports and can optionally support up to 1,536 managed APs, 30,000 users, and 40G of centralized throughput.

The HP 870 Unified Wired-WLAN Appliance provides refined user control and management, comprehensive RF management and security mechanisms, fast roaming, QoS and IPv4/IPv6 features, and powerful WLAN access control.

Key features

- Enterprise-scale capacity, performance, and high reliability for wireless networks.
- System-wide approach to WLAN reliability through Wi-Fi Clear Connect.
- IEEE 802.11ac-ready.
- Flexible forwarding modes.
- Comprehensive feature set for demanding Enterprise environments.

Features and benefits

Management

• Wi-Fi Clear Connect

Provides a system-wide approach to help ensure WLAN reliability by proactively determining and adjusting to changing RF conditions and by identifying rogue activity and enforcing prevention policies, and optimizing WLAN performance by detecting interference from Wi-Fi and non-Wi-Fi sources using Spectrum Analysis capabilities built into specific access points (refer to the HP Access Point—Controller Compatibility Matrix for specific access points supported).

• Advanced radio resource management

– Automatic radio power adjustments

Include real-time power adjustments based on changing environmental conditions and signal coverage adjustments.

– Automatic radio channel

Provides intelligent channel switching and real-time interference detection.

– Intelligent client load balancing

Balances the number of clients across multiple APs to optimize AP and client throughput.

– Airtime fairness

Helps ensure equal RF transmission time for wireless clients.

• Spectrum analysis

– Signal detection/classification

Identifies source of RF interference, for example, Bluetooth, cordless phones, and microwave ovens.

– Evaluation of channel quality

Helps detect severe channel degradation and improves the reporting of poor RF performance.

• Band navigation

Enables automatic redirection of 5 GHz-capable clients to the less-congested 5 GHz spectrum.

• Enterprise network management

Is provided by HP Intelligent Management Center (IMC) Platform software and the IMC Wireless Services Manager Software Module, which effectively integrate traditionally disparate management tools into one easy-to-use interface.

• Secure controller management

Manages the controller securely from a single location with IMC or any other SNMP management station; controller supports SNMPv3 as well as SSHv2 and SSL for secure CLI and Web management; console port is available as a pass-through to the switch console function.

• VLAN pooling

Enables wireless clients to be dynamically assigned to different VLANs so administrators can assign different subnets to different clients in the same SSID. A VLAN pool can bind to multiple SSIDs.

• Unified network visibility

Provides visibility between a wired and wireless network using IEEE 802.1AB Link Layer Discovery Protocol (LLDP) and sFlow.

• AP Plug and Play (PnP)

Provides zero-configuration capability. An AP without a predefined configuration file can connect to the WLAN controller and the WLAN Controller will provision it with the correct wireless configuration.

• Policy based forwarding

Simplifies the deployment of centralized or local forwarding. The policy-based mode allows user to classify data traffic based on ACL and choose local or centralized forwarding. Policy-based forwarding can be applied based on SSID or user-profile. That means a forwarding policy can be applied on a SSID or a specific user or a group of users.

• AP grouping

Enables an admin to easily apply AP-based or radio-based configurations to all the AP that are in the same group.

- **Staged firmware upgrades**

Enables an admin to selectively upgrade APs, typically a group of APs, to minimize the impact of upgrading large deployments of APs to a new version of firmware.

- **Custom antenna settings**

Allow the admin to select a custom antenna gain.

Quality of Service (QoS)

- **IEEE 802.1p prioritization**

Delivers data to devices based on the priority and type of traffic.

- **Class of Service (CoS)**

Sets the IEEE 802.1p priority tag based on IP address, IP Type of Service (ToS), Layer 3 protocol, TCP/UDP port number, source port, and DiffServ.

- **End-to-end QoS**

The HP 870 Unified Wired-WLAN Appliance supports the DiffServ standard and IPv6 QoS; the QoS DiffServ model includes traffic classification and traffic policing, and fully implements six groups of services—EF, AF1 through AF4, and BE.

Security

- **Web-based authentication**

Provides a browser-based environment to authenticate clients that do not support the IEEE 802.1X supplicant.

- **IEEE 802.1X and RADIUS network logins**

Supports port-based and SSID-based IEEE 802.1X authentication and accounting.

- **WEP, WPA2, or WPA encryption**

Can be deployed at the AP to lock out unauthorized wireless access by authenticating users prior to granting network access; robust Advanced Encryption Standard (AES) or Temporal Key Integrity Protocol (TKIP) encryption secures the data integrity of wireless traffic.

- **Integrated Wireless Intrusion Detection System (WIDS)**

Provides support for hybrid and dedicated modes; detects flood, spoofing, and weak IV attacks; displays statistics (events) and history; supports configuration of detection policies.

- **Integrated Wireless Intrusion Prevention System (WIPS)**

Automatically identifies and classifies all APs and stations; enables packet-trigger containment via knowledge-based heuristics; protects against honeypot attacks and enforces STA security; detects Denial of Service (DoS) attacks via predefined DoS attacks, and provides a Signature mechanism which allows admins to define custom rules; enables Virtual Service Domains to deploy security policies by department or location for example.

- **Media access control (MAC) authentication**

Provides simple authentication based on a user's MAC address; supports local or RADIUS-based authentication.

- **Secure user isolation**

Virtual AP services enable network administrators to provide specific services for different user groups, allowing effective resource sharing, and simplifying network maintenance and management.

- **Secure access by location**

AP location-based user access control helps ensure that wireless users can access and authenticate only to preselected APs, enabling system administrators to control the locations where a wireless user can access the network.

- **Endpoint Admission Defense**

Integrated wired and wireless Endpoint Admission Defense (EAD) helps ensure that only wireless clients who comply with mandated enterprise security policies can access the network, reducing threat levels caused by infected wireless clients and improving the overall security of the wireless network.

- **Public Key Infrastructure (PKI)**

Is used to control access.

- **Authentication, authorization, and accounting (AAA)**

Uses an embedded authentication server or external AAA server for local users.

- **Wireless Intelligent Application Aware (WIAA) feature**

- Provides a user, role, or SSID based firewall embedded in WLAN Controller via ACL-based packet filter firewall and ASPF firewall.
- Protects clients from outside attacks Restrict specific users from accessing specific network resources.

- **Source Address Validation Improvement (SAVI)**

Records the wireless client's IP address and MAC address and at the next data traffic forwarding stage, SAVI will validate the client's IP address to prevent attacker spoofing other client's IP address.

Connectivity

- **Loopback**

Supports internal loopback testing for maintenance purposes and an increase in availability; loopback detection protects against incorrect cabling or network configurations and can be enabled on a per-port or per-VLAN basis for added flexibility.

- **IPv6**

- **IPv6 host**

Enables controllers to be managed and deployed at the IPv6 network's edge.

- **Dual stack (IPv4 and IPv6)**

Transitions customers from IPv4 to IPv6, supporting connectivity for both protocols.

- **MLD snooping**

Directs IPv6 multicast traffic to the appropriate interface, preventing traffic flooding.

- **IPv6 ACL/QoS**

Supports ACL and QoS for IPv6 network traffic.

- **NAT support**

- **NAT traversal**

Helps ensure that communication between a branch office AP and HP 870 is supported when the branch uses NAT.

- **Integrated NAT support**

Replaces the private source IP address with a public address; enables multiple internal addresses to be mapped to the same public IP address; permits only certain internal IP addresses to be NATed, and provides an Application Layer Gateway that supports specific application protocols without requiring the NAT platform to be modified.

- **IEEE 802.3ad Link Aggregation Control Protocol (LACP)**

Supports a total of a 128 trunk groups with each group supporting 8 active ports. Ports must be of the same type (that is, all 100/1000 ports or 10GbE ports).

Performance

- **Flexible forwarding modes**

- **Enable distributed and centralized traffic forwarding**

Centralized forwarding, wireless traffic is sent to the HP 870 for processing. With distributed mode wireless traffic is dropped off locally. In the event that connectivity to the HP 870 is lost, authenticated clients can continue to access local resources.

- **Support local drop off or centralization of data traffic**

After an HTML authentication using the built-in portal server or IMC portal authentication.

- **Wireless user access control and management**

Support defining settings such as Committed Access Rate (CAR), QoS profiles, and access control policies based on location for different applications.

- **Fast roaming**

Supports Layer 3 roaming and fast roaming, satisfying the most demanding voice service requirements.

- **Robust capacity**

Deliver powerful forwarding capacity to support large enterprise WLANs.

Resiliency and high availability

• High reliability

Supports 1+1, N+1, and N+N backup; the 1+1 redundancy configuration of the modules supports subsecond-level failure detection; APs establish AP-module tunnel links with both modules, but only the links to the active module are active; when the active module fails, the heartbeat mechanism between the two modules helps ensure that the standby module can sense the failure in subsecond level and then informs the APs to switch over to it, thus providing service continuity.

• 802.1X hot-backup

Enables two controllers to sync 802.1X state information and wireless client's 802.11 information from master to backup. This feature is only supported on the HP 870 and 20G Unified Module.

Layer 2 switching

• VLAN support and tagging

Supports IEEE 802.1Q with 4,094 simultaneous VLAN IDs.

• Spanning Tree Protocol (STP)

Supports standard IEEE 802.1D STP, IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) for faster convergence, and IEEE 802.1s Multiple Spanning Tree Protocol (MSTP).

• Port mirroring

Duplicates port traffic (ingress and egress) to a local monitoring port.

• Jumbo packet support

Supports frame sizes up to 4K byte (WLAN controller) to improve the performance of large data transfers.

Layer 3 routing

• Static IP routing

Provides manually configured routing for both IPv4 and IPv6 networks.

Comprehensive portfolio

• Access point support

Refer to the [HP Access Point—Controller Compatibility Matrix](#).

Scalability

• Optional 32 or 128 access-point upgrade license

– Increases support for additional access points from the base 256 AP support without the need to buy additional costly hardware.

– A reduced-cost 128-access point license is available for use on the redundant controller. Refer to the Specifications and Accessories sections for more detail.

Warranty and support

• Lifetime Warranty 2.0

Advance hardware replacement for as long as you own the product with next-business-day delivery (available in most countries).

• Electronic and telephone support (for Lifetime Warranty 2.0)

Limited 24x7 telephone support is available from HP for the first 3 years; limited electronic and business hours telephone support is available from HP for the entire warranty period; to reach our support centers, refer to hp.com/networking/contact-support; for details on the duration of support provided with your product purchase, refer to hp.com/networking/warrantysummary.

• Software releases

Includes all offered software releases for as long as you own the product; to find software for your product, refer to hp.com/networking/support; for details on the software releases available with your product purchase, refer to hp.com/networking/warrantysummary.

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Specifications



HP 870 Unified Wired-WLAN Appliance (JG723A)

I/O ports and slots	<p>12 RJ-45 autosensing 100/1000 ports; Media Type: Auto-MDIX; Duplex: 100BASE-TX: half or full; 1000BASE-T: full only (IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T)</p> <p>12 SFP 100/1000 Mb/s ports (IEEE 802.3z Type 1000BASE-X, IEEE 802.3u Type 100BASE-FX)</p> <p>4 SFP+ 10GbE ports (IEEE 802.3ae Type 10GBASE-ER, IEEE 802.3ae Type 10GBASE-LR, IEEE 802.3ae Type 10GBASE-SR, IEEE 802.3aq Type 10GBASE-LRM)</p> <p>1 RJ-45 serial console port</p> <p>1 RJ-45 out-of-band management port</p>
Physical characteristics	
Dimensions	17.32(w) x 18.9(d) x 3.47(h) in. (44 x 48 x 8.81 cm) (2U height)
Weight	29.32 lb (14.5 kg)
Power supplies	<p>2 power supply slots</p> <p>1 minimum power supply required</p> <p>includes: 1 x JG527A (HP X351 300W 100–240VAC to 12VDC Power Supply)</p>
Memory and processor	
Processor	Broadcom XLP432 Eight core @ 1.4 GHz, 4 GB flash, 8 GB DDR3 SDRAM
Mounting and enclosure	EIA-standard 19-inch Telco rack or equipment cabinet (hardware included)
Environment	
Operating temperature	32°F to 113°F (0°C to 45°C)
Operating relative humidity	5% to 95%, noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	5% to 95%, noncondensing
Altitude	up to 16,404 ft. (5 km)
Electrical characteristics	
Maximum heat dissipation	887 BTU/hr (935.79 kJ/hr)
AC voltage	100–240 VAC
DC voltage	-48 to -60 VDC
Maximum power rating	260 W
Frequency	50/60 Hz
Safety	UL 60950-1; CAN/CSA 22.2 No. 60950-1; IEC 60950-1; EN 60950-1; FDA 21 CFR Subchapter J
Features	<p>Default supported APs: 256</p> <p>Maximum supported APs: 1536 (via the optional purchase of the 32 or 128 access point E-LTU)</p> <p>Maximum supported clients and centralized throughput:</p> <ul style="list-style-type: none"> • 30,000 clients • 40G centralized throughput <p>Maximum supported users via local portal authentication: 6000</p> <p>Maximum supported users via local authentication (AAA): 3,000</p> <p>Maximum supported configured SSIDs: 512</p> <p>Maximum supported ACLs: 32,000</p> <p>Supported MSM APs are automatically discovered, Comware firmware is loaded, and the APs can be fully managed.</p> <p>AP upgrades license rules for redundant HP 870 Unified Wired-WLAN Appliance deployments.</p> <ul style="list-style-type: none"> • The primary HP 870 Unified Wired-WLAN Appliance's AP count must be increased using the optional HP Unified Wired-WLAN 128 AP E-LTU (JG649AAE) or the HP Unified Wired-WLAN 32 AP E-LTU (JG774AAE). • The secondary HP 870 Unified Wired-WLAN Appliance's AP count can be increased as needed using the reduced-cost HP Unified Wired-WLAN 128 AP Redundant E-LTU.
Emissions	EN 55022 Class A; CISPR 22 Class A; ICES-003 Class A; AS/NZS CISPR 22 Class A; EN 61000-3-2; EN 61000-3-3; VCCI-3 CLASS A; VCCI-4 CLASS A; ETSI EN 300 386; FCC Part 15 (CFR 47) CLASS A
Immunity	
EN	EN 55024, CISPR 24 & ETSI EN 300 386
Management	Intelligent Management Center (IMC); command-line interface; Web browser; SNMP Manager; Telnet; HTTPS; RMON1; FTP; IEEE 802.3 Ethernet MIB; Ethernet Interface MIB
Services	Refer to the HP website at hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP 870 Unified Wired-WLAN Switch Series (continued)

Standards and Protocols

(applies to all products in series)

General protocols	RFC 768 UDP RFC 791 IP RFC 792 ICMP RFC 793 TCP RFC 826 ARP RFC 854 TELNET RFC 855 Telnet Option Specification RFC 858 Telnet Suppress Go Ahead Option RFC 894 IP over Ethernet RFC 950 Internet Standard Subnetting Procedure RFC 959 File Transfer Protocol (FTP) RFC 1122 Host Requirements	RFC 1141 Incremental updating of the Internet checksum RFC 1144 Compressing TCP/IP headers for low-speed serial links RFC 1256 ICMP Router Discovery Protocol (IRDP) RFC 1305 NTPv3 (IPv4 only) RFC 1321 the MD5 Message-Digest Algorithm RFC 1334 PPP Authentication Protocols (PAP) RFC 1350 TFTP Protocol (revision 2) RFC 1812 IPv4 Routing RFC 1944 Benchmarking Methodology for Network Interconnect Devices RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)	RFC 2104 HMAC: Keyed-Hashing for Message Authentication RFC 2246 the TLS Protocol Version 1.0 RFC 2284 EAP over LAN RFC 2644 Directed Broadcast Control RFC 2864 the Inverted Stack Table Extension to the Interfaces Group MIB RFC 2866 RADIUS Accounting RFC 2869 RADIUS Extensions RFC 3164 Syslog RFC 3268 Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS) RFC 3619 Ethernet Automatic Protection Switching (EAPS)
IP multicast	RFC 1112 IGMP	RFC 2236 IGMPv2 RFC 2934 Protocol Independent Multicast MIB for IPv4	RFC 4541 Considerations for Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) Snooping Switches
IPv6	RFC 1350 TFTP RFC 1881 IPv6 Address Allocation Management RFC 1887 IPv6 Unicast Address Allocation Architecture RFC 1981 IPv6 Path MTU Discovery RFC 2292 Advanced Sockets API for IPv6 RFC 2373 IPv6 Addressing Architecture RFC 2375 IPv6 Multicast Address Assignments RFC 2454, IP Version 6 Management Information Base—UDP RFC 2460 IPv6 Specification RFC 2461 IPv6 Neighbor Discovery	RFC 2462 IPv6 Stateless Address Auto-configuration RFC 2463 ICMPv6 RFC 2464 Transmission of IPv6 over Ethernet Networks RFC 2465 Management Information Base for IPv6: Textual Conventions and General Group RFC 2466, Management Information Base for IP Version 6—ICMPv6 RFC 2526 Reserved IPv6 Subnet Anycast Addresses RFC 2553 Basic Socket Interface Extensions for IPv6 RFC 2563 ICMPv6 RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations (Ping only) RFC 3315 DHCPv6 (client and relay)	RFC 3363 DNS support RFC 3484 Default Address Selection for IPv6 RFC 3493 Basic Socket Interface Extensions for IPv6 RFC 3513 IPv6 Addressing Architecture RFC 3542 Advanced Sockets API for IPv6 RFC 3587 IPv6 Global Unicast Address Format RFC 3596 DNS Extension for IPv6 RFC 4193, Unique Local IPv6 Unicast Addresses RFC 4443 ICMPv6 RFC 4541 IGMP & MLD Snooping Switch RFC 4861 IPv6 Neighbor Discovery RFC 4862 IPv6 Stateless Address Auto-configuration
MIBs	RFC 1229 Interface MIB Extensions RFC 1643 Ethernet MIB RFC 1757 Remote Network Monitoring MIB RFC 2011 SNMPv2 MIB for IP RFC 2012 SNMPv2 MIB for TCP	RFC 2013 SNMPv2 MIB for UDP RFC 2571 SNMP Framework MIB RFC 2572 SNMP-MPD MIB RFC 2613 SMON MIB RFC 2665 Ethernet-Like-MIB	RFC 2674 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering, and Virtual Extensions RFC 2863 the Interfaces Group MIB RFC 2932 IP (Multicast Routing MIB) RFC 2933 IGMP MIB RFC 4444 Management Information Base for Intermediate System to Intermediate System (IS-IS)
Mobility	IEEE 802.11a High Speed Physical Layer in the 5 GHz Band IEEE 802.11b Higher-Speed Physical Layer Extension in the 2.4 GHz Band	IEEE 802.11d Global Harmonization IEEE 802.11e QoS enhancements IEEE 802.11g Further Higher Data Rate Extension in the 2.4 GHz Band IEEE 802.11h Dynamic Frequency Selection	IEEE 802.11i Medium Access Control (MAC) Security Enhancements IEEE 802.11n WLAN Enhancements for Higher Throughput Note: All of the above standards are now included in IEEE 802.11-2012
Network management	IEEE 802.11k-2008 (beacon measurement functionality used as part of radio resource management)	RFC 1155 Structure of Management Information RFC 1905 SNMPv2 Protocol Operations RFC 2573 SNMPv3 Applications	RFC 2574 SNMPv3 User-based Security Model (USM) RFC 2575 VACM for SNMP SNMPv1/v2c
QoS/CoS	RFC 2474 DS Field in the IPv4 and IPv6 Headers	RFC 2475 DiffServ Architecture	
Security	IEEE 802.1X Port Based Network Access Control RFC 1851 ESP Triple DES Transform RFC 2246 Transport Layer Security (TLS) RFC 2401 Security Architecture for the Internet Protocol RFC 2408 Internet Security Association and Key Management Protocol (ISAKMP) RFC 2409 the Internet Key Exchange (IKE)	RFC 2548 Microsoft* Vendor-specific RADIUS Attributes RFC 2716 PPP EAP TLS Authentication Protocol RFC 2865 RADIUS Authentication RFC 2867 RADIUS Accounting Modifications for Tunnel Protocol Support RFC 3394 Advanced Encryption Standard (AES) Key Wrap Algorithm RFC 3576 Dynamic Authorization Extensions to RADIUS (Disconnect Message and Session-time renewal)	RFC 3579 RADIUS Support For Extensible Authentication Protocol (EAP) RFC 3580 IEEE 802.1X RADIUS Guidelines Access Control Lists (ACLs) Guest VLAN for 802.1X Secure Sockets Layer (SSL) SSHv2 Secure Shell Web Authentication WPA (Wi-Fi Protected Access)/WPA2
VPN	RFC 2403 the Use of HMAC-MD5-96 within ESP and AH	RFC 2404 the Use of HMAC-SHA-1-96 within ESP and AH RFC 2405 the ESP DES-CBC Cipher Algorithm With Explicit IV	RFC 2407 the Internet IP Security Domain of Interpretation for ISAKMP RFC 2451 the ESP CBC-Mode Cipher Algorithms
IPSec	RFC 1829 the ESP DES-CBC Transform	RFC 3602 the AES-CBC Cipher Algorithm and Its Use with IPSec	
IKEv1	RFC 3748—Extensible Authentication Protocol (EAP)		
PKI	RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile		

HP 870 Unified Wired-WLAN Switch Series accessories

HP 870 Unified Wired-WLAN Appliance (JG723A)

HP X125 1G SFP LC LH40 1310nm Transceiver (JD061A)

HP X120 1G SFP LC LH40 1550nm Transceiver (JD062A)

HP X125 1G SFP LC LH70 Transceiver (JD063B)

HP X110 100M SFP LC LH40 Transceiver (JD090A)

HP X130 10G SFP+ LC SR Transceiver (JD092B)

HP X130 10G SFP+ LC LRM Transceiver (JD093B)

HP X130 10G SFP+ LC LR Transceiver (JD094B)

HP X110 100M SFP LC FX Transceiver (JD102B)

HP X120 1G SFP LC SX Transceiver (JD118B)

HP X120 1G SFP LC LX Transceiver (JD119B)

HP X110 100M SFP LC LX Transceiver (JD120B)

HP X130 10G SFP+ LC ER 40km Transceiver (JG234A)

HP X351 300W 100–240VAC to 12VDC Power Supply (JG527A)

HP Unified Wired-WLAN 32 AP E-LTU (JG774AAE)

HP Unified Wired-WLAN 128 AP E-LTU (JG649AAE)

NEW HP Unified Wired-WLAN 128 AP Redundant E-LTU (JG902AAE)

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