



HP MSM775 zL Premium Controller Module Series



Key features

- Ease of use, scalability, and redundancy
- Enhanced architecture for flexible network design
- Supports IEEE 802.11a/b/g/n and 802.11ac access devices
- Comprehensive WLAN security
- Next-generation v2 module for HP 5400R zL2, 5400 zL, and 8200 zL switch chassis

Product overview

Working in unison with HP Access Points, the HP MSM775 zL Premium Controller Module delivers high performance and scalability for wireless networks. The enhanced controller architecture scales to new WLAN standards without requiring a replacement. The HP MSM775 zL Premium Controller Module provides advanced radio resource management (RRM), including client load balancing and interference mitigation. The HP MSM775 zL Premium Controller Module supports a fast-roaming capability.

Wireless security is comprehensive with integrated Wireless IDS and support for internal and external authentication, authorization, and accounting (AAA) servers; a built-in stateful firewall; per-user VLAN mapping; and authentication.

Features and benefits

Management

- Wi-Fi Clear Connect
 - provides a system-wide approach to delivering WLAN reliability by proactively determining and adjusting to changing RF conditions; optimizes 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), identifying rogue activity, and making decisions at a system-wide level
- Advanced radio resource management
 - Automatic radio power adjustments
 - include real-time power adjustments based on changing environmental conditions and signal coverage adjustment
 - Automatic radio channel
 - provides intelligent channel switching and real-time interference detection
 - Intelligent client load balancing
 - determines the number of clients across neighboring APs and adjusts client allocation to balance the load
 - Airtime fairness
 - helps ensure equal RF transmission time for wireless clients
- Spectrum Analysis
 - Power/frequency spectrum analysis
 - measures noise from IEEE 802.11 remote sources
 - 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
- Automated work flows
 - Initial controller settings
 - define basic operational settings for the controller, for example, network connections, security settings, and system time
 - Wireless network for employees
 - enables setup of a new wireless network for employees, for example, network and security settings, and basic voice and video settings
 - Wireless network for guests
 - provides wireless access for guest users, for example, network and security settings specific to guest access
- Dashboard Monitoring and Analytics
 - Allow administrators to monitor and troubleshoot their HP WLAN infrastructure at a glance
 - Provide analytical visibility into multiple areas such as: Wireless Clients, Access Points and Alarms utilizing intuitive graphics and colors
 - Display a quick operational health assessment of the Wi-Fi network and easy identification of potential issues

- Support for environments using Bonjour services
 - Bonjour Gateway
 - allows discovery of services located in a different layer-3 network.
 - Bonjour multicast manager
 - eliminates Bonjour multicast traffic from the WLAN enabling scalable deployment of Apple devices with no performance impact
 - Bonjour access control
 - enables filters to be applied inbound and outbound (on the AP) to SSIDs, groups of or specific APs. User based filtering can block Bonjour traffic until the user is authenticated.
- Remote configuration and management
 - are available through a secure Web browser, command-line interface (console port or SSH), SOAP, or SNMP
- Management interface control
 - allows interfaces to be enabled or disabled depending on security preferences
- Management VLAN
 - segments traffic to and from management interfaces, including CLI, Web browser interface, and SNMP
- RADIUS accounting support
 - separates RADIUS accounting server support per SSID; provides detailed session, usage, and billing information for each client activity
- Logging
 - provides local and remote logging of events via SNMP (v2c and v3) and syslog; provides log throttling and log filtering to reduce the number of log events generated
- Controller networking
 - includes IEEE 802.1d-compliant bridging and Bridge MIB (RFC 4188), which is supported only on a primary bridge interface; stateful firewall; PPPoE Client (RFC 2516); ICMP (RFC 792); IEEE 802.1q VLAN tagging; NAT (RFC 1631); CIDR (RFC 1519); L2TP and PPTP servers for wireless clients; VPN client, which establishes PPTP or IPsec tunnels to other devices; and IGMP snooping (IGMP proxy v1 and v2), which is supported on the wireless interfaces of APs
- DHCP support
 - includes RFC 2131 and RFC 3046 (DHCP Relay Option-82) for server and built-in DHCP client for client
- Band steering
 - can automatically redirect 5 GHz-capable clients to the less-congested 5 GHz spectrum
- Controller management
 - provides secure Web browser (SSL and VPN), command-line interface, SOAP, SNMP v2c and v3, MIB-II with traps, RADIUS Authentication Client MIB (RFC 2618), and RIPv2 MIB Extension (RFC 1724); implements scheduled configuration and firmware upgrades from a central server; offers per-user activity records by time used or data transferred; supports remote syslog

- HP Intelligent Management Center (IMC) and Wireless Services Manager Software (WSM) provides centralized management for discovery, logging, status, and configuration management
- Unified network visibility
provides visibility between a wired and wireless network using IEEE 802.1AB Link Layer Discovery Protocol (LLDP) and sFlow
- Diagnostics
client event log records association, authentication, and DHCP events; includes a packet capture tool for Ethernet and IEEE 802.11 interfaces (PCAP format), a wireless client data rate matrix, and a client status page; complete session logging provides detailed information for problem identification and resolution
- **NEW** Group bandwidth Management
Ability to assign users to a groups and control bandwidth by group

Firewall

- Stateful firewall
enforces firewall policies to control traffic and filter access to network services; maintains session information for every connection passing through it, enabling the firewall to control packets based on existing sessions
- NAT/PAT
choice of dynamic partial address translation (PAT) or static network address translation (NAT) preserves the network IP address pool or conceals the private address of network resources, such as Web servers, which are made accessible to users of a guest or public wireless LAN
- Authenticated network access
authenticates users with an internal or external RADIUS server or Microsoft® Active Directory before allowing full network connectivity

Quality of Service (QoS)

- Rate limiting
supports per-wireless client ingress-enforced maximums and per-wireless client, per-queue guaranteed minimums
- Centralized traffic
Layer 2 and Layer 3 QoS settings are maintained when using Mobility Traffic Manager or guest access

Mobility

- Solutions enhanced for businesses
The HP MSM775 zL Premium Controller Module delivers services for a range of vertical markets, including healthcare, hospitality, education, manufacturing, transportation, and service providers
- Powerful security capabilities
robust, identity and role-based user account profiles use internal or external AAA services
- Solutions that cover the most important WLAN applications
HP MSM solutions deliver rich application support, including guest access, location-based services, Voice over Wi-Fi (VoWi-Fi), hotspot, surveillance, and secure point of sale

- Capacity that scales from small to large campus deployments
efficiently deploy wireless LANs (WLANs) with the HP MSM775 zL Premium Controller Module which supports 40 to 200 APs
- Premium Mobility scalability features
 - Virtual controller
supports a team of up to 800 APs and five HP MSM775 zL Premium Controller Modules managed via a single IP address
 - N+1 redundancy
teaming provides N+1 redundancy
 - Seamless failover
APs can fail-over without rebooting, which preserves network mobility services for wireless clients when the client traffic is bridged locally at the AP
 - 64 VSC profiles
up to 64 profiles can be defined
- Mobility Traffic Manager
flexible and multiple network distribution schemes address a range of business needs; policies for user network and security profiles are consistently applied and enforced; wireless traffic can be directed anywhere in the network as required; enterprise businesses can easily migrate to the MSM mobility solution, preserving prior network designs
- Controller client access control
provides SSL-protected universal access method, MAC address authentication, and IEEE 802.1X authentication; Web proxy server; support for centralized portal; AAA Security; WPA and WPA2 encryption; client-fixed IP address spoofing; per-site and per-user access lists; white list and black list support; bandwidth limiting per user, per VLAN, or per VSC; and up to 2000 concurrent clients
- Simplified management with central control
The HP MSM775 zL Premium Controller Module reduces the time and complexity of managing a wireless network from a single management interface and helps ensure that a consistent set of services is delivered throughout the wireless network; the controllers push authentication, encryption, QoS enforcement, and access policies to the access points, delivering intelligence to the edge
- Services
provides standard Layer 2 roaming and VoWLAN support on all controllers, advanced fast roaming on mobility controllers, plug-and-play AP management, and public and guest Internet access
- Advanced fast roaming (requires mobility controller or upgrade)
provides WPA2 Opportunistic Key Caching through controller support and inter-/intra-subnet roaming and seamless roaming (less than 50 ms roaming delay) support for Voice-over-Wi-Fi deployments

Security

- Integrated IDS support
 - Automated AP and client classification
 - reduces manual effort (administrator can override AP classification)
 - Comprehensive detection capabilities
 - detects a wide range of attacks
 - Flexible event reporting
 - enables configuration of which events will result in notifications
 - Location tracking capabilities
 - helps identify the location of a rogue device
 - Flexible deployment models
 - supports time slicing or dedicating a radio to detect full time
- Secure shell
 - encrypts all transmitted data for secure remote CLI access over IP networks
- Secure Sockets Layer (SSL)
 - encrypts all HTTP traffic, allowing secure access to the browser-based management GUI in the switch
- IEEE 802.1X, Active Directory, and RADIUS network logins
 - control wireless network access for authentication and accountability using IEEE 802.1X, Microsoft Active Directory, and RADIUS
- RADIUS-based MAC authentication
 - authenticates a wireless client with a RADIUS server based on the MAC address of the client; this is useful for clients with minimal or no user interface
- Web-based authentication
 - provides a Web browser-based environment to authenticate clients that may not support the IEEE 802.1X supplicant
- IEEE 802.1X supplicant on MSM APs
 - helps prevent deployment of rogue networking equipment
- Secure management access
 - securely encrypts all access methods (CLI, GUI, or MIB) through SSH v2c, SSL, and/or SNMPv3

Policy management

- Standards-based authentication support for Microsoft Active Directory and IEEE 802.1X seamlessly integrates into existing authentication services or uses the built-in database
- Integration with HP IMC Network Management software helps ensure consistent policy enforcement across wired and wireless networks

Connectivity

- 10GbE connections to the switch fabric
two 10GbE wire-speed internal connections help ensure that the network connections from the application to the switch backplane will not limit application performance
- IPv6 wireless client traffic forwarding
is supported for Layer 2 and Layer 3 mobility (MTM) and for client traffic directly bridged at the AP

Performance

- High-performance processor system
 - Intel Ivy Bridge Dual Core CPU Core i3-3120ME at 2.4GHz with 3MB cache in a single-switch slot designed for larger chassis-based environments
- Memory subsystem
4GB ECC DDR3-1333 SO-DIMM provides enhanced application performance
- Solid state drive
32GB SATA solid state drive (SSD) allows rapid data reads/writes, providing improved application performance

Comprehensive portfolio

- Access point support
Refer to the HP Access Point—Controller Compatibility Matrix (refer to h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA5-0345ENW&cc=us&lc=en).
- **NEW** Support for HP 560 802.11ac access points

Additional information

- Licensing model for the MSM317 access device (v5.7 and later)
no additional AP license is required for the MSM317; non-MSM317 devices are subject to AP licensing; maximum wireless device limits per controller and team are unchanged, and all devices count toward these maximums (e.g., an MSM775 could manage 200 MSM317 devices with no additional AP license; or 40 APs and 160 MSM317 devices with no additional AP license; or 80 APs and 120 MSM317 devices with an additional 40-AP license)

Warranty and support

- Limited Lifetime Warranty 2.0
Advance hardware replacement for as long as you own the product with next-business-day delivery (available in most countries)
- Software releases
the HP MSM775 zL Premium Controller Module includes all offered software releases for as long as you own the product; for details on the software releases available with your product purchase, refer to hp.com/networking/warrantysummary; to find software for your product, refer to hp.com/networking/support
- Electronic and telephone support (for Limited 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

HP MSM775 zL Premium Controller Module Series

Specifications



HP MSM775 zL Premium Controller Module (J9840A)

Physical characteristics

Dimensions	8.13(w) x 9.75(d) x 1.75(h) in (20.65 x 24.77 x 4.45 cm)
Weight	2.65 lb (1.2 kg)

Mounting and enclosure

Can be installed in any of the following chassis: HP 5406R zL2 (J9821A), HP 5412R zL2 (J9822A), HP 5406 zL (J8697A), 5412 zL (J8698A), HP 8206 zL (J9640A), and 8212 zL (J8715A).

Environment

Operating temperature	32°F to 113°F (0°C to 45°C)
Operating relative humidity	15% to 95% @ 104°F (40°C), noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	15% to 90% @ 149°F (65°C), noncondensing
Altitude	up to 10,000 ft (3 km)

Notes

Non-operating/Storage Altitude up to 15,000 ft (4.6 km) The SSD has a maximum operational wet bulb temperature of 35°C (95°F) and a maximum non-operational wet bulb temperature of 40°C (104°F)

Electrical characteristics

Maximum heat dissipation	188 BTU/hr (198.34 kJ/hr)
Maximum power rating	55 W
Idle power	30 W

Notes

Idle power is the actual power consumption of the device with no ports connected.

Safety

UL 60950-1; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1

HP MSM775 zL Premium Controller Module (J9840A)

Features

Included services:

- Plug-and-play AP management and WLAN management
- Guest access
- Captive portal
- PCI DSS compliance for wireless PoS traffic
- Support for Real-Time Location Services (RTLS)
- Advanced fast roaming with VoWLAN support
- Mobility Traffic Manager (MTM)
- Support for up to 64 VSC profiles
- Support for up to 4094 VLAN IDs
- Support for up to 200 VLAN Interfaces
- Unified policy enforcement and network visibility
- Virtual controller (up to five MSM775 zL controllers and 800 APs with resiliency)

The MSM775 zL module provides a module reset switch on the front panel. Refer to the user documentation for more detail.

The MSM775 zL module has a USB port on the front panel. Use of this port is not supported.

Emissions

FCC part 15 Class A; EN 55022 Class A; CISPR 22 Class A; ICES-003

Notes

- Not all services are supported with the Virtual Controller feature. Please refer to the user documentation for more detail.
- MSM775 zL modules can only be teamed with other MSM775 zL modules.
- The MSM775 zL module has a 2000 concurrent client limit. When controllers are teamed the limit remains 2000 concurrent clients regardless of the number of modules in the team.
- Chassis Configuration Guidelines:
 - Up to six MSM775 modules can be installed in an HP 5406R zL2, HP 5412R zL2, HP 5406 zL, HP 5412 zL, HP 8206 zL or HP 8212 zL chassis if no other service modules are installed.
 - Note that the maximum number of service modules in a chassis is 6. So if other service modules are installed in the same chassis, the total number of MSM775 zL modules than can be inserted in a chassis is reduced such that the total number of all service modules in a chassis does not exceed 6.
 - There are no restrictions on what slots the MSM775 zL modules are inserted into.
 - Maximum chassis operating temperature specifications of the HP 5400 zL chassis when the MSM775 zL module is installed is 45°C. Note that the maximum temperature of the chassis is determined by the module with the lowest operating temperature.
 - The maximum HP 8200 zL chassis operating temperature specification (45°C) does not change when a MSM775 zL module is installed.
 - Note that installation of the MSM775 does not increase or decrease documented chassis limits for other service modules.

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.

Standards and Protocols

(applies to all products in series)

Device management	RFC 1155 Structure and Mgmt Information (SMIv1) RFC 1157 SNMPv1/v2c RFC 1305 NTPv3 RFC 1591 DNS (client)	RFC 1901 (Community based SNMPv2) RFC 2030 SNTp RFC 2578-2580 SMIv2 RFC 2580 (SMIv2 Conformance)	RFC 2616 HTTP RFC2782 DNS SRV RFC 3410 (Management Framework) RFC 3416 (SNMP Protocol Operations v2) RFC 3417 (SNMP Transport Mappings)
General protocols	IEEE 802.11i Wireless Security IEEE 802.1p Priority IEEE 802.1Q VLANs IEEE 802.1X PAE IEEE 802.3ab 1000BASE-T Gigabit Ethernet over twisted pair (10/100/1000 models only) IEEE 802.3x Flow Control RFC 768 UDP	RFC 791 IP RFC 792 ICMP RFC 793 TCP FC 826 ARP RFC 1122 Host Requirements RFC 1213 Management Information Base for Network Management of TCP/IP-based internets	RFC 1305 NTPv3 (IPv4 only) RFC 1519 CIDR RFC 1542 BOOTP RFC 2131 DHCP RFC 3176 sFlow RFC 4446 IANA Allocations for Pseudowire Edge to Edge Emulation (PWE3)
MIBs	RFC 1156 (TCP/IP MIB) RFC 1157 A Simple Network Management Protocol (SNMP)	RFC 1212 Concise MIB Definitions RFC 1213 MIB II	RFC 2578 Structure of Management Information Version 2 (SMIv2) RFC 2863 The Interfaces Group MIB
Network management	IEEE 802.1AB Link Layer Discovery Protocol (LLDP) IEEE 802.1D (STP) RFC 1155 Structure of Management Information RFC 1157 SNMPv1 RFC 1212 Concise MIB definitions RFC 1215 Convention for defining traps for use with the SNMP RFC 1901 SNMPv2 Introduction RFC 2578 SMIv2	RFC 2578 Structure of Management Information Version 2 (SMIv2) RFC 2580 Conformance Statements for SMIv2 RFC 3164 BSD syslog Protocol RFC 3410 Introduction to Version 3 of the Internet-standard Network Management Framework RFC 3411 SNMP Management Frameworks RFC 3412 SNMPv3 Message Processing	RFC 3413 Simple Network Management Protocol (SNMP) Applications RFC 3414 SNMPv3 User-based Security Model (USM) RFC 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP) RFC 3584 Coexistence between Version 1 and Version 2 of the Internet-standard Network SNMPv1/v2c/v3
Security	RFC 1321 The MD5 Message-Digest Algorithm RFC 1851 ESP Triple DES Transform RFC 2104 Keyed-Hashing for Message Authentication 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 2866 RADIUS Accounting RFC 3579 RADIUS Support For Extensible Authentication Protocol (EAP)	RFC 3580 IEEE 802.1X RADIUS Guidelines RFC 3686 Using AES Counter Mode with IPsec ESP AES: CCM, CCMP SSL and TLS: RC4 128-bit and RSA 1024- and 2048-bit Web Authentication WPA (Wi-Fi Protected Access) WPA (Wi-Fi Protected Access)/WPA2
IPSec	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 2406 IP Encapsulating Security Payload RFC 2407 - Domain of interpretation	RFC 2451 The ESP CBC-Mode Cipher Algorithms RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec
IKEv1	RFC 2407 The Internet IP Security Domain of Interpretation for ISAKMP	RFC 2408 Internet Security Association and Key Management Protocol (ISAKMP). RFC 2409 The Internet Key Exchange (IKE)	RFC 2865 - Remote Authentication Dial In User Service (RADIUS) RFC 3748 - Extensible Authentication Protocol (EAP)
PKI		RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile	

HP MSM775 zL Premium Controller Module Series accessories

HP MSM775 zL Premium Controller Module (J9840A)

HP MSM Additional 10 Access Point E-LTU (J9697AAE)

HP MSM Additional 40 Access Point E-LTU (J9371AAE)

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