QuickSpecs

Overview

HPE MSR3000 Series
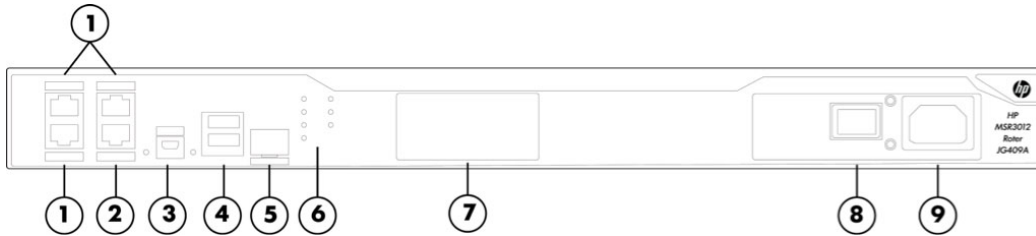
HP MSR3012 AC Router- Front (JG409A)

1. RJ-45 1000BASE-T ports (IEEE 802.3ab Type 1000BASE-T)
2. Console port/AUX port (CON/AUX)
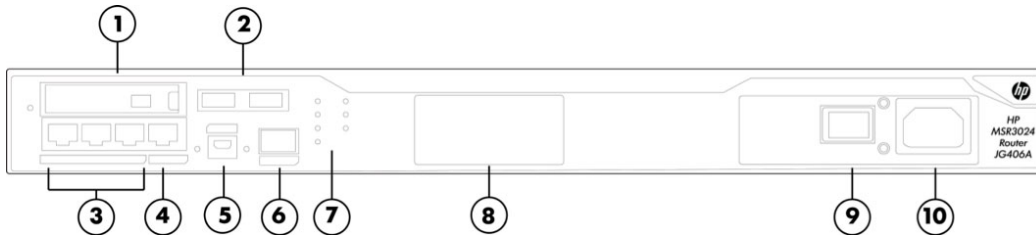3. USB console port(CON)
4. USB 2.0 Port for 3G modem and USB disk
5. Fixed COMBO 1000M RJ45/SFP
6. System Activity LEDs
7. RPS receptacle cover
8. Power Switch
9. AC-input power receptacle
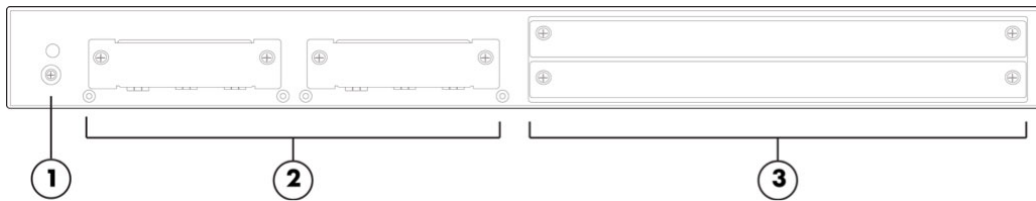
HP MSR3012 AC Router- Rear (JG409A)

1. Grounding Terminal
2. SIC slots
3. HMIM module slots

HP MSR3024 AC Router - Front

1. CF Card Slot
2. USB 2.0 Port for 3G modem and USB disk
3. RJ-45 1000BASE-T ports (IEEE 802.3ab Type 1000BASE-T)
4. Console port/AUX port (CON/AUX)
5. USB console port (CON)
6. Fixed COMBO 1000M RJ45/SFP
7. System Activity LEDs
8. RPS receptacle cover
9. Power Switch
10. AC-input power receptacle

Overview
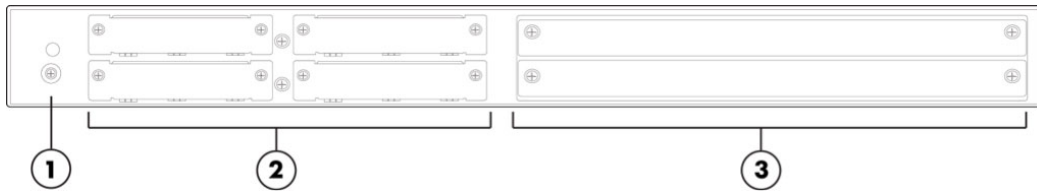
HP MSR3024 AC Router - Rear

1. Grounding terminal
2. SIC module slots / 2 - DSIC module slots

3. HMIM module slots
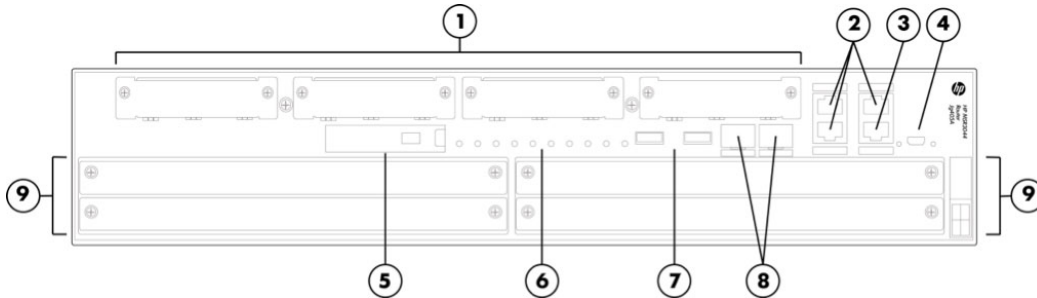
HP MSR3044 Router - Front

1. 4 - SIC module slots / 2 - DSIC module slots
2. 3 Fixed 10M/100M/1000M RJ45 ports
3. Console port/AUX port (CON/AUX)
4. USB console port (CON)
5. CF Card Slot

6. System Activity LEDs
7. 2 USB 2.0 Port for 3G modem and USB disk
8. 2 Fixed COMBO 1000M RJ45/SFP ports min=0 \ max=2 SFP Transceivers
9. HMIM module slots (4 - Half Height Slots) / 0 - DHMIM module slot (Double Width Full Height Slot
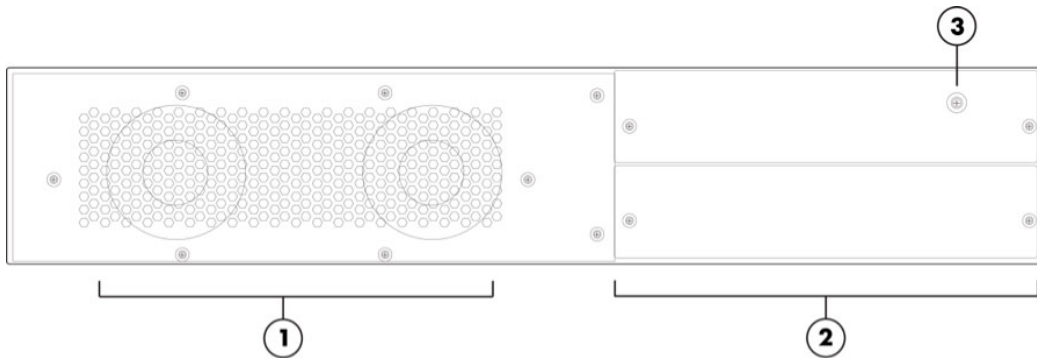
HP MSR3044 Router - Rear

1. Fans
2. Power Supplies

3. Ground

Overview
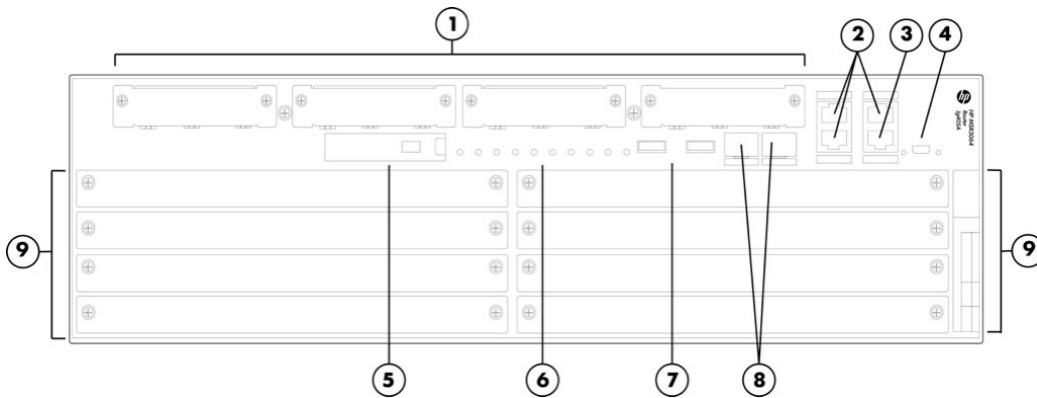
HP MSR3064 Router

1. SIC module slots / 2 - DSIC module slots
2. Fixed 10M/100M/1000M RJ45 ports
3. Console port/AUX port (CON/AUX)
4. USB console port (CON)
5. CF Card Slot
6. System Activity LEDs
7. 2 USB 2.0 Port for 3G modem and USB disk
8. 2 Fixed COMBO 1000M RJ45/SFP ports min=0 \ max=2 SFP Transceivers
9. 6 - HMIM module slots (4 Half Height + 2 Full Height Slots) / 1 - DHMIM module slot (Double Width Full Height Slot)

HP MSR3064 Router

1. Fans
2. Power supply slots
3. Grounding Terminal

Models

HP MSR3012 AC Router	JG409A
HP MSR3012 DC Router	JG410A
HP MSR3024 AC Router	JG406A
HP MSR3024 DC Router	JG407A
HP MSR3024 PoE Router	JG408A
HP MSR3044 Router	JG405A
HP MSR3064 Router	JG404A

Key features

- Up to 5 Mpps forwarding performance; support for multiple concurrent services

Overview

- Open Application Platform for HP AllianceOne applications
- Embedded security features with hardware-based encryption, stateful firewall, NAT, and VPNs
- No additional licensing complexity; no cost for advanced features
- Zero-touch solution, with single pane-of-glass management

Product overview

The HPE MSR3000 Router Series, the next generation of router from Hewlett Packard Enterprise (HPE), is a component of the HPE FlexBranch solution, which is a part of the comprehensive HPE FlexNetwork architecture. These routers feature a modular design that delivers unmatched application services for medium- to large-sized branch offices. This gives your IT personnel the benefit of reduced complexity, and simplified configuration, deployment, and management.

The MSR3000 routers use the latest multicore CPUs, offer Gigabit switching, provide an enhanced PCI bus, and ship with the latest version of HPE Comware software to help ensure high performance with concurrent services. The MSR3000 series provides a full-featured, resilient routing platform, including IPv6 and MPLS, with up to 5 Mpps forwarding capacity and 3.3 Gbps of IPSec VPN encrypted throughput. These routers also support HPE Open Application Platform (OAP) modules to deliver integrated industry-leading HPE AllianceOne partner applications such as virtualization, unified communications and collaboration (UC&C), and application optimization capabilities.

The MSR3000 series provides an agile, flexible network infrastructure that enables you to quickly adapt to changing business requirements while delivering integrated concurrent services on a single, easy-to-manage platform.

Features and benefits

Performance

- **Excellent forwarding performance**
  provides forwarding performance up to 5 Mpps (3.3 Gb/s); meets the bandwidth-intensive application demands of enterprise businesses
- **Powerful security capacity**
  The MSR3000 series is available with standard or high encryption, an embedded hardware encryption accelerator to improve encryption performance; IPSec encryption throughput can be up to 3.3 Gb/s with a maximum of 4,000 IPSec VPN tunnels

Product architecture

- **SDN/OpenFlow**
  OpenFlow is the communications interface defined between the control and forwarding layers of a SDN (Software-Defined Networking) architecture. OpenFlow separates the data forwarding and routing decision functions. It keeps the flow-based forwarding function and employs a separate controller to make routing decisions. OpenFlow matches packets against one or more flow tables. MSR support OpenFlow 1.3.1
- **Ideal multiservice platform**
  provides WAN router, Ethernet switch, 3G/4G WAN, statful firewall, VPN, and SIP/voice gateway on MSRs
- **Advanced hardware architecture**
  provides multicore processors, gigabit switching, and PCIE bus; external RPS or dual internal power supplies, and internal and external CF cards are offered; new high-performance MIM modules (HMIM) supported
- **New operation system**
  ships with new Comware v7 operating system delivering the latest in virtualization and routing
- **Open Application Platform architecture**
  provides unmatched application and services flexibility, with the potential to deliver the functionality of multiple devices, creating capital and operational expense savings and lasting investment protection

Overview

- **Field-programmable gate array (FPGA)**
  improves the bandwidth of I/O module slots from 100 Mb/s to 1000 Mb/s, and improves uplink performance from 1 Gb/s to 10 Gb/s
- **Multi Gigabit Fabric (MGF)**
  eases utilization of the main processor by transmitting Layer 2 packets directly via the MGF

Connectivity

- **Ethernet Virtual Interconnect (EVI)**
  EVI is a MAC-in-IP technology that provides Layer 2 connectivity between distant Layer 2 network sites across an IP routed network. It is used for connecting geographically dispersed sites of a virtualized large-scale data center that requires Layer 2 adjacency.
- **VXLAN (Virtual eXtensible LAN)**
  VXLAN (Virtual eXtensible LAN, scalable virtual local area network) is an IP-based network, using the "MAC in UDP" package of Layer VPN technology. VXLAN can be based on an existing ISP or enterprise IP networks for decentralized physical site provides Layer 2 communication, and can provide service isolation for different tenants.
- **Virtual Private LAN Service (VPLS)**
  Virtual Private LAN Service (VPLS) delivers a point-to-multipoint L2VPN service over an MPLS or IP backbone. The backbone is transparent to the customer sites, which can communicate with each other as if they were on the same LAN. The following protocols support on MSRs, RFC4447, RFC4761 and RFC4762, BFD detection in VPLS, Support hierarchical HOPE(H-VPLS), MAC address recovery in H-VPLS to speed up convergence.
- **NEMO (Network Mobility)**
  Network mobility (NEMO)enables a node to retain the same IP address and maintain application connectivity when the node travels across networks. It allows location-independent routing of IP datagrams on the Internet.
- **High-density port connectivity**
  provides up to 10 interface module slots and up to three on-board Gigabit Ethernet ports, 8 or 24 ports GE supported on one HMIM module.
- **Multiple WAN interfaces**
  provides traditional links with E1, T1, Serial, ADSL over POTs, ADSL over ISDN, G.SHDSL, ATM and ISDN links; high-density Ethernet access with WAN Gigabit Ethernet and LAN 4- and 9-port Fast/Giga Ethernet,POE/POE+; mobility access with 3G (WCDMA/HSPA)/4G LTE SIC modules and 3G/4G USB modems, and high-speed E3/T3 and 155 Mb/s OC3 access options
- **Packet storm protection**
  protects against broadcast, multicast, or unicast storms with user-defined thresholds
- **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
- **3G/4G LTE access support**
  provides 3G/4G LTE wireless access for primary or backup connectivity via a 3G/4G LTE SIC module certified on various cellular networks; optional carrier 3G/4G LTE USB modems are available
- **USB interface**
  uses USB memory disk to download and upload configuration/OS image files; supports an external USB 3G/4G modem for a 3G/4G WAN uplink
- **Flexible port selection**
  provides a combination of fiber and copper interface modules, 100/1000BASE-X support, and 10/100/1000BASE-T auto-speed detection plus auto duplex and MDI/MDI-X

Layer 2 switching

Overview

- **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)
- **Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD) protocol snooping**
  controls and manages the flooding of multicast packets in a Layer 2 network
- **Port mirroring**
  duplicates port traffic (ingress and egress) to a local or remote monitoring port
- **VLANs**
  supports up to 4,094 VLANS or IEEE 802.1Q-based VLANs
- **sFlow**
  allows traffic sampling
- **Define port as switched or routed**
  supports command switch to easily change switched ports to routed (maximum of four Fast Ethernet ports)

Layer 3 routing

- **Static IPv4 routing**
  provides simple manually configured IPv4 routing
- **Routing Information Protocol (RIP)**
  uses a distance vector algorithm with UDP packets for route determination; supports RIPv1 and RIPv2 routing; includes loop protection
- **Open shortest path first (OSPF)**
  delivers faster convergence; uses this link-state routing Interior Gateway Protocol (IGP), which supports ECMP, NSSA, and MD5 authentication for increased security and graceful restart for faster failure recovery
- **Border Gateway Protocol 4 (BGP-4)**
  delivers an implementation of the Exterior Gateway Protocol (EGP) utilizing path vectors; uses TCP for enhanced reliability for the route discovery process; reduces bandwidth consumption by advertising only incremental updates; supports extensive policies for increased flexibility; scales to very large networks
- **Intermediate system to intermediate system (IS-IS)**
  uses a path vector Interior Gateway Protocol (IGP), which is defined by the ISO organization for IS-IS routing and extended by IETF RFC 1195 to operate in both TCP/IP and the OSI reference model (Integrated IS-IS)
- **Static IPv6 routing**
  provides simple manually configured IPv6 routing
- **Dual IP stack**
  maintains separate stacks for IPv4 and IPv6 to ease the transition from an IPv4-only network to an IPv6-only network design
- **Routing Information Protocol next generation (RIPng)**
  extends RIPv2 to support IPv6 addressing
- **OSPFv3**
  provides OSPF support for IPv6
- **BGP+**
  extends BGP-4 to support Multiprotocol BGP (MBGP), including support for IPv6 addressing
- **IS-IS for IPv6**
  extends IS-IS to support IPv6 addressing
- **IPv6 tunneling**
  allows IPv6 packets to traverse IPv4-only networks by encapsulating the IPv6 packet into a standard IPv4 packet; supports manually configured, 6to4, and Intra-Site Automatic Tunnel Addressing Protocol (ISATAP) tunnels; is an important element for the transition from IPv4 to IPv6
- **Multiprotocol Label Switching (MPLS)**
  uses BGP to advertise routes across Label Switched Paths (LSPs), but uses simple labels to forward packets from any

Overview

Layer 2 or Layer 3 protocol, which reduces complexity and increases performance; supports graceful restart for reduced failure impact; supports LSP tunneling and multilevel stacks

- **Multiprotocol Label Switching (MPLS) Layer 3 VPN**
  allows Layer 3 VPNs across a provider network; uses Multiprotocol BGP (MP-BGP) to establish private routes for increased security; supports RFC 2547bis multiple autonomous system VPNs for added flexibility; supports IPv6 MPLS VPN
- **Multiprotocol Label Switching (MPLS) Layer 2 VPN**
  establishes simple Layer 2 point-to-point VPNs across a provider network using only MPLS Label Distribution Protocol (LDP); requires no routing and therefore decreases complexity, increases performance, and allows VPNs of non-routable protocols; uses no routing information for increased security; supports Circuit Cross Connect (CCC), Static Virtual Circuits (SVCs), Martini draft, and Kompella-draft technologies
- **Routing policy**
  allows custom filters for increased performance and security; supports ACLs, IP prefix, AS paths, community lists, and aggregate policies

Layer 3 services

- **WAN Optimization**
  MSR performs optimization using TFO and a combination of DRE, Lempel-Ziv (LZ) compression to provide the bandwidth optimization for file service and web applications. The policy engine module determines which traffic can be optimized and which optimization action should be taken. A pair of WAN optimization equipment can discover each other automatically and complete the negotiation to establish a TCP optimization session.}
- **NAT-PT**
  Network Address Translation – Protocol Translation (NAT-PT) enables communication between IPv4 andIPv6 nodes by translating between IPv4 and IPv6 packets. It performs IP address translation, and according to different protocols, performs semantic translation for packets. This technology is only suitable for communication between a pure IPv4 node and a pure IPv6 node.
- **Address Resolution Protocol (ARP)**
  determines the MAC address of another IP host in the same subnet; supports static ARPs; gratuitous ARP allows detection of duplicate IP addresses; proxy ARP allows normal ARP operation between subnets or when subnets are separated by a Layer 2 network
- **User Datagram Protocol (UDP) helper**
  redirects UDP broadcasts to specific IP subnets to prevent server spoofing
- **Dynamic Host Configuration Protocol (DHCP)**
  simplifies the management of large IP networks and supports client and server; DHCP Relay enables DHCP operation across subnets

Quality of Service (QoS)

- **Traffic policing**
  supports Committed Access Rate (CAR) and line rate
- **Congestion management**
  supports FIFO, PQ, CQ, WFQ, CBQ, and RTPQ
- **Weighted random early detection (WRED)/random early detection (RED)**
  delivers congestion avoidance capabilities through the use of queue management algorithms
- **Hierarchical quality of service (HQoS)/Nested QoS**
  manages traffic uniformly, and hierarchically schedules traffic by user, network service, and application; provides more granular traffic control and quality assurance services than traditional QoS
- **Other QoS technologies**

Overview

supports traffic shaping, MPLS QoS, MP QoS/LFI, and Control Plane Policing (CoPP).

Security

- **Enhanced stateful firewall**
  Application layer protocol inspection, Transport layer protocol inspection, ICMP error message check, andTCP SYN check. Support more L4 and L7 protocols like TCP, UDP, UDP-Lite, ICMPv4/ICMPv6, SCTP, DCCP, RAWIP, HTTP, FTP, SMTP, DNS, SIP, H.323, SCCP.
- **Zone based firewall**
  Zone-Based Policy Firewall changes the firewall configuration from the older interface-based model to a more flexible, more easily understood zone-based model. Interfaces are assigned to zones, and inspection policy is applied to traffic moving between the zones. Inter-zone policies offer considerable flexibility and granularity, so different inspection policies can be applied to multiple host groups connected to the same router interface.
- **Auto Discover VPN (ADVPN):**
  collects, maintains, and distributes dynamic public addresses through the VPN Address Management (VAM) protocol, making VPN establishment available between enterprise branches that use dynamic addresses to access the public network; compared to traditional VPN technologies, ADVPN technology is more flexible and has richer features, such as NAT traversal of ADVPN packets, AAA identity authentication, IPSec protection of data packets, and multiple VPN domains
- **IPSec VPN**
  supports DES, 3DES, and AES 128/192/256 encryption, and MD5 and SHA-1 authentication
- **Access control list (ACL)**
  supports powerful ACLs for both IPv4 and IPv6; ACLs are used for filtering traffic to prevent unauthorized users from accessing the network, or for controlling network traffic to save resources; rules can either deny or permit traffic to be forwarded; rules can be based on a Layer 2 header or a Layer 3 protocol header; rules can be set to operate on specific dates or times
- **Terminal Access Controller Access-Control System (TACACS+)**
  delivers an authentication tool using TCP with encryption of the full authentication request, providing additional security
- **Unicast Reverse Path Forwarding (URPF)**
  allows normal packets to be forwarded correctly, but discards the attaching packet due to lack of reverse path route or incorrect inbound interface; prevents source spoofing and distributed attacks
- **Network login**
  allows authentication of multiple users per port
- **RADIUS**
  eases security access administration by using a user/password authentication server
- **Network address translation (NAT)**
  supports one-to-one NAT, many-to-many NAT, and NAT control, enabling NAPT to support multiple connections; supports blacklist in NAT, a limit on the number of connections, session logs, and multi-instances
- **Secure Shell (SSHv2)**
  uses external servers to securely log in into a remote device; with authentication and encryption, it protects against IP spoofing and plain text password interception; increases the security of SFTP transfers

Convergence

- **Internet Group Management Protocol (IGMP)**
  utilizes Any-Source Multicast (ASM) or Source-Specific Multicast (SSM) to manage IPv4 multicast networks; supports IGMPv1, v2, and v3
- **Protocol Independent Multicast (PIM)**
  defines modes of Internet IPv4 and IPv6 multicasting to allow one-to-many and many-to-many transmission of information; supports PIM Dense Mode (DM), Sparse Mode (SM), and Source-Specific Mode (SSM)

Overview

- **Multicast Source Discovery Protocol (MSDP)**
  allows multiple PIM-SM domains to interoperate; is used for inter-domain multicast applications
- **Multicast Border Gateway Protocol (MBGP)**
  allows multicast traffic to be forwarded across BGP networks and kept separate from unicast traffic

Integration

- **Embedded NetStream**
  improves traffic distribution using powerful scheduling algorithms, including Layer 4 to 7 services; monitors the health status of servers and firewalls
- **Embedded VPN and firewall**
  provides enhanced stateful packet inspection and filtering; delivers advanced VPN services with Triple DES (3DES) and Advanced Encryption Standard (AES) encryption at high performance and low latency, URL filtering, and application prioritization and enhancement
- **SIP trunking**
  delivers multiple concurrent calls on one link; the carrier authenticates only the link, rather than carrying each SIP call on the link

Resiliency and high availability

- **Intelligent Resilient Fabric (IRF)**
  Intelligent Resilient Fabric (IRF), allows the customer build an IRF stack, namely a logical device, by interconnecting multiple devices through stack ports. The customer can manage all the devices in the IRF stack by managing the logical device, which is cost-effective like a box-type device, and scalable and highly reliable like a chassis-type distributed device.
- **Backup Center**
  acts as a part of the management and backup function to provide backup for device interfaces; delivers reliability by switching traffic over to a backup interface when the primary one fails
- **Virtual Router Redundancy Protocol (VRRP)**
  allows groups of two routers to dynamically back each other up to create highly available routed environments; supports VRRP load balancing
- **Embedded Automation Architecture (EAA)**
  monitors the internal event and status of system hardware and software, identifying potential problems as early as possible; collects field information and attempts to automatically repair the issues; based on the user configuration, onsite information will be sent to technical support
- **Bidirectional Forwarding Detection (BFD)**
  detects quickly the failures of the bidirectional forwarding paths between two devices for upper-layer protocols such as routing protocols and MPLS

Management

- **HPE Intelligent Management Center (IMC)**
  integrates fault management, element configuration, and network monitoring from a central vantage point; built-in support for third-party devices enables network administrators to centrally manage all network elements with a variety of automated tasks, including discovery, categorization, baseline configurations, and software images; the software also provides configuration comparison tools, version tracking, change alerts, and more
- **Industry-standard CLI with a hierarchical structure**
  reduces training time and expenses, and increases productivity in multivendor installations
- **Management security**
  restricts access to critical configuration commands; offers multiple privilege levels with password protection; ACLs provide Telnet and SNMP access; local and remote syslog capabilities allow logging of all access

Overview

- **SNMPv1, v2, and v3**
  provide complete support of SNMP; provide full support of industry-standard Management Information Base (MIB) plus private extensions; SNMPv3 supports increased security using encryption
- **Remote monitoring (RMON)**
  uses standard SNMP to monitor essential network functions; supports events, alarm, history, and statistics group plus a private alarm extension group
- **FTP, TFTP, and SFTP support**
  offers different mechanisms for configuration updates; FTP allows bidirectional transfers over a TCP/IP network; trivial FTP (TFTP) is a simpler method using User Datagram Protocol (UDP); Secure File Transfer Protocol (SFTP) runs over an SSH tunnel to provide additional security
- **Debug and sampler utility**
  supports ping and trace route for both IPv4 and IPv6
- **Network Time Protocol (NTP)**
  synchronizes timekeeping among distributed time servers and clients; keeps timekeeping consistent among all clock-dependent devices within the network so that the devices can provide diverse applications based on the consistent time
- **Information center**
  provides a central repository for system and network information; aggregates all logs, traps, and debugging information generated by the system and maintains them in order of severity; outputs the network information to multiple channels based on user-defined rules
- **Management interface control**
  provides management access through modem port and terminal interface; provides access through terminal interface, telnet, or SSH
- **Network Quality Analyzer (NQA)**
  analyzes network performance and service quality by sending test packets, and provides network performance and service quality parameters such as jitter, TCP, or FTP connection delays; allows network manager to determine overall network performance and diagnose and locate network congestion points or failures
- **Role-based security**
  delivers role-based access control (RBAC); supports 16 user levels (0~15)
- **Standards-based authentication support for LDAP**
  integrates seamlessly into existing authentication services

Investment protection

- **Re-use of existing SIC and MIM modules**
  supports existing SIC and MIM modules, transceivers, and cables for investment protection

Ease of deployment

- **Zero-touch deployment**
  supports both USB disk auto deployment and 3G SMS auto deployment

Additional information

- **OPEX savings**
  simplifies and streamlines deployment, management, and training through the use of a common operating system, thereby cutting costs as well as reducing the risk of human errors associated with having to manage multiple operating systems across different platforms and network layers
- **Faster time to market**
  allows new and custom features to be brought rapidly to market through engineering efficiencies, delivering better initial and ongoing stability

Overview

- **Green initiative support**
  provides support for RoHS and WEEE regulations

Warranty and support

- **1-year Warranty 2.0**
  See **http://www.hpe.com/networking/warrantysummary** for warranty and support information included with your product purchase.
- **Software releases**
  o find software for your product, refer to **http://www.hpe.com/networking/support**; for details on the software releases available with your product purchase, refer to **http://www.hpe.com/networking/warrantysummary**

Configuration

Build To Order:

BTO is a standalone unit with no integration. BTO products ship standalone are not part of a CTO or Rack-Shippable solution.

Router Chassis

HP MSR3064 Router

JG404A

See Configuration

- 3 Fixed 10M/100M/1000M RJ45 ports
- 2 Fixed COMBO 1000M RJ45/SFP ports min=0 \ max=2 SFP Transceivers **NOTE:**3, 4, 5, 6
- 4 - SIC module slots / 2 - DSIC module slots
- 6 - HMIM module slots (4 Half Height + 2 Full Height Slots) / 1 - DHMIM module slot (Double Width Full Height Slot)
- 2 - VPM slots
- 2 USB 2.0 Port for 3G modem and USB disk
- 1 CON/AUX port and 1 USB console port
- 2GB DDR3 SDRAM Included (4GB Max, by replacing existing single 2GB SDRAM)
- 1 - CF Card Slot
- Must select min 1 Power Supply (min=1 \ max=2)
- 3U - Height

HP MSR3044 Router

JG405A

See Configuration

- 3 Fixed 10M/100M/1000M RJ45 ports
- 2 Fixed COMBO 1000M RJ45/SFP ports min=0 \ max=2 SFP Transceivers **NOTE:**3, 4, 5, 6
- 4 - SIC module slots / 2 - DSIC module slots
- 4 - HMIM module slots (4 - Half Height Slots) / 0 - DHMIM module slot (Double Width Full Height Slot)
- 2 - VPM slots
- 2 USB 2.0 Port for 3G modem and USB disk
- 1 CON/AUX port and 1 USB console port
- 2GB DDR3 SDRAM Included (4GB Max, by replacing existing single 2GB SDRAM)
- 1 - CF Card Slot
- Must select min 1 Power Supply (min=1 \ max=2)
- 2U - Height

HP MSR3024 AC Router

JG406A

See Configuration

- 3 Fixed 10M/100M/1000M RJ45 ports
- 1 Fixed COMBO 1000M RJ45/SFP port min=0 \ max=1 SFP Transceiver **NOTE:**1, 2, 3, 4, 5, 6
- 4 - SIC module slots / 2 - DSIC module slots
- 2 - HMIM module slots (2 - Half Height Slots) / 0 - DHMIM module slot (Double Width Full Height Slot)
- 2 - VPM slots
- 2 USB 2.0 Port for 3G modem and USB disk
- 1 CON/AUX port and 1 USB console port
- 2GB DDR3 SDRAM Included (4GB Max, by replacing existing single 2GB SDRAM)
- 1 - CF Card Slot
- AC Power Supply included (+RPS Optional)

Configuration

- 1U - Height

PDU CABLE NA/MEX/TW/JP   JG406A#B2B
- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU CABLE ROW   JG406A#B2C
- C15 PDU Jumper Cord (ROW)

High Volt Switch to Wall Power Cord   JG406A#B2E
- NEMA L6-20P Cord (NA/MEX/JP/TW)

HP MSR3024 DC Router   JG407A
- 3 Fixed 10M/100M/1000M RJ45 ports   See Configuration
- 1 Fixed COMBO 1000M RJ45/SFP port min=0 \ max=1 SFP Transceiver   **NOTE:** 3, 4, 5, 6, 9
- 4 - SIC module slots / 2 - DSIC module slots
- 2 - HMIM module slots (2 - Half Height Slots) / 0 - DHMIM module slot (Double Width Full Height Slot)
- 1 - VPM slots
- 2 USB 2.0 Port for 3G modem and USB disk
- 1 CON/AUX port and 1 USB console port
- 2GB DDR3 SDRAM Included (4GB Max, by replacing existing single 2GB SDRAM)
- 1 - CF Card Slot
- DC Power Supply included (+RPS Optional)
- 1U - Height

HP MSR3024 PoE Router   JG408A
- 3 Fixed 10M/100M/1000M RJ45 ports   See Configuration
- 1 Fixed COMBO 1000M RJ45/SFP port min=0 \ max=1 SFP Transceiver   **NOTE:** 1, 2, 3, 4, 5,
- 4 - SIC module slots / 2 - DSIC module slots   6
- 2 - HMIM module slots (2 - Half Height Slots) / 0 - DHMIM module slot (Double Width Full Height Slot)
- 1 - VPM slots
- 2 USB 2.0 Port for 3G modem and USB disk
- 1 CON/AUX port and 1 USB console port
- 2GB DDR3 SDRAM Included (4GB Max, by replacing existing single 2GB SDRAM)
- 1 - CF Card Slot
- AC Power Supply included (+RPS Optional)
- 1U - Height

PDU CABLE NA/MEX/TW/JP   JG408A#B2B
- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU CABLE ROW   JG408A

Configuration

- C15 PDU Jumper Cord (ROW)

High Volt Switch to Wall Power Cord   JG408A
- NEMA L6-20P Cord (NA/MEX/JP/TW)

HP MSR3012 AC Router   JG409A
- 3 Fixed 10M/100M/1000M RJ45 ports   See Configuration
- 1 Fixed COMBO 1000M RJ45/SFP port min=0 \ max=1 SFP Transceiver   **NOTE:**1, 2, 3, 6
- 2 - SIC module slots / 0 - DSIC module slots
- 1 - HMIM module slot (1 - Full Height Slot) / 0 - DHMIM module slot (Double Width Full Height Slot
- 1 - VPM slot
- 2 USB 2.0 Port for 3G modem and USB disk
- 1 CON/AUX port and 1 USB console port
- 1GB DDR3 SDRAM Included (default=1GB \ max=1GB DDR SDRAM)
- AC Power Supply included
- 1U - Height

PDU CABLE NA/MEX/TW/JP   JG409A#B2B
- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU CABLE ROW   JG409A#B2C
- C15 PDU Jumper Cord (ROW)

High Volt Switch to Wall Power Cord   JG409A#B2E
- NEMA L6-20P Cord (NA/MEX/JP/TW)

HP MSR3012 DC Router   JG410A
- 3 Fixed 10M/100M/1000M RJ45 ports   See Configuration
- 1 Fixed COMBO 1000M RJ45/SFP port min=0 \ max=1 SFP Transceiver   **NOTE:**3, 6, 9
- 2 - SIC module slots / 0 - DSIC module slots
- 1 - HMIM module slot (1 - Full Height Slot) / 0 - DHMIM module slot (Double Width Full Height Slot)
- 1 - VPM slot
- 2 USB 2.0 Port for 3G modem and USB disk
- 1 CON/AUX port and 1 USB console port
- 1GB DDR3 SDRAM Included (default=1GB \ max=1GB DDR SDRAM)
- DC Power Supply included
- 1U - Height

Configuration Rules:

Note 1   1 - AC Power Supply included

Configuration

Note 2	Localization required on orders without #B2B, #B2C or #B2E. (See Localization Menu)	
Note 3	The following Transceivers install into this Switch:	
	HP X120 1G SFP LC SX Transceiver	JD118B
	HP X120 1G SFP LC LX Transceiver	JD119B
	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 X120 1G SFP LC LH100 Transceiver	JD103A
	HP X120 1G SFP RJ45 T Transceiver	JD089B
	HP X115 100M SFP LC FX Transceiver	JD102B
	HP X110 100M SFP LC LX Transceiver	JD120B
	HP X110 100M SFP LC LH40 Transceiver	JD090A
	HP X110 100M SFP LC LH80 Transceiver	JD091A
	HP X120 1G SFP LC BX 10-U Transceiver	JD098B
	HP X120 1G SFP LC BX 10-D Transceiver	JD099B

Note 4	The following DDR SDRAM install into this Switch:	
	HP X610 4GB DDR3 SDRAM UDIMM Memory (Must remove existing 2GB UDIMM to install the 4GB UDIMM)	JG530A

Note 5	The following CF Card install into this Switch:	
	HP X600 256M Compact Flash Card	JC686A
	HP X600 512M Compact Flash Card	JC685A
	HP X600 1G Compact Flash Card	JC684A

Note 6	The following VPM Modules install into this Router:	
	HP MSR G2 128-channel Voice Processing Module	JG417A

Note 9   1 - DC Power Supply included

Remarks:

"Drop down under power supply should offer the following options and results:
Switch/Router/Power Supply to PDU Power Cord - #B2B in North America, Mexico, Taiwan, and Japan or #B2C ROW. (Watson Default B2B or B2C for Rack Level CTO)
Switch/Router/Power Supply to Wall Power Cord - Localized Option (Watson Default for BTO and Box Level CTO)
High Volt Switch/Router/Power Supply to Wall Power Cord - #B2E Option. (Offered only in North America, Mexico, Taiwan, and Japan)"

Box Level Integration CTO Models

CTO Router Chassis

HP MSR CTO Router Solution   JG500A

Configuration

- SSP trigger sku

HP MSR3064 Router   JG404A

- 3 Fixed 10M/100M/1000M RJ45 ports
- 2 Fixed COMBO 1000M RJ45/SFP ports min=0 \ max=2 SFP Transceivers
- 4 - SIC module slots / 2 - DSIC module slots
- 6 - HMIM module slots (4 Half Height + 2 Full Height Slots) / 1 - DHMIM module slot (Double Width Full Height Slot)
- 2 - VPM slots
- 2 USB 2.0 Port for 3G modem and USB disk
- 1 CON/AUX port and 1 USB console port
- 2GB DDR3 SDRAM Included (4GB Max, by replacing existing single 2GB SDRAM)
- 1 - CF Card Slot
- Must select min 1 Power Supply (min=1 \ max=2)
- 3U - Height

See Configuration
NOTE:3, 4, 5, 6, 8, 10

HP MSR3044 Router   JG405A

- 3 Fixed 10M/100M/1000M RJ45 ports
- 2 Fixed COMBO 1000M RJ45/SFP ports min=0 \ max=2 SFP Transceivers
- 4 - SIC module slots / 2 - DSIC module slots
- 4 - HMIM module slots (4 - Half Height Slots) / 0 - DHMIM module slot (Double Width Full Height Slot)
- 2 - VPM slots
- 2 USB 2.0 Port for 3G modem and USB disk
- 1 CON/AUX port and 1 USB console port
- 2GB DDR3 SDRAM Included (4GB Max, by replacing existing single 2GB SDRAM)
- 1 - CF Card Slot
- Must select min 1 Power Supply (min=1 \ max=2)
- 2U - Height

See Configuration
NOTE:3, 4, 5, 6, 8, 10

HP MSR3024 AC Router   JG406A

- 3 Fixed 10M/100M/1000M RJ45 ports
- 1 Fixed COMBO 1000M RJ45/SFP port min=0 \ max=1 SFP Transceiver
- 4 - SIC module slots / 2 - DSIC module slots
- 2 - HMIM module slots (2 - Half Height Slots) / 0 - DHMIM module slot (Double Width Full Height Slot)
- 2 - VPM slots
- 2 USB 2.0 Port for 3G modem and USB disk
- 1 CON/AUX port and 1 USB console port
- 2GB DDR3 SDRAM Included (4GB Max, by replacing existing single 2GB SDRAM)
- 1 - CF Card Slot
- AC Power Supply included (+RPS Optional)
- 1U - Height

See Configuration
NOTE:1, 2, 3, 4, 5, 6, 7, 8, 10

PDU CABLE NA/MEX/TW/JP   JG406A#B2B

- C15 PDU Jumper Cord (NA/MEX/TW/JP)

Configuration

PDU CABLE ROW JG406A#B2C
- C15 PDU Jumper Cord (ROW)

High Volt Switch to Wall Power Cord JG406A#B2E
- NEMA L6-20P Cord (NA/MEX/JP/TW)

HP MSR3024 DC Router JG407A
- 3 Fixed 10M/100M/1000M RJ45 ports See Configuration
- 1 Fixed COMBO 1000M RJ45/SFP port min=0 \ max=1 SFP Transceiver **NOTE:** 3, 4, 5, 6, 8,
- 4 - SIC module slots / 2 - DSIC module slots 10, 11
- 2 - HMIM module slots (2 - Half Height Slots) / 0 - DHMIM module slot (Double Width Full Height Slot)
- 1 - VPM slots
- 2 USB 2.0 Port for 3G modem and USB disk
- 1 CON/AUX port and 1 USB console port
- 2GB DDR3 SDRAM Included (4GB Max, by replacing existing single 2GB SDRAM)
- 1 - CF Card Slot
- DC Power Supply included (+RPS Optional)
- 1U - Height

HP MSR3024 PoE Router JG408A
- 3 Fixed 10M/100M/1000M RJ45 ports See Configuration
- 1 Fixed COMBO 1000M RJ45/SFP port min=0 \ max=1 SFP Transceiver **NOTE:** 1, 2, 3, 4, 5,
- 4 - SIC module slots / 2 - DSIC module slots 6, 7, 8,10
- 2 - HMIM module slots (2 - Half Height Slots) / 0 - DHMIM module slot (Double Width Full Height Slot)
- 1 - VPM slots
- 2 USB 2.0 Port for 3G modem and USB disk
- 1 CON/AUX port and 1 USB console port
- 2GB DDR3 SDRAM Included (4GB Max, by replacing existing single 2GB SDRAM)
- 1 - CF Card Slot
- AC Power Supply included (+RPS Optional)
- 1U - Height

PDU CABLE NA/MEX/TW/JP JG408A#B2B
- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU CABLE ROW JG408A#B2C
- C15 PDU Jumper Cord (ROW)

High Volt Switch to Wall Power Cord JG408A#B2E
- NEMA L6-20P Cord (NA/MEX/JP/TW)

Configuration

HP MSR3012 AC Router	JG409A
• 3 Fixed 10M/100M/1000M RJ45 ports	See Configuration
• 1 Fixed COMBO 1000M RJ45/SFP port min=0 \ max=1 SFP Transceiver	**NOTE:**1, 2, 3, 6, 7,
• 2 - SIC module slots / 0 - DSIC module slots	8, 10
• 1 - HMIM module slot (1 - Full Height Slot) / 0 - DHMIM module slot (Double Width Full Height Slot)	
• 1 - VPM slot	
• 2 USB 2.0 Port for 3G modem and USB disk	
• 1 CON/AUX port and 1 USB console port	
• 1GB DDR3 SDRAM Included (default=1GB \ max=1GB DDR SDRAM)	
• AC Power Supply included	
• 1U - Height	

PDU CABLE NA/MEX/TW/JP	JG409A#B2B
• C15 PDU Jumper Cord (NA/MEX/TW/JP)	

PDU CABLE ROW	JG409A#B2C
• C15 PDU Jumper Cord (ROW)	

High Volt Switch to Wall Power Cord	JG409A#B2E
• NEMA L6-20P Cord (NA/MEX/JP/TW)	

HP MSR3012 DC Router	JG410A
• 3 Fixed 10M/100M/1000M RJ45 ports	See Configuration
• 1 Fixed COMBO 1000M RJ45/SFP port min=0 \ max=1 SFP Transceiver	**NOTE:**3, 6, 7, 8, 11,
• 2 - SIC module slots / 0 - DSIC module slots	10
• 1 - HMIM module slot (1 - Full Height Slot) / 0 - DHMIM module slot (Double Width Full Height Slot)	
• 1 - VPM slot	
• 2 USB 2.0 Port for 3G modem and USB disk	
• 1 CON/AUX port and 1 USB console port	
• 1GB DDR3 SDRAM Included (default=1GB \ max=1GB DDR SDRAM)	
• DC Power Supply included	
• 1U - Height	

Configuration Rules:

Note 1   1 - AC Power Supply included

Note 2   Localization required on orders without #B2B, #B2C or #B2E. (See Localization Menu)

Note 3   The following Transceivers install into this Switch:

HP X120 1G SFP LC SX Transceiver	JD118B
HP X120 1G SFP LC LX Transceiver	JD119B

Configuration

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 X120 1G SFP LC LH100 Transceiver	JD103A
HP X120 1G SFP RJ45 T Transceiver	JD089B
HP X115 100M SFP LC FX Transceiver	JD102B
HP X110 100M SFP LC LX Transceiver	JD120B
HP X110 100M SFP LC LH40 Transceiver	JD090A
HP X110 100M SFP LC LH80 Transceiver	JD091A
HP X120 1G SFP LC BX 10-U Transceiver	JD098B
HP X120 1G SFP LC BX 10-D Transceiver	JD099B

Note 4   The following DDR SDRAM install into this Switch:
HP X610 4GB DDR3 SDRAM UDIMM Memory (Must remove existing 2GB UDIMM to install   JG530A
the 4GB UDIMM)

Note 5   The following CF Card install into this Switch:
HP X600 256M Compact Flash Card   JC686A
HP X600 512M Compact Flash Card   JC685A
HP X600 1G Compact Flash Card   JC684A

Note 6   The following VPM Modules install into this Switch:
HP MSR G2 128-channel Voice Processing Module   JG417A

Note 7   If #B2E is selected Then replace Localized option with #B2E for power supply and with #B2E for router. (Offered
only in NA, Mexico, Taiwan, and Japan)

Note 8   If the Router Chassis is to be Box Level Factory Integrated (CTO), Then the #0D1 is required on the Router
Chassis and integrated to the JG500A - HP MSR CTO Enablement. (Min 1/Max 1 Router per SSP)

Note 10   If this Switch is selected, Then a Minimum of 1 factory integrated accessory must be ordered and integrated to
CTO chassis. See Menu below, option must have a #0D1 to be integrated to the CTO Chassis.

Note 11   1 - DC Power Supply included

Remarks:

"Drop down under power supply should offer the following options and results:
Switch/Router/Power Supply to PDU Power Cord - #B2B in North America, Mexico, Taiwan, and Japan or #B2C
ROW. (Watson Default B2B or B2C for Rack Level CTO)
Switch/Router/Power Supply to Wall Power Cord - Localized Option (Watson Default for BTO and Box Level
CTO)
High Volt Switch/Router/Power Supply to Wall Power Cord - #B2E Option. (Offered only in North America,
Mexico, Taiwan, and Japan)"

Rack Level Integration CTO Models

Router Chassis

Configuration

HP MSR3064 Router   JG404A
- 3 Fixed 10M/100M/1000M RJ45 ports   See Configuration
- 2 Fixed COMBO 1000M RJ45/SFP ports min=0 \ max=2 SFP Transceivers   **NOTE:**3, 4, 5, 6
- 4 - SIC module slots / 2 - DSIC module slots
- 6 - HMIM module slots (4 Half Height + 2 Full Height Slots) / 1 - DHMIM module slot (Double Width Full Height Slot)
- 2 - VPM slots
- 2 USB 2.0 Port for 3G modem and USB disk
- 1 CON/AUX port and 1 USB console port
- 2GB DDR3 SDRAM Included (4GB Max, by replacing existing single 2GB SDRAM)
- 1 - CF Card Slot
- Must select min 1 Power Supply (min=1 \ max=2)
- 3U - Height

HP MSR3044 Router   JG405A
- 3 Fixed 10M/100M/1000M RJ45 ports   See Configuration
- 2 Fixed COMBO 1000M RJ45/SFP ports min=0 \ max=2 SFP Transceivers   **NOTE:**3, 4, 5, 6
- 4 - SIC module slots / 2 - DSIC module slots
- 4 - HMIM module slots (4 - Half Height Slots) / 0 - DHMIM module slot (Double Width Full Height Slot)
- 2 - VPM slots
- 2 USB 2.0 Port for 3G modem and USB disk
- 1 CON/AUX port and 1 USB console port
- 2GB DDR3 SDRAM Included (4GB Max, by replacing existing single 2GB SDRAM)
- 1 - CF Card Slot
- Must select min 1 Power Supply (min=1 \ max=2)
- 2U - Height

HP MSR3024 AC Router   JG406A
- 3 Fixed 10M/100M/1000M RJ45 ports   See Configuration
- 1 Fixed COMBO 1000M RJ45/SFP port min=0 \ max=1 SFP Transceiver   **NOTE:**1, 2, 3, 4, 5,
- 4 - SIC module slots / 2 - DSIC module slots   6
- 2 - HMIM module slots (2 - Half Height Slots) / 0 - DHMIM module slot (Double Width Full Height Slot)
- 2 - VPM slots
- 2 USB 2.0 Port for 3G modem and USB disk
- 1 CON/AUX port and 1 USB console port
- 2GB DDR3 SDRAM Included (4GB Max, by replacing existing single 2GB SDRAM)
- 1 - CF Card Slot
- AC Power Supply included (+RPS Optional)
- 1U - Height

PDU CABLE NA/MEX/TW/JP   JG406A#B2B
- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU CABLE ROW   JG406A#B2C

Configuration

- C15 PDU Jumper Cord (ROW)

HP MSR3024 DC Router   JG407A
- 3 Fixed 10M/100M/1000M RJ45 ports   See Configuration
- 1 Fixed COMBO 1000M RJ45/SFP port min=0 \ max=1 SFP Transceiver   **NOTE:**3, 4, 5, 6, 10
- 4 - SIC module slots / 2 - DSIC module slots
- 2 - HMIM module slots (2 - Half Height Slots) / 0 - DHMIM module slot (Double Width Full Height Slot)
- 1 - VPM slots
- 2 USB 2.0 Port for 3G modem and USB disk
- 1 CON/AUX port and 1 USB console port
- 2GB DDR3 SDRAM Included (4GB Max, by replacing existing single 2GB SDRAM)
- 1 - CF Card Slot
- DC Power Supply included (+RPS Optional)
- 1U - Height

HP MSR3024 PoE Router   JG408A
- 3 Fixed 10M/100M/1000M RJ45 ports   See Configuration
- 1 Fixed COMBO 1000M RJ45/SFP port min=0 \ max=1 SFP Transceiver   **NOTE:**1, 2, 3, 4, 5,
- 4 - SIC module slots / 2 - DSIC module slots   6
- 2 - HMIM module slots (2 - Half Height Slots) / 0 - DHMIM module slot (Double Width Full Height Slot)
- 1 - VPM slots
- 2 USB 2.0 Port for 3G modem and USB disk
- 1 CON/AUX port and 1 USB console port
- 2GB DDR3 SDRAM Included (4GB Max, by replacing existing single 2GB SDRAM)
- 1 - CF Card Slot
- AC Power Supply included (+RPS Optional)
- 1U - Height

PDU CABLE NA/MEX/TW/JP   JG408A#B2B
- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU CABLE ROW   JG408A
- C15 PDU Jumper Cord (ROW)

HP MSR3012 AC Router   JG409A
- 3 Fixed 10M/100M/1000M RJ45 ports   See Configuration
- 1 Fixed COMBO 1000M RJ45/SFP port min=0 \ max=1 SFP Transceiver   **NOTE:**1, 2, 3, 6
- 2 - SIC module slots / 0 - DSIC module slots
- 1 - HMIM module slot (1 - Full Height Slot) / 0 - DHMIM module slot (Double Width Full Height Slot)
- 1 - VPM slot
- 2 USB 2.0 Port for 3G modem and USB disk
- 1 CON/AUX port and 1 USB console port
- 1GB DDR3 SDRAM Included (default=1GB \ max=1GB DDR SDRAM)
- AC Power Supply included

Configuration

- 1U - Height

PDU CABLE NA/MEX/TW/JP   JG409A#B2B
- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU CABLE ROW   JG409A#B2C
- C15 PDU Jumper Cord (ROW)

HP MSR3012 DC Router   JG410A
- 3 Fixed 10M/100M/1000M RJ45 ports   See Configuration
- 1 Fixed COMBO 1000M RJ45/SFP port min=0 \ max=1 SFP Transceiver   Note :3, 6, 10
- 2 - SIC module slots / 0 - DSIC module slots
- 1 - HMIM module slot (1 - Full Height Slot) / 0 - DHMIM module slot (Double Width Full Height Slot)
- 1 - VPM slot
- 2 USB 2.0 Port for 3G modem and USB disk
- 1 CON/AUX port and 1 USB console port
- 1GB DDR3 SDRAM Included (default=1GB \ max=1GB DDR SDRAM)
- DC Power Supply included
- 1U - Height

Configuration Rules:

Note 1   1 - AC Power Supply included

Note 2   "Localization (Wall Power Cord) required on orders without #B2B, #B2C (PDU Power Cord). (See Localization
                Menu)
                REMARK: When Switches/Routers are Factory Racked, Then #B2B, or #B2C should be the Defaulted Power
                Cable option on the Switches/Routers."

Note 3   The following Transceivers install into this Router:
                HP X120 1G SFP LC SX Transceiver   JD118B
                HP X120 1G SFP LC LX Transceiver   JD119B
                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 X120 1G SFP LC LH100 Transceiver   JD103A
                HP X120 1G SFP RJ45 T Transceiver   JD089B
                HP X115 100M SFP LC FX Transceiver   JD102B
                HP X110 100M SFP LC LX Transceiver   JD120B
                HP X110 100M SFP LC LH40 Transceiver   JD090A
                HP X110 100M SFP LC LH80 Transceiver   JD091A
                HP X120 1G SFP LC BX 10-U Transceiver   JD098B
                HP X120 1G SFP LC BX 10-D Transceiver   JD099B

Configuration

Note 4	The following DDR SDRAM install into this Router:
	HP X610 4GB DDR3 SDRAM UDIMM Memory (Must remove existing 2GB UDIMM to install the 4GB UDIMM) JG530A

Note 5	The following CF Card install into this Router:
	HP X600 256M Compact Flash Card JC686A
	HP X600 512M Compact Flash Card JC685A
	HP X600 1G Compact Flash Card JC684A

Note 6	The following VPM Modules install into this Router:
	HP MSR G2 128-channel Voice Processing Module JG417A

Note 10	1 - DC Power Supply included

Remarks:

"Drop down under power supply should offer the following options and results:
Switch/Router/Power Supply to PDU Power Cord - #B2B in North America, Mexico, Taiwan, and Japan or #B2C ROW. (Watson Default B2B or B2C for Rack Level CTO)
Switch/Router/Power Supply to Wall Power Cord - Localized Option (Watson Default for BTO and Box Level CTO)"

Power Supplies

(JG404A and JG405A only) System (std 0// max 1 or max 2) User Selection (min 1 // max 1 or max 2) MSR3064/3044 Router

HP X351 300W DC Power Supply	JG528A
	See Configuration
	NOTE:3, 6

HP X351 300W 100-240VAC to 12VDC Power Supply	JG527A
	See Configuration
	NOTE:1, 2, 3, 6

PDU CABLE NA/MEX/TW/JP	JG527A#B2B
• C15 PDU Jumper Cord (NA/MEX/TW/JP)	

PDU CABLE ROW	JG527A#B2C
• C15 PDU Jumper Cord (ROW)	

High Volt Switch to Wall Power Cord	JG527A#B2E
• NEMA L6-20P Cord (NA/MEX/JP/TW)	

Configuration

HP 5800 750W AC PoE Power Supply   JC089A
                                                                                            See Configuration
                                                                                           NOTE:1, 4, 5, 6

PDU CABLE NA/MEX/TW/JP   JC089A
- C15 PDU Jumper Cord (NA/MEX/TW/JP)

PDU CABLE ROW   JC089A
- C15 PDU Jumper Cord (ROW)

Configuration Rules:

Note 1   Localization required on orders without #B2B, #B2C or #B2E options.

Note 2   If #B2E is selected Then replace Localized option with #B2E for power supply and with #B2E for router. (Offered
                only in NA, Mexico, Taiwan, and Japan)

Note 3   Maximum of 2 of this Power Supply for MSR3064 - JG404A and MSR3044 - JG405A.
                min=0\ max=2

Note 4   Maximum of 2 of this Power Supply for MSR3064 - JG404A.
                min=0\ max=2

Note 5   Maximum of 1 of this Power Supply for MSR3044 - JG405A.
                min=0\ max=1

Note 6   Power Supplies cannot be mixed in the same Router enclosure

Remarks:

                Drop down under power supply should offer the following options and results:
                Switch/Router/Power Supply to PDU Power Cord - #B2B in North America, Mexico, Taiwan, and Japan or #B2C
                ROW. (Watson Default B2B or B2C for Rack Level CTO)
                Switch/Router/Power Supply to Wall Power Cord - Localized Option (Watson Default for BTO and Box Level
                CTO)
                High Volt Switch/Router/Power Supply to Wall Power Cord - #B2E Option. (Offered only in North America,
                Mexico, Taiwan, and Japan)

    Enter the following menu selections as integrated to the CTO Model X server above if order is factory built.

SIC Modules

System (std 0 // max 2 or 4) User Selection (min 0 // max 2 or 4) per Host (See Modules for Port information)

HP A-MSR 4-port 10/100Base-T Switch SIC Module   JD573B
                                                                                            See Configuration

Configuration

NOTE:1, 4

HP A-MSR 9-port 10/100Base-T Switch DSIC Module

JD574B
See Configuration
NOTE:1, 3

HP A-MSR 1-port 10/100Base-T SIC Module

JD545B
See Configuration
NOTE:1, 4

HP A-MSR 1-port 100Base-X SIC Module
- min=0 \ max=1 SFP Transceiver

JF280A
See Configuration
NOTE:1, 4, 5

HP A-MSR 2-port FXO SIC Module

JD558A
See Configuration
NOTE:2, 4

HP A-MSR 1-port FXO SIC Module

JD559A
See Configuration
NOTE:2, 4

HP A-MSR 2-port FXS SIC Module

JD560A
See Configuration
NOTE:2, 4

HP A-MSR 1-port FXS SIC Module

JD561A
See Configuration
NOTE:2, 4

HP A-MSR 4-port FXS/1-port FXO DSIC Mod

JG189A
See Configuration
NOTE:1, 3

HP A-MSR 1-port E1 Voice SIC Module
- Must select 1 Voice Processing Module
  min=0 \ max=1 E1 Cable

JD575A
See Configuration
NOTE:2, 4, 7, 8, 13

HP A-MSR 1-port T1 Voice SIC Module
- Must select 1 Voice Processing Module
  min=0 \ max=1 T1 Cable

JD576A
See Configuration
NOTE:2, 4, 9, 13

HP A-MSR 2-port ISDN-S/T Voice SIC Module

JF821A
See Configuration

Configuration

NOTE: 2, 4

HP A-MSR 2-port FXS/1-port FXO SIC Module
JD632A
See Configuration
NOTE: 2, 4

HP A-MSR 1-port E1/Fractional E1 (75ohm) SIC Module
JD634B
- min=0 \ max=1 E1 or 2E1 Cable
See Configuration
NOTE: 2, 4, 7, 10

HP A-MSR 1-port T1/Fractional T1 SIC Module
JD538A
See Configuration
NOTE: 2, 4, 9

HP A-MSR 2-port E1/Fractional E1 (75ohm) SIC Module
JF842A
- min=0 \ max=1 2E1 Cable
See Configuration
NOTE: 2, 4, 10

HP A-MSR 1-port Enhanced Sync/Async Serial SIC Module
JD557A
- min=0 \ max=1 Serial Port Cable
See Configuration
NOTE: 2, 4, 11

HP A-MSR 1-port ISDN-S/T SIC Module
JD571A
See Configuration
NOTE: 2, 4

HP A-MSR 8-port Async Serial SIC Module
JF281A
- Must select 1 8AS Communication Cable
See Configuration
NOTE: 2, 4, 12

HP A-MSR 16-port Async Serial SIC Module
JG186A
See Configuration
NOTE: 2, 4, 14

HP A-MSR HSPA/WCDMA SIC Module
JG187A
See Configuration
NOTE: 1, 4

HP MSR HSPA+/WCDMA SIC Module
JG929A
See Configuration
NOTE: 1, 4

HP A-MSR 1-port ADSL over POTS SIC Mod
JD537A
See Configuration
NOTE: 1, 4

Configuration

HP MSR 1-p ADSL over ISDN BRI U SIC Mod

JG056B
See Configuration
NOTE:1, 4

HP A-MSR 1-p 8-wire G.SHDSL DSIC Module

JG191A
See Configuration
NOTE:1, 3

HP MSR 1p E1/CE1/PRI SIC Mod
* min=0 \ max=1 E1 Cable

JG604A
See Configuration
NOTE:2, 4, 7

HP MSR 4G LTE SIC Mod for Verizon

JG742A
See Configuration
NOTE:1, 4

HP MSR 4G LTE SIC Mod for Global

JG743A
See Configuration
NOTE:1, 4

HP MSR 4G LTE SIC Mod for Global

JG744A
See Configuration
NOTE:1, 4

HPE MSR 4G LTE SIC Mod for Global

JG744B
See Configuration
NOTE:1, 4, 15

HP A-MSR 4-port 10/100Base-T PoE Switch SIC Module

JD620A
See Configuration
NOTE:1, 3

HP A-MSR 9-port 10/100Base-T PoE Switch DSIC Module

JD621A
See Configuration
NOTE:1, 3

HP MSR 2p Enh Sync/Async Srl SIC Mod
* min=0 \ max=2 Serial Port Cable

JG736A
See Configuration
NOTE:2, 4, 11

HP MSR 4p Enh Sync/Async Srl SIC Mod
* min=0 \ max=4 Serial Port Cable

JG737A
See Configuration
NOTE: 2, 4, 11

HP MSR 1p GbE Combo SIC Mod
* min=0 \ max=1 SFP Transceiver

JG738A
See Configuration
NOTE:1, 4, 6

Configuration

HP MSR 4p Gig-T Switch SIC Mod   JG739A
See Configuration
NOTE:1, 4

HP MSR 4p Gig-T PoE Switch SIC Mod   JG740A
See Configuration
NOTE:1, 4

Configuration Rules:

Note 1	These Modules can install directly to the Routers (JG404A, JG405A, JG861A, JG406A, JG407A, JG408A) min=0\ max=2 per enclosure (only supported in Slots 2 and 4)
Note 2	These Modules can install directly to the Routers (JG404A, JG405A, JG861A, JG406A, JG407A, JG408A) min=0\ max=4 per enclosure
Note 3	These Modules cannot install directly to the Routers (JG409A, JG410A)
Note 4	These Modules can install directly to the Routers (JG409A, JG410A) min=0\ max=2 per enclosure

Note 5   The following Transceivers install into this Module:

HP X115 100M SFP LC FX Transceiver	JD102B
HP X110 100M SFP LC LX Transceiver	JD120B
HP X110 100M SFP LC LH40 Transceiver	JD090A
HP X110 100M SFP LC LH80 Transceiver	JD091A

Note 6   The following Transceivers install into this Module:

HP X120 1G SFP LC SX Transceiver	JD118B
HP X120 1G SFP LC LX Transceiver	JD119B
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 X120 1G SFP LC LH100 Transceiver	JD103A
HP X120 1G SFP LC BX 10-U Transceiver	JD098B
HP X120 1G SFP LC BX 10-D Transceiver	JD099B
HP X120 1G SFP LC LH100 Transceiver	JD103A
HP X120 1G SFP RJ45 T Transceiver	JD089B

Note 7   The following E1 Cables install into this Module:

HP X260 E1 (2) BNC 75 ohm 3m Router Cable	JD175A
HP X260 E1 BNC 20m Router Cable	JD514A
HP X260 E1 2 BNC 75 ohm 40m Router Cable	JD516A

Note 8   The following E1 Cables install into this Module:

Configuration

	HP X260 E1 RJ45 3m Router Cable	JD509A
	HP X260 E1 RJ45 20m Router Cable	JD517A
Note 9	The following T1 Cables install into this Module:	
	JD518A-HP X260 T1 Router Cable	
	HP X260 T1 Router Cable	JD518A
Note 10	The following 2E1 Cables install into this Module:	
	HP X260 2E1 BNC 3m Router Cable	JD643A
Note 11	The following Cables install into this Module:	
	HP X260 RS449 3m DCE Serial Port Cable	JF826A
	HP X260 RS449 3m DTE Serial Port Cable	JF825A
	HP X200 X.21 DCE 3m Serial Port Cable	JD529A
	HP X200 V.24 DTE 3m Serial Port Cable	JD519A
	HP X200 V.35 DTE 3m Serial Port Cable	JD523A
	HP X260 RS530 3m DTE Serial Port Cable	JF827A
	HP X200 V.35 DCE 3m Serial Port Cable	JD525A
	HP X260 RS530 3m DCE Serial Port Cable	JF828A
	HP X200 V.24 DCE 3m Serial Port Cable	JD521A
	HP X200 X.21 DTE 3m Serial Port Cable	JD527A
Note 12	The following Cables install into this Module:	
	HP X260 SIC-8AS RJ45 0.28m Router Cable	JD642A
Note 13	The following Modules install into Routers and work with this Module:	
	HP MSR G2 128-channel Voice Processing Module	JG417A
Note 14	If this module is selected Then 4 - JG263A HP X260 mini D-28/4-RJ45 0.3m Rtr Cable are required to be on the same order.	
Note 15	The following Antenna Cables install into this Module:	
	HP MSR 3G RF 2.8m Antenna Cable	JG522A
	HP MSR 3G RF 6m Antenna Cable	JG666A
	HP MSR 3G RF 15m Antenna Cable	JG667A
Remarks:	PoE Modules JG740A, JD620A and JD621A can be used as non-POE modules on chassis without PoE power supplies.	

HMIM Modules

System (std 0 // max 6 or 4 or 2 or 1) User Selection (min 0 // max 6 or 4 or 2 or 1) per Router Chassis (See Modules for Port information)

HP MSR 1-port E1 Voice HMIM Module   JG429A
- (Full Height Module; Takes up 1 - Full Height slot or 2 - Half Height slots, vertically)   See Configuration

Configuration

        min=0 \ max=1 E1 Cable

<div align="right">

NOTE:1, 3, 5, 11, 13, 14
</div>

HP MSR 1-port T1 Voice HMIM Module
- (Full Height Module; Takes up 1 - Full Height slot or 2 - Half Height slots, vertically) min=0 \ max=1 E1 Cable

<div align="right">

JG430A

See Configuration

NOTE:1, 3, 10, 11, 13, 14
</div>

HP MSR 2-port E1 Voice HMIM Module
- (Full Height Module; Takes up 1 - Full Height slot or 2 - Half Height slots, vertically) min=0 \ max=1 E1 Cable

<div align="right">

JG431A

See Configuration

NOTE:1, 3, 5, 11, 13, 14
</div>

HP MSR 1-port T3 / CT3 / FT3 HMIM Module
- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot) min=0 \ max=2 E3/T3 Cable

<div align="right">

JG435A

See Configuration

NOTE:2, 4, 6, 12, 13
</div>

HP MSR 1-port E3 / CE3 / FE3 HMIM Module
- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot) min=0 \ max=2 E3/T3 Cable

<div align="right">

JG436A

See Configuration

NOTE:2, 4, 6, 12, 13
</div>

HP MSR 1-port OC-3c / STM-1c POS HMIM Module
- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot) min=0 \ max=1 SFP Transceiver

<div align="right">

JG438A

See Configuration

NOTE:2, 4, 7, 12, 13
</div>

HP MSR 4-port Enhanced Sync / Async Serial HMIM Module
- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot) min=0 \ max=4 Serial Port Cable

<div align="right">

JG442A

See Configuration

NOTE:2, 4, 8, 12, 13
</div>

HP MSR 8-port Enhanced Sync / Async Serial HMIM Module
- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot) min=0 \ max=8 Serial Port Cable

<div align="right">

JG443A

See Configuration

NOTE:2, 4, 8, 12, 13
</div>

HP MSR 4-port FXS HMIM Module
- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot)

<div align="right">

JG446A

See Configuration

NOTE:2, 4, 12, 13
</div>

HP MSR 4-port FXO HMIM Module
- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot)

<div align="right">

JG447A

See Configuration

NOTE:2, 4, 12, 13
</div>

HP MSR 4-port E&M HMIM Module

<div align="right">

JG448A
</div>

Configuration

- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot)

See Configuration
NOTE:2, 4, 12, 13

HP MSR 2-port E1 / CE1 / PRI HMIM Module

JG450A

- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot) min=0 \ max=2 E1 Cable

See Configuration
NOTE:2, 4, 5, 12, 13

HP MSR 4-port E1 / CE1 / PRI HMIM Module

JG451A

- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot) min=0 \ max=4 E1 Cable

See Configuration
NOTE:2, 4, 5, 12, 13

HP MSR 8-port E1 / CE1 / PRI (75ohm) HMIM Module

JG452A

- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot) min=0 \ max=1 8E1 Cable

See Configuration
NOTE:2, 4, 9, 12, 13

HP MSR 4-port E1 / Fractional E1 HMIM Module

JG453A

- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot) min=0 \ max=4 E1 Cable

See Configuration
NOTE:2, 4, 5, 12, 13

HP MSR 2-port T1 / CT1 / PRI HMIM Module

JG456A

- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot)

See Configuration
NOTE:2, 4, 12, 13

HP MSR 4-port T1 / Fractional T1 HMIM Module

JG457A

- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot)

See Configuration
NOTE:2, 4, 12, 13

HP MSR 2p Gig-T HMIM Mod

JG420A

- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot)

See Configuration
NOTE:2, 4, 12, 13

HP MSR 4p Gig-T HMIM Mod

JG421A

- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot)

See Configuration
NOTE:2, 4, 12, 13

HP MSR 8p Gig-T HMIM Mod

JG422A

- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot)

See Configuration
NOTE:2, 4, 12, 13

HP MSR 2p 1000BASE-X HMIM Mod

JG423A

- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot)
- min=0 \ max=2 SFP Modules

See Configuration
NOTE: 2, 4, 12, 13, 17

Configuration

HP MSR 4p 1000BASE-X HMIM Mod

JG424A
See Configuration
NOTE: 2, 4, 12, 13, 17

HP MSR 8p 1000BASE-X HMIM Mod
- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot)
- min=0 \ max=8 SFP Modules

JG425A
See Configuration
NOTE: 2, 4, 12, 13, 17

HP MSR 24p Gig-T Switch HMIM Mod
- (Full Height Module; Takes up 1 - Full Height slot or 2 - Half Height slots, vertically)

JG426A
See Configuration
NOTE: 1, 3, 11, 13, 14

HP MSR 1p OC-3/STM-1 CPOS HMIM Mod
- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot)
- min=0 \ max=1 SFP Transceiver

JG428A
See Configuration
NOTE: 2, 4, 7, 12, 13

HP MSR 2p T1 Voice HMIM Mod
- (Full Height Module; Takes up 1 - Full Height slot or 2 - Half Height slots, vertically)
- min=0 \ max=2 T1 Cable

JG432A
See Configuration
NOTE: 1, 3, 10, 11, 13

HP MSR 16p FXS HMIM Mod
- (Full Height Module; Takes up 1 - Full Height slot or 2 - Half Height slots, vertically)

JG434A
See Configuration
NOTE: 1, 3, 11, 13

HP MSR 8p BASE-T/2p Combo Swch HMIM Mod
- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot)
- min=0 \ max=2 SFP Transceivers

JG741A
See Configuration
NOTE: 4, 7, 12, 13, 17, 18

HP MSR 24p Gig-T PoE Switch HMIM Mod
- (Full Height Module; Takes up 1 - Full Height slot or 2 - Half Height slots, vertically)

JG427A
See Configuration
NOTE: 1, 3, 11, 13, 14

HP MSR 16p Enh Async Serial HMIM Mod
- (Full Height Module; Takes up 1 - Full Height slot or 2 - Half Height slots, vertically)

JG445A
See Configuration
NOTE: 1, 3, 11, 13

HP MSR 8-port E1/CE1/T1/CT1/PRI HMIM Mod
- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot)
- min=0 \ max=8 E1/T1 Cable

JH169A
See Configuration
NOTE: 2, 4, 10, 12,

Configuration

13, 19, 20

HP MSR 8-port E1/FE1/T1/FT1 HMIM Mod   JH172A
- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot)   See Configuration
- min=0 \ max=8 E1/T1 Cable   **NOTE:**2, 4, 10, 12,
13, 19, 20

HP MSR 8p BASE-X/4p Combo L2/L3 HMIM Mod   JH238A
- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot)   See Configuration
- min=0 \ max=8 SFP Modules   **NOTE:** 2, 4, 7, 12,
13, 17

HP MSR 1U HMIM Adapter Module   JG416A#B01
- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot)   See Configuration
NOTE:2, 4, 12, 13,
15

HP MSR 0.5U HMIM Adapter Module   JG415A#B01
- (Half Height Module; Takes up 1 Half Height or 1 Full Height slot)   See Configuration
NOTE:2, 4, 12, 13,
16

Configuration Rules:

Note 1   These Modules can install directly to the Router Chassis (JG404A)
min=0\ max=4 per enclosure (Full Height Module; Takes up 1 - Full Height slot or 2 - Half Height slots,
vertically)

Note 2   These Modules can install directly to the Router Chassis (JG404A)
min=0\ max=6 per enclosure

Note 3   These Modules can install directly to the Router Chassis (JG405A)
min=0\ max=2 per enclosure (Full Height Module; Takes up 1 - Full Height slot or 2 - Half Height slots,
vertically)

Note 4   These Modules can install directly to the Router Chassis (JG405A)
min=0\ max=4 per enclosure

Note 5   The following Cables install into this Module:
HP X260 E1 (2) BNC 75 ohm 3m Router Cable   JD175A
HP X260 E1 BNC 20m Router Cable   JD514A
HP X260 E1 2 BNC 75 ohm 40m Router Cable   JD516A
HP X260 E1 RJ45 3m Router Cable   JD509A
HP X260 E1 RJ45 20m Router Cable   JD517A

Configuration

Note 6	The following E3/T3 Cable and Connector install into this Module:	
	HP X260 T3/E3 Router Cable	JD531A
	HP X260 E3-30 E3/T3 Router Cable	JD533A

Note 7	The following Transceivers install into this Module:	
	HP X115 100M SFP LC FX Transceiver	JD102B
	HP X110 100M SFP LC LX Transceiver	JD120B
	HP X110 100M SFP LC LH40 Transceiver	JD090A
	HP X110 100M SFP LC LH80 Transceiver	JD091A

Note 8	The following Cables install into this Module:	
	HP X260 RS449 3m DCE Serial Port Cable	JF826A
	HP X260 RS449 3m DTE Serial Port Cable	JF825A
	HP X200 X.21 DCE 3m Serial Port Cable	JD529A
	HP X200 V.24 DTE 3m Serial Port Cable	JD519A
	HP X200 V.35 DTE 3m Serial Port Cable	JD523A
	HP X260 RS530 3m DTE Serial Port Cable	JF827A
	HP X200 V.35 DCE 3m Serial Port Cable	JD525A
	HP X260 RS530 3m DCE Serial Port Cable	JF828A
	HP X200 V.24 DCE 3m Serial Port Cable	JD521A
	HP X200 X.21 DTE 3m Serial Port Cable	JD527A

Note 9	The following Cable install into this Module:	
	HP X260 8E1 BNC 75 ohm 3m Router Cable	JD512A

Note 10	The following T1 Cables install into this Module:	
	HP X260 T1 Router Cable	JD518A

Note 11   These Modules can install directly to the Router Chassis (JG406A, JG407A, JG408A and JG861A)
min=0\ max=1 per enclosure (Full Height Module; Takes up 1 - Full Height slot or 2 - Half Height slots, vertically)

Note 12   These Modules can install directly to the Router Chassis (JG406A, JG407A, JG408A and JG861A)
min=0\ max=2 per enclosure

Note 13   These Modules can install directly to the Router Chassis (JG409A, JG410A)
min=0\ max=1 per enclosure

Note 14   Full Height Module; Takes up 1 - Full Height slot or 2 - Half Height slots, vertically

Note 15	1U HMIM Adapter Modules can adapt the following MIM Modules:	
	HP A-MSR 1-port E1 Voice MIM Module	JD565B
	HP A-MSR 2-port E1 Voice MIM Module	JD567B
	HP A-MSR 1-port T1 Voice MIM Module	JD566B
	HP A-MSR 2-port T1 Voice MIM Module	JD568B
	HP 16-port FXS Voice Interface MIM Module	JF822A
	HP MSR 16-port Async Serial Interface MIM Module	JF841A

Configuration

	HP MSR Open Application Platform (OAP) with VMware vSphere? MIM Module	JG532A
Note 16	0.5U HMIM Adapter Modules can adapt following MIM Modules:	
	HP MSR 8-port Async Serial Interface MIM Module	JF840A
	HP MSR 1-port FT3/CT3 MIM Module	JD628A
	HP MSR 1-port FE3/CE3 MIM Module	JD630A
	HP MSR 1-port OC-3c/STM-1c POS MIM Module	JG193A
	HP MSR 2-port Enhanced Serial MIM Mod	JD540A
	HP MSR 4-port Enhanced Serial MIM Module	JD541A
	HP MSR 8-port Sync/Async Interface Enhanced Module	JD552A
	HP MSR 4-port FXS MIM Module	JD553A
	HP MSR 4-port FXO MIM Module	JD542A
	HP MSR 4-port Voice E and M MIM Module	JD539A
	HP A-MSR 2-port E1/CE1/PRI MIM Module	JD544B
	HP A-MSR 4-port E1/CE1/PRI MIM Module	JD550B
	HP MSR 8-port E1/CE1/PRI (75ohm) MIM Module	JD563A
	HP MSR 4-port E1/Fractional E1 MIM Module	JF257B
	HP MSR 8-port Fractional E1 MIM Module	JF255A
	HP MSR 2-port Fractional T1/Channelize T1 PRI MIM Module	JD549A
	HP MSR 4-port T1/Fractional T1 MIM Module	JF254B
	HP 6600 8-port T1 MIM Router Module	JC160A
	HP 6600 8-port Fractional T1 MIM Router Module	JC159A
	HP MSR 2-port 10/100 MIM Module	JD613A
	HP MSR 4-port 10/100BASE-TX Module	JD551A
	HP MSR 2-port Gig-T MIM Module	JD548A
	HP MSR 2-port FXO MIM Module	JD543A
	HP 4-port ISDN BRI S/T Voice Interface MIM Module	JF837A
	HP MSR 1-port OC-3 ATM MIM Module	JD624A
Note 17	The following Transceivers install into this Module:	
	HP X120 1G SFP LC SX Transceiver	JD118B
	HP X120 1G SFP LC LX Transceiver	JD119B
	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 X120 1G SFP LC BX 10-U Transceiver	JD098B
	HP X120 1G SFP LC BX 10-D Transceiver	JD099B
	HP X120 1G SFP LC LH100 Transceiver	JD103A
Note 18	These Modules can install directly to the Router Chassis (HP MSR3064) min=0\ max=5 per enclosure (Not supported in Slot 7)	
Note 19	The following E1 Cables install into this Module:	
	HP X260 E1 RJ45 to 2xBNC 75ohm 3m Router Cable	JH294A
Note 20	The following E1 Cables install into this Module:	

Configuration

HP X260 E1 RJ45 120 ohm 30m Router Cable   JC152A
HP X260 E1 RJ45 120 ohm 15m Router Cable   JC151A
HP X260 E1 RJ45 120 ohm 2m Router Cable   JC156A

Remarks: PoE Module JG427A can be used a non-POE module on chassis without PoE power supplies.

MIM Modules

HP MSR OAP MIM Mod w/VMware vSphere   JG532A
                                                                    See Configuration
                                                                    NOTE:1, 2

HP MSR SSB Com MIM Mod pwrby Msft Lync   JG587A
                                                                    See Configuration
                                                                    NOTE:1, 2

HP MSR MSB Com MIM Mod pwrby Msft Lync   JG588A
                                                                    See Configuration
                                                                    NOTE:1, 2

Configuration Rules:

Note 1   This Module installs into JG416A.
                  JG404A min=0\ max=4 per enclosure
                  JG405A min=0\ max=2 per enclosure
                  JG406A, JG407A, JG408A, JG409A, JG410A and JG861A min=0\ max=1 per enclosure

Note 2   A Minimum of 2 Power Supplies are required when more than 2 Modules are selected.

VPM Modules

HP MSR G2 128-channel Voice Processing Module   JG417A
                                                                    See Configuration
                                                                    NOTE:1, 2

Configuration Rules:

Note 1   These Modules can install directly to the Router
                  JG404A, JG405A, JG406A min=0\ max=2 per enclosure
                  JG406A, JG407A, JG408A, JG409A, JG410A, JG861A min=0\ max=1 per enclosure

Note 2   VPM JG417A required if SIC-1VE1/SIC-1VT1 (JD575A/JD576A) are ordered

Transceivers

System (std 0 // max 2 or 1) User Selection (min 0 // max 2 or 1) per MSR3000 Router

Configuration

HP X120 1G SFP LC SX Transceiver

JD118B
See Configuration
NOTE:1, 2

HP X120 1G SFP LC LX Transceiver

JD119B
See Configuration
NOTE:1, 2

HP X125 1G SFP LC LH40 1310nm Transceiver

JD061A
See Configuration
NOTE:1, 2

HP X120 1G SFP LC LH40 1550nm Transceiver

JD062A
See Configuration
NOTE:1, 2

HP X125 1G SFP LC LH70 Transceiver

JD063B
See Configuration
NOTE:1, 2

HP X110 100M SFP LC LH40 Transceiver

JD090A
See Configuration
NOTE:1, 2

HP X110 100M SFP LC LH80 Transceiver

JD091A
See Configuration
NOTE:1, 2

HP X115 100M SFP LC FX Transceiver

JD102B
See Configuration
NOTE:1, 2

HP X110 100M SFP LC LX Transceiver

JD120B
See Configuration
NOTE:1, 2

HP X120 1G SFP LC LH100 Transceiver

JD103A
See Configuration
NOTE:1, 2

HP X120 1G SFP LC BX 10-U Transceiver

JD098B
See Configuration
NOTE:1, 2

HP X120 1G SFP LC BX 10-D Transceiver

JD099B

Configuration

HP X120 1G SFP RJ45 T Transceiver   JD089B

Configuration Rules:

Note 1   These Transceivers can install directly to JG406A, JG407A, JG408A, JG861A, JG409 and JG410A
                min=0\ max=2 per enclosure

Note 2   These Transceivers can install directly to JG406A and JG409A
                min=0\ max=1 per enclosure

Cables

HP X260 mini D-28/4-RJ45 0.3m Rtr Cable   JG263A

HP X200 V.24 DTE 3m Serial Port Cable   JD519A

HP X200 V.24 DCE 3m Serial Port Cable   JD521A

HP X200 V.35 DTE 3m Serial Port Cable   JD523A

HP X200 V.35 DCE 3m Serial Port Cable   JD525A

HP X260 RS449 3m DTE Serial Port Cable   JF825A

HP X260 RS449 3m DCE Serial Port Cable   JF826A

HP X260 RS530 3m DTE Serial Port Cable   JF827A

HP X260 RS530 3m DCE Serial Port Cable   JF828A

HP X260 Auxiliary Router Cable   JD508A

HP X260 E1 RJ45 3m Router Cable   JD509A

HP X260 E1 RJ45 20m Router Cable   JD517A

HP X260 E1 BNC 75 ohm 3m Router Cable   JD175A

HP X260 E1 BNC 20m Router Cable   JD514A

HP X260 E1 BNC 75 ohm 40m Router Cable   JD516A

HP X260 E1 RJ45 BNC 75-120 ohm Conversion Router Cable   JD511A

Configuration

HP X260 2E1 BNC 3m Router Cable	JD643A
HP X260 T1 Router Cable	JD518A
HP X260 T3/E3 Router Cable	JD531A
HP X260 E3-30 E3/T3 Router Cable	JD533A
HP X260 8E1 BNC 75 ohm 3m Router Cable	JD512A
HP X260 SIC-8AS RJ45 0.28m Router Cable	JD642A
HP X200 Transit Plug D25F MP8(S) Single Cable	JD636A
HP X200 Transit Cable RJ45 0.5m Single Cable	JD641A
HP X260 E1 RJ45 to 2xBNC 3m Router Cable	JH294A
HP X260 E1 RJ45 120 ohm 30m Router Cable	JC152A
HP X260 E1 RJ45 120 ohm 15m Router Cable	JC151A
HP X260 E1 RJ45 120 ohm 2m Router Cable	JC156A

Configuration Rules:

Remarks: The following cable is used for RJ45 BNC Conversion:
HP X260 E1 RJ45 BNC 75-120 ohm Conversion Router Cable   JD511A

Router Enclosure Options

Antenna Cables

System (std 0 // max 2) User Selection (min 0 // max 2) per SIC Module (JG742A, JG743A, JG744A)

HP MSR 3G RF 2.8m Antenna Cable	JG522A
HP MSR 3G RF 6m Antenna Cable	JG666A
HP MSR 3G RF 15m Antenna Cable	JG667A

SDRAM

User Selection (min 0 // max 1) (default=2GB \ max=4GB) per JG404A, JG405A, JG861A, JG406A, JG407A, JG408A (4GB Max, by replacing existing single 2GB SDRAM)

Configuration

HP X610 2GB DDR3 SDRAM UDIMM Memory   JG529A
- Spare Only (Parts List Only)

HP X610 4GB DDR3 SDRAM UDIMM Memory   JG530A
- (Must remove existing 2GB UDIMM to install the 4GB UDIMM)

Compact Flash Card

System (std 0 // max 1 External CF Card) per JG404A, JG405A, JG861A, JG406A, JG407A, JG408A

HP X600 1G Compact Flash Card   JC684A

HP X600 512M Compact Flash Card   JC685A

HP X600 256M Compact Flash Card   JC686A

External Redundant Power Supplies

JG406A, JG407A, JG408A, JG861A, JG409A and JG410A only - System (std 0 // max 1) User Selection (min 0 // max 1)

HP RPS 800 Redundant Power Supply   JD183A
- Height = 1U   See Configuration
                                                                     NOTE:1, 2, 3

Configuration Rules:

Note 1   These power supplies are supported on the following routers only:
                HP MSR3024 AC Router   JG406A
                HP MSR3024 DC Router   JG407A
                HP MSR3024 PoE Router   JG408A
                HP MSR3012 AC Router   JG409A
                HP MSR3012 DC Router   JG410A
                HP MSR3024 TAA-compliant AC Router   JG861A

Note 2   Localization required. (See Localization Menu for list.)

Note 3   JD637A - HP X290 MSR30 1m RPS Cable is required if power supply is selected.

Power Cables

System (std 0 // max 1) User Selection (min 0 // max 1) per JD183A

HP X290 MSR30 1m RPS Cable   JD637A

Configuration

Opacity Shield Kit

System (std 0 // max 1) User Selection (min 0 // max 1)

HP MSR3012/MSR3024 Opcty Shld Kit JG599A
NOTE: See Configuration
Supported on the HP MSR3012/MSR3024 Routers (JG406A, JG407A, JG408A, JG409A, JG410A and JG861A). **NOTE:**1

HP MSR3044 Opcty Shld Kit JG600A
NOTE: See Configuration
Supported on the HP MSR3044 Routers (JG405A). **NOTE:**1

HP MSR3064 Opcty Shld Kit JG601A
NOTE: See Configuration
Supported on the HP MSR3064 Routers (JG404A). **NOTE:**2

Configuration Rules:

Note 1   If selected with a CTO Router Solution, Quantity 1 of JG585A#B01 must also be ordered.
Note 2   If selected with a CTO Router Solution, Quantity 1 of JG586A#B01 must also be ordered.

Tamper Evidence Labels

System (std 0 // max 1) User Selection (min 0 // max 1)

HP 12mm x 60mm Tmpr-Evidence (30) Lbl JG585A
NOTE: See Configuration
Supported on the HP MSR3012/MSR3024/MSR3044 Routers (JG406A, JG407A, JG408A, JG409A, JG410A, **NOTE:**1
JG861A, and JG405A).

HP 12mm x 60mm Tmpr-Evidence (100) Lbl JG586A
NOTE: See Configuration
Supported on the HP MSR3064 Routers (JG404A). **NOTE:**2

Configuration Rules:

Note 1   If selected with a CTO Router Solution, Quantity 1 of JG599A#B01 or JG600A#B01 must also
              be ordered.
Note 2   If selected with a CTO Router Solution, Quantity 1 of JG601A#B01 must also be ordered.

Remarks: Each JG599A or JG600A would use 1 of JG585A.
              Each JG601A would use 1 of JG586A.

Technical Specifications

HP MSR3012 AC Router (JG409A)

I/O ports and slots	1 HMIM slot 2 SIC slots 3 RJ-45 1000BASE-T ports (IEEE 802.3ab Type 1000BASE-T) 1 SFP fixed Gigabit Ethernet SFP port	
Additional ports and slots	1 VPM slot	
AP characteristics	**Radios (via optional modules)**	3G, 4G LTE
Physical characteristics	**Dimensions**	17.32(w) x 18.9(d) x 1.74(h) in (44 x 48 x 4.42 cm) (1U height)
	Weight	15.76 lb (7.15 kg)
Memory and processor	RISC, 4 cores @ 1 GHz, 256 MB flash capacity, 1 GB DDR3 SDRAM	
Mounting and enclosure	Desktop or can be mounted in a EIA standard 19-inch telco rack when used with the rack-mount kit in the package.	
Performance	**Throughput**	up to 2.6 Mpps (64-byte packets)
	Routing table size	200000 entries (IPv4), 200000 entries (IPv6)
	Forwarding table size	200000 entries (IPv4), 200000 entries (IPv6)
Environment	**Operating temperature**	32ºF to 113ºF (0ºC to 45ºC)
	Operating relative humidity	5% to 90%, noncondensing
	Nonoperating/Storage temperature	-40ºF to 158ºF (-40ºC to 70ºC)
	Nonoperating/Storage relative humidity	5% to 90%, noncondensing
	Altitude	up to 16,404 ft (5 km)
Electrical characteristics	**Frequency**	50/60 Hz
	Maximum heat dissipation	127 BTU/hr (133.98 kJ/hr)
	Voltage	100 - 240 VAC, rated (depending on power supply chosen)
	Maximum power rating	100 W
	Notes	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.
Reliability	**MTBF (years)**	52.56
Safety	UL 60950-1; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1; FDA 21 CFR Subchapter J; AS/NZS 60950-1; GB 4943.1	
Emissions	EN 61000-4-11:2004;ANSI C63.4-2009; AS/NZS CISPR 22:2009; CISPR 22 Ed2.0 2008-09; EN 55022:2010; EN 61000-3-3:2008; GB 9254-2008; IEC 61000-3-2 Ed3.0 (2009-02); IEC 61000-3-3 Ed2.0 (2008-06); VCCI V-4/2012.04; CISPR 24 Ed2.0 2010-08; EN 55024:2010; EN 61000-3-2:2006+A1:2009+A2:2009; EN 61000-4-2:2009; EN 61000-4-29:2000; EN 61000-4-3:2006; EN 61000-4-4:2012; EN 61000-4-5:2006; EN 61000-4-6:2009; EN 61000-4-8:2010; ETSI EN 300 386 V1.6.1(2012-09); FCC 47 CFR Part 15 (latest current version); ICES-003 Issue 5; IEC 61000-4-11 Ed2.0 (2004-03); IEC 61000-4-2 Ed2.0 (2008-12); IEC 61000-4-29 Ed1.0 (2000-08); IEC 61000-4-3 Ed3.2 (2010-04); IEC 61000-4-4 Ed3.0 (2012-04); IEC 61000-4-5	

Technical Specifications

	Ed2.0 (2005-11); IEC 61000-4-6 Ed3.0 (2008-10); IEC 61000-4-8 Ed2.0 (2009-09); VCCI V-3/2013.04
Telecom	FCC part 68; CS-03
Management	IMC - Intelligent Management Center; command-line interface; limited command-line interface; configuration menu; out-of-band management (RJ-45 Ethernet); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; modem interface; out-of-band management (serial RS-232C or Micro USB); IEEE 802.3 Ethernet MIB
Services	Refer to the Hewlett Packard Enterprise website at **http://www.hpe.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 Hewlett Packard Enterprise sales office

HP MSR3012 DC Router (JG410A)

I/O ports and slots	1 HMIM slot 2 SIC slots 3 RJ-45 1000BASE-T ports (IEEE 802.3ab Type 1000BASE-T) 1 SFP fixed Gigabit Ethernet SFP port	
Additional ports and slots	1 VPM slot	
AP characteristics	**Radios (via optional modules)**	3G, 4G LTE
Physical characteristics	**Dimensions**	17.32(w) x 18.9(d) x 1.74(h) in (44 x 48 x 4.42 cm) (1U height)
	Weight	14.68 lb (6.66 kg)
Memory and processor	RISC, 4 cores @ 1 GHz, 256 MB flash capacity, 1 GB DDR3 SDRAM	
Mounting and enclosure	Desktop or can be mounted in a EIA standard 19-inch telco rack when used with the rack-mount kit in the package.	
Performance	**Throughput**	up to 2.6 Mpps (64-byte packets)
	Routing table size	200000 entries (IPv4), 200000 entries (IPv6)
	Forwarding table size	200000 entries (IPv4), 200000 entries (IPv6)
Environment	**Operating temperature**	32ºF to 113ºF (0ºC to 45ºC)
	Operating relative humidity	5% to 90%, noncondensing
	Nonoperating/Storage temperature	-40ºF to 158ºF (-40ºC to 70ºC)
	Nonoperating/Storage relative humidity	5% to 90%, noncondensing
	Altitude	up to 16,404 ft (5 km)
Electrical characteristics	**Maximum heat dissipation**	127 BTU/hr (133.98 kJ/hr)
	Voltage	-36 to -75 VDC, rated (depending on power supply chosen)
	Maximum power rating	100 W
	Notes	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.
Reliability	**MTBF (years)**	52.56

Technical Specifications

Safety	UL 60950-1; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1; FDA 21 CFR Subchapter J; AS/NZS 60950-1; GB 4943.1
Emissions	EN 61000-4-11:2004;ANSI C63.4-2009; AS/NZS CISPR 22:2009; CISPR 22 Ed2.0 2008-09; EN 55022:2010; EN 61000-3-3:2008; GB 9254-2008; IEC 61000-3-2 Ed3.0 (2009-02); IEC 61000-3-3 Ed2.0 (2008-06); VCCI V-4/2012.04; CISPR 24 Ed2.0 2010-08; EN 55024:2010; EN 61000-3-2:2006+A1:2009+A2:2009; EN 61000-4-2:2009; EN 61000-4-29:2000; EN 61000-4-3:2006; EN 61000-4-4:2012; EN 61000-4-5:2006; EN 61000-4-6:2009; EN 61000-4-8:2010; ETSI EN 300 386 V1.6.1(2012-09); FCC 47 CFR Part 15 (latest current version); ICES-003 Issue 5; IEC 61000-4-11 Ed2.0 (2004-03); IEC 61000-4-2 Ed2.0 (2008-12); IEC 61000-4-29 Ed1.0 (2000-08); IEC 61000-4-3 Ed3.2 (2010-04); IEC 61000-4-4 Ed3.0 (2012-04); IEC 61000-4-5 Ed2.0 (2005-11); IEC 61000-4-6 Ed3.0 (2008-10); IEC 61000-4-8 Ed2.0 (2009-09); VCCI V-3/2013.04
Telecom	FCC part 68; CS-03
Management	IMC - Intelligent Management Center; command-line interface; limited command-line interface; configuration menu; out-of-band management (RJ-45 Ethernet); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; modem interface; out-of-band management (serial RS-232C or Micro USB); IEEE 802.3 Ethernet MIB
Services	Refer to the Hewlett Packard Enterprise website at **http://www.hpe.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 Hewlett Packard Enterprise sales office

HP MSR3024 AC Router (JG406A)

I/O ports and slots	2 HMIM slots 4 SIC slots or 2 DSIC slots 3 RJ-45 1000BASE-T ports (IEEE 802.3ab Type 1000BASE-T) 1 SFP fixed Gigabit Ethernet SFP port	
Additional ports and slots	1 VPM slot	
AP characteristics	**Radios (via optional modules)**	3G, 4G LTE
Physical characteristics	**Dimensions**	17.32(w) x 18.9(d) x 1.74(h) in (44 x 48 x 4.42 cm) (1U height)
	Weight	17.42 lb (7.9 kg)
Memory and processor	RISC, 4 cores @ 1 GHz, 256 MB flash capacity, 2 GB DDR3 SDRAM	
Mounting and enclosure	Desktop or can be mounted in a EIA standard 19-inch telco rack when used with the rack-mount kit in the package.	
Performance	**Throughput**	up to 2.6 Mpps (64-byte packets)
	Routing table size	500000 entries (IPv4), 500000 entries (IPv6)
	Forwarding table size	500000 entries (IPv4), 500000 entries (IPv6)
Environment	**Operating temperature**	32ºF to 113ºF (0ºC to 45ºC)
	Operating relative humidity	5% to 90%, noncondensing
	Nonoperating/Storage temperature	-40ºF to 158ºF (-40ºC to 70ºC)
	Nonoperating/Storage relative humidity	5% to 90%, noncondensing
	Altitude	up to 16,404 ft (5 km)
Electrical	**Frequency**	50/60 Hz

Technical Specifications

characteristics	**Maximum heat dissipation**	168 BTU/hr (177.24 kJ/hr)
	Voltage	100 - 240 VAC, rated (depending on power supply chosen)
	Maximum power rating	125 W
	Notes	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.
Reliability	**MTBF (years)**	49.61
Safety	UL 60950-1; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1; FDA 21 CFR Subchapter J; AS/NZS 60950-1; GB 4943.1	
Emissions	EN 61000-4-11:2004;ANSI C63.4-2009; AS/NZS CISPR 22:2009; CISPR 22 Ed2.0 2008-09; EN 55022:2010; EN 61000-3-3:2008; GB 9254-2008; IEC 61000-3-2 Ed3.0 (2009-02); IEC 61000-3-3 Ed2.0 (2008-06); VCCI V-4/2012.04; CISPR 24 Ed2.0 2010-08; EN 55024:2010; EN 61000-3-2:2006+A1:2009+A2:2009; EN 61000-4-2:2009; EN 61000-4-29:2000; EN 61000-4-3:2006; EN 61000-4-4:2012; EN 61000-4-5:2006; EN 61000-4-6:2009; EN 61000-4-8:2010; ETSI EN 300 386 V1.6.1(2012-09); FCC 47 CFR Part 15 (latest current version); ICES-003 Issue 5; IEC 61000-4-11 Ed2.0 (2004-03); IEC 61000-4-2 Ed2.0 (2008-12); IEC 61000-4-29 Ed1.0 (2000-08); IEC 61000-4-3 Ed3.2 (2010-04); IEC 61000-4-4 Ed3.0 (2012-04); IEC 61000-4-5 Ed2.0 (2005-11); IEC 61000-4-6 Ed3.0 (2008-10); IEC 61000-4-8 Ed2.0 (2009-09); VCCI V-3/2013.04	
Telecom	FCC part 68; CS-03	
Management	IMC - Intelligent Management Center; command-line interface; limited command-line interface; configuration menu; out-of-band management (RJ-45 Ethernet); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; modem interface; out-of-band management (serial RS-232C or Micro USB); IEEE 802.3 Ethernet MIB	
Services	Refer to the Hewlett Packard Enterprise website at **http://www.hpe.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 Hewlett Packard Enterprise sales office	

HP MSR3024 DC Router (JG407A)

I/O ports and slots	2 HMIM slots 4 SIC slots, or 2 DSIC slots, or a combination 3 RJ-45 1000BASE-T ports (IEEE 802.3ab Type 1000BASE-T) 1 SFP fixed Gigabit Ethernet SFP port
Additional ports and slots	1 VPM slot

AP characteristics	**Radios (via optional modules)**	3G, 4G LTE
Physical characteristics	**Dimensions**	17.32(w) x 18.9(d) x 1.74(h) in (44 x 48 x 4.42 cm) (1U height)
	Weight	16.14 lb (7.32 kg)
Memory and processor	RISC, 4 cores @ 1 GHz, 256 MB flash capacity, 2 GB DDR3 SDRAM	
Mounting and enclosure	Desktop or can be mounted in a EIA standard 19-inch telco rack when used with the rack-mount kit in the package.	
Performance	**Throughput**	up to 2.6 Mpps (64-byte packets)
	Routing table size	500000 entries (IPv4), 500000 entries (IPv6)
	Forwarding table size	500000 entries (IPv4), 500000 entries (IPv6)

Technical Specifications

Environment	Operating temperature	32ºF to 113ºF (0ºC to 45ºC)
	Operating relative humidity	5% to 90%, noncondensing
	Nonoperating/Storage temperature	-40ºF to 158ºF (-40ºC to 70ºC)
	Nonoperating/Storage relative humidity	5% to 90%, noncondensing
	Altitude	up to 16,404 ft (5 km)
Electrical characteristics	Maximum heat dissipation	168 BTU/hr (177.24 kJ/hr)
	Voltage	-36 to -75 VDC, rated (depending on power supply chosen)
	Maximum power rating	125 W
	Notes	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.
Reliability	MTBF (years)	49.61
Safety		UL 60950-1; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1; FDA 21 CFR Subchapter J; AS/NZS 60950-1; GB 4943.1
Emissions		EN 61000-4-11:2004;ANSI C63.4-2009; AS/NZS CISPR 22:2009; CISPR 22 Ed2.0 2008-09; EN 55022:2010; EN 61000-3-3:2008; GB 9254-2008; IEC 61000-3-2 Ed3.0 (2009-02); IEC 61000-3-3 Ed2.0 (2008-06); VCCI V-4/2012.04; CISPR 24 Ed2.0 2010-08; EN 55024:2010; EN 61000-3-2:2006+A1:2009+A2:2009; EN 61000-4-2:2009; EN 61000-4-29:2000; EN 61000-4-3:2006; EN 61000-4-4:2012; EN 61000-4-5:2006; EN 61000-4-6:2009; EN 61000-4-8:2010; ETSI EN 300 386 V1.6.1(2012-09); FCC 47 CFR Part 15 (latest current version); ICES-003 Issue 5; IEC 61000-4-11 Ed2.0 (2004-03); IEC 61000-4-2 Ed2.0 (2008-12); IEC 61000-4-29 Ed1.0 (2000-08); IEC 61000-4-3 Ed3.2 (2010-04); IEC 61000-4-4 Ed3.0 (2012-04); IEC 61000-4-5 Ed2.0 (2005-11); IEC 61000-4-6 Ed3.0 (2008-10); IEC 61000-4-8 Ed2.0 (2009-09); VCCI V-3/2013.04
Telecom		FCC part 68; CS-03
Management		IMC - Intelligent Management Center; command-line interface; limited command-line interface; configuration menu; out-of-band management (RJ-45 Ethernet); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; modem interface; out-of-band management (serial RS-232C or Micro USB); IEEE 802.3 Ethernet MIB
Services		Refer to the Hewlett Packard Enterprise website at **http://www.hpe.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 Hewlett Packard Enterprise sales office

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HP MSR3024 PoE Router (JG408A)

I/O ports and slots	2 HMIM slots
	4 SIC slots, or 2 DSIC slots, or a combination
	3 RJ-45 1000BASE-T ports (IEEE 802.3ab Type 1000BASE-T)
	1 SFP fixed Gigabit Ethernet SFP port
Additional ports and slots	1 VPM slot

AP characteristics	Radios (via optional modules)	3G, 4G LTE
Physical characteristics	Dimensions	17.32(w) x 18.9(d) x 1.74(h) in (44 x 48 x 4.42 cm) (1U height)
	Weight	17.57 lb (7.97 kg)
Memory and		RISC, 4 cores @ 1 GHz, 256 MB flash capacity, 2 GB DDR3 SDRAM

Technical Specifications

processor

Mounting	Desktop or can be mounted in a EIA standard 19-inch telco rack when used with the rack-mount kit in the package.	
Performance	**Throughput**	up to 2.6 Mpps (64-byte packets)
	Routing table size	500000 entries (IPv4), 500000 entries (IPv6)
	Forwarding table size	500000 entries (IPv4), 500000 entries (IPv6)
Environment	**Operating temperature**	32ºF to 113ºF (0ºC to 45ºC)
	Operating relative humidity	5% to 90%, noncondensing
	Nonoperating/Storage temperature	-40ºF to 158ºF (-40ºC to 70ºC)
	Nonoperating/Storage relative humidity	5% to 90%, noncondensing
	Altitude	up to 16,404 ft (5 km)
Electrical characteristics	**Frequency**	50/60 Hz
	Maximum heat dissipation	168 BTU/hr (177.24 kJ/hr)
	Voltage	100 - 240 VAC, rated (depending on power supply chosen)
	Maximum power rating	125 W
	PoE power	275 W PoE+
	Notes	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. PoE Power is the power supplied by the internal power supply, it is dependent on the type and quantity of power supplies and may be supplemented with the use of an External Power Supply (EPS).
Reliability	**MTBF (years)**	49.61
Safety	UL 60950-1; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1; FDA 21 CFR Subchapter J; AS/NZS 60950-1; GB 4943.1	
Emissions	EN 61000-4-11:2004;ANSI C63.4-2009; AS/NZS CISPR 22:2009; CISPR 22 Ed2.0 2008-09; EN 55022:2010; EN 61000-3-3:2008; GB 9254-2008; IEC 61000-3-2 Ed3.0 (2009-02); IEC 61000-3-3 Ed2.0 (2008-06); VCCI V-4/2012.04; CISPR 24 Ed2.0 2010-08; EN 55024:2010; EN 61000-3-2:2006+A1:2009+A2:2009; EN 61000-4-2:2009; EN 61000-4-29:2000; EN 61000-4-3:2006; EN 61000-4-4:2012; EN 61000-4-5:2006; EN 61000-4-6:2009; EN 61000-4-8:2010; ETSI EN 300 386 V1.6.1(2012-09); FCC 47 CFR Part 15 (latest current version); ICES-003 Issue 5; IEC 61000-4-11 Ed2.0 (2004-03); IEC 61000-4-2 Ed2.0 (2008-12); IEC 61000-4-29 Ed1.0 (2000-08); IEC 61000-4-3 Ed3.2 (2010-04); IEC 61000-4-4 Ed3.0 (2012-04); IEC 61000-4-5 Ed2.0 (2005-11); IEC 61000-4-6 Ed3.0 (2008-10); IEC 61000-4-8 Ed2.0 (2009-09); VCCI V-3/2013.04	
Telecom	FCC part 68; CS-03	
Management	IMC - Intelligent Management Center; command-line interface; limited command-line interface; configuration menu; out-of-band management (RJ-45 Ethernet); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; modem interface; out-of-band management (serial RS-232C or Micro USB); IEEE 802.3 Ethernet MIB	
Services	Refer to the Hewlett Packard Enterprise website at **http://www.hpe.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 Hewlett Packard Enterprise sales office	

Technical Specifications

HP MSR3044 Router (JG405A)

I/O ports and slots		4 HMIM slots 4 SIC slots, or 2 DSIC slots, or a combination 3 RJ-45 1000BASE-T ports (IEEE 802.3ab Type 1000BASE-T) 2 SFP fixed Gigabit Ethernet SFP ports
Additional ports and slots		2 VPM slots 2 Power Supply slots
AP characteristics	**Radios (via optional modules)**	3G, 4G LTE
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	27.45 lb (12.45 kg)
Memory and processor		RISC, 4 cores @ 1 GHz, 256 MB flash capacity, 2 GB DDR3 SDRAM
Mounting and enclosure		Desktop or can be mounted in a EIA standard 19-inch telco rack when used with the rack-mount kit in the package.
Performance	**Throughput**	up to 3.5 Mpps (64-byte packets)
	Routing table size	500000 entries (IPv4), 500000 entries (IPv6)
	Forwarding table size	500000 entries (IPv4), 500000 entries (IPv6)
Environment	**Operating temperature**	32°F to 113°F (0°C to 45°C)
	Operating relative humidity	5% to 90%, noncondensing
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Nonoperating/Storage relative humidity	5% to 90%, noncondensing
	Altitude	up to 16,404 ft (5 km)
Electrical characteristics	**Frequency**	50/60 Hz
	Maximum heat dissipation	172 BTU/hr (181.46 kJ/hr)
	Voltage	100 - 240 VAC, rated -36 to -75 VDC, rated (depending on power supply chosen)
	Maximum power rating	300 W
	PoE power	450 W PoE+
	Notes	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. PoE Power is the power supplied by the internal power supply, it is dependent on the type and quantity of power supplies and may be supplemented with the use of a External Power Supply (EPS). No default power supply is included in the chassis; a minimum of one/maximum of four power supplies should be ordered.
Reliability	**MTBF (years)**	82.57
Safety		UL 60950-1; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1; FDA 21 CFR Subchapter J; AS/NZS 60950-1; GB 4943.1
Emissions		EN 61000-4-11:2004;ANSI C63.4-2009; AS/NZS CISPR 22:2009; CISPR 22 Ed2.0 2008-09; EN 55022:2010; EN 61000-3-3:2008; GB 9254-2008; IEC 61000-3-2 Ed3.0 (2009-02); IEC 61000-3-3 Ed2.0 (2008-06);

Technical Specifications

	VCCI V-4/2012.04; CISPR 24 Ed2.0 2010-08; EN 55024:2010; EN 61000-3-2:2006+A1:2009+A2:2009; EN 61000-4-2:2009; EN 61000-4-29:2000; EN 61000-4-3:2006; EN 61000-4-4:2012; EN 61000-4-5:2006; EN 61000-4-6:2009; EN 61000-4-8:2010; ETSI EN 300 386 V1.6.1(2012-09); FCC 47 CFR Part 15 (latest current version); ICES-003 Issue 5; IEC 61000-4-11 Ed2.0 (2004-03); IEC 61000-4-2 Ed2.0 (2008-12); IEC 61000-4-29 Ed1.0 (2000-08); IEC 61000-4-3 Ed3.2 (2010-04); IEC 61000-4-4 Ed3.0 (2012-04); IEC 61000-4-5 Ed2.0 (2005-11); IEC 61000-4-6 Ed3.0 (2008-10); IEC 61000-4-8 Ed2.0 (2009-09); VCCI V-3/2013.04
Telecom	FCC part 68; CS-03
Management	IMC - Intelligent Management Center; command-line interface; limited command-line interface; configuration menu; out-of-band management (RJ-45 Ethernet); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; modem interface; out-of-band management (serial RS-232C or Micro USB); IEEE 802.3 Ethernet MIB
Services	Refer to the Hewlett Packard Enterprise website at **http://www.hpe.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 Hewlett Packard Enterprise sales office

HP MSR3064 Router (JG404A)

I/O ports and slots	6 HMIM slots 4 SIC slots or 2 DSIC slots 3 RJ-45 1000BASE-T ports (IEEE 802.3ab Type 1000BASE-T) 2 SFP fixed Gigabit Ethernet SFP ports	
Additional ports and slots	2 VPM slots 2 Power Supply slots	
AP characteristics	**Radios (via optional modules)**	3G, 4G LTE
Physical characteristics	**Dimensions**	17.32(w) x 18.9(d) x 5.31(h) in (44 x 48 x 13.5 cm) (3U height)
	Weight	36.49 lb (16.55 kg)
Memory and processor	RISC, 6 cores @ 1.3 GHz, 256 MB flash capacity, 2 GB DDR3 SDRAM	
Mounting and enclosure	Desktop or can be mounted in a EIA standard 19-inch telco rack when used with the rack-mount kit in the package.	
Performance	**Throughput**	up to 5 Mpps (64-byte packets)
	Routing table size	500000 entries (IPv4), 500000 entries (IPv6)
	Forwarding table size	500000 entries (IPv4), 500000 entries (IPv6)
Environment	**Operating temperature**	32°F to 113°F (0°C to 45°C)
	Operating relative humidity	5% to 90%, noncondensing
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Nonoperating/Storage relative humidity	5% to 90%, noncondensing
	Altitude	up to 16,404 ft (5 km)
Electrical characteristics	**Frequency**	50/60 Hz
	Maximum heat dissipation	218 BTU/hr (229.99 kJ/hr)
	Voltage	100 - 240 VAC, rated -36 to -75 VDC, rated (depending on power supply chosen)
	Maximum power rating	300 W

Technical Specifications

	PoE power	450 W PoE+
	Notes	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. PoE Power is the power supplied by the internal power supply, it is dependent on the type and quantity of power supplies and may be supplemented with the use of a External Power Supply (EPS). No default power supply is included in the chassis; a minimum of one/maximum of four power supplies should be ordered.
Reliability	**MTBF (years)**	80.58
Safety		UL 60950-1; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; EN 60950-1; CAN/CSA-C22.2 No. 60950-1; FDA 21 CFR Subchapter J; AS/NZS 60950-1; GB 4943.1
Emissions		EN 61000-4-11:2004;ANSI C63.4-2009; AS/NZS CISPR 22:2009; CISPR 22 Ed2.0 2008-09; EN 55022:2010; EN 61000-3-3:2008; GB 9254-2008; IEC 61000-3-2 Ed3.0 (2009-02); IEC 61000-3-3 Ed2.0 (2008-06); VCCI V-4/2012.04; CISPR 24 Ed2.0 2010-08; EN 55024:2010; EN 61000-3-2:2006+A1:2009+A2:2009; EN 61000-4-2:2009; EN 61000-4-29:2000; EN 61000-4-3:2006; EN 61000-4-4:2012; EN 61000-4-5:2006; EN 61000-4-6:2009; EN 61000-4-8:2010; ETSI EN 300 386 V1.6.1(2012-09); FCC 47 CFR Part 15 (latest current version); ICES-003 Issue 5; IEC 61000-4-11 Ed2.0 (2004-03); IEC 61000-4-2 Ed2.0 (2008-12); IEC 61000-4-29 Ed1.0 (2000-08); IEC 61000-4-3 Ed3.2 (2010-04); IEC 61000-4-4 Ed3.0 (2012-04); IEC 61000-4-5 Ed2.0 (2005-11); IEC 61000-4-6 Ed3.0 (2008-10); IEC 61000-4-8 Ed2.0 (2009-09); VCCI V-3/2013.04
Telecom		FCC part 68; CS-03
Management		IMC - Intelligent Management Center; command-line interface; limited command-line interface; configuration menu; out-of-band management (RJ-45 Ethernet); SNMP Manager; Telnet; RMON1; FTP; in-line and out-of-band; modem interface; out-of-band management (serial RS-232C or Micro USB); IEEE 802.3 Ethernet MIB
Services		Refer to the Hewlett Packard Enterprise website at **http://www.hpe.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 Hewlett Packard Enterprise sales office

Standards and protocols
(applies to all products in series)

BGP

RFC 1163 Border Gateway Protocol (BGP)
RFC 1267 Border Gateway Protocol 3 (BGP-3)
RFC 1657 Definitions of Managed Objects for BGPv4
RFC 1771 BGPv4
RFC 1772 Application of the BGP
RFC 1773 Experience with the BGP-4 Protocol
RFC 1774 BGP-4 Protocol Analysis
RFC 1965 BGP-4 confederations
RFC 1997 BGP Communities Attribute
RFC 2439 BGP Route Flap Damping
RFC 2547 BGP/MPLS VPNs
RFC 2796 BGP Route Reflection
RFC 2842 Capability Advertisement with BGP-4
RFC 2858 BGP-4 Multi-Protocol Extensions
RFC 2918 Route Refresh Capability
RFC 3065 Autonomous System Confederations for GP

RFC 2327 SDP: Session Description Protocol
RFC 2338 VRRP
RFC 2344 Reverse Tunneling for Mobile IP
RFC 2358 Definitions of Managed Objects for the Ethernet-like Interface Types
RFC 2364 PPP Over AAL5
RFC 2365 Administratively Scoped IP Multicast
RFC 2373 IP Version 6 Addressing Architecture
RFC 2374 An IPv6 Aggregatable Global Unicast Address Format
RFC 2375 IPv6 Multicast Address Assignments
RFC 2385 Protection of BGP Sessions via the TCP MD5 Signature Option
RFC 2427 Multiprotocol Interconnect over Frame Relay
RFC 2428 FTP Extensions for IPv6 and NATs
RFC 2433 Microsoft PPP CHAP (Challenge Handshake Authentication Protocol) Extensions
RFC 2451 The ESP CBC-Mode Cipher Algorithms

Technical Specifications

RFC 3107 Support BGP carry Label for MPLS
RFC 3392 Capabilities Advertisement with BGP-4
RFC 4271 A Border Gateway Protocol 4 (BGP-4)
RFC 4273 Definitions of Managed Objects for BGP-4
RFC 4274 BGP-4 Protocol Analysis
RFC 4275 BGP-4 MIB Implementation Survey
RFC 4276 BGP-4 Implementation Report
RFC 4277 Experience with the BGP-4 Protocol
RFC 4360 BGP Extended Communities Attribute
RFC 4456 BGP Route Reflection: An Alternative to Full Mesh Internal BGP (IBGP)
RFC 4724 Graceful Restart Mechanism for BGP
RFC 4760 Multiprotocol Extensions for BGP-4
RFC1998 An Application of the BGP Community Attribute in Multi-home Routing

Denial of service protection
CPU DoS Protection
Rate Limiting by ACLs

Device management
RFC 1155 Structure and Mgmt Information (SMIv1)
RFC 1157 SNMPv1/v2c
RFC 1305 NTPv3
RFC 1591 DNS (client)
RFC 1902 (SNMPv2)
RFC 1908 (SNMP v1/2 Coexistence)
RFC 1945 Hypertext Transfer Protocol -- HTTP/1.0
RFC 2271 Framework
RFC 2573 (SNMPv3 Applications)
RFC 2576 (Coexistence between SNMP V1, V2, V3)
RFC 2578-2580 SMIv2
RFC 2579 (SMIv2 Text Conventions)
RFC 2580 (SMIv2 Conformance)
RFC 3416 (SNMP Protocol Operations v2)
RFC 3417 (SNMP Transport Mappings)

General Protocols
RFC 2385 BGP Session Protection via TCP MD5
RFC 1027 Proxy ARP
RFC 1034 Domain names - concepts and facilities
RFC 1035 Domain names - implementation and specification
RFC 1048 BOOTP (Bootstrap Protocol) vendor information extensions
RFC 1054 Host extensions for IP multicasting
RFC 1058 RIPv1
RFC 1059 Network Time Protocol (version 1) specification and implementation
RFC 1060 Assigned numbers

RFC 2452 IP Version 6 Management Information Base for the Transmission Control Protocol
RFC 2453 RIPv2
RFC 2454 IP Version 6 Management Information Base for the User Datagram Protocol
RFC 2461 Neighbor Discovery for IP Version 6 (IPv6)
RFC 2462 IPv6 Stateless Address Autoconfiguration
RFC 2570 Introduction to Version 3 of the Internet-standard Network Management Framework
RFC 2581 TCP Congestion Control
RFC 2597 Assured Forwarding PHB Group
RFC 2598 An Expedited Forwarding PHB
RFC 2615 PPP over SONET/SDH (Synchronous Optical Network/Synchronous Digital Hierarchy)
RFC 2616 HTTP Compatibility v1.1
RFC 2617 HTTP Authentication: Basic and Digest Access Authentication
RFC 2618 RADIUS Authentication Client MIB
RFC 2620 RADIUS Accounting Client MIB
RFC 2644 Changing the Default for Directed Broadcasts in Routers
RFC 2661 L2TP
RFC 2663 NAT Terminology and Considerations
RFC 2665 Definitions of Managed Objects for the Ethernet-like Interface Types
RFC 2668 Definitions of Managed Objects for IEEE 802.3 Medium Attachment Units (MAUs)
RFC 2675 IPv6 Jumbograms
RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5
RFC 2685 Virtual Private Networks Identifier
RFC 2686 The Multi-Class Extension to Multi-Link PPP
RFC 2694 DNS extensions to Network Address Translators (DNS_ALG)
RFC 2698 A Two Rate Three Color Marker
RFC 2702 Requirements for Traffic Engineering Over MPLS
RFC 2711 IPv6 Router Alert Option
RFC 2716 PPP EAP TLS Authentication Protocol
RFC 2747 RSVP Cryptographic Authentication
RFC 2763 Dynamic Name-to-System ID mapping
RFC 2784 Generic Routing Encapsulation (GRE)
RFC 2787 Definitions of Managed Objects for the Virtual Router Redundancy Protocol
RFC 2827 Network Ingress Filtering: Defeating Denial of Service Attacks Which Employ IP Source Address Spoofing
RFC 2833 RTP Payload for DTMF Digits,

Technical Specifications

RFC 1063 IP MTU (Maximum Transmission Unit) discovery options
RFC 1071 Computing the Internet Checksum
RFC 1072 TCP extensions for long-delay paths
RFC 1079 Telnet terminal speed option
RFC 1084 BOOTP (Bootstrap Protocol) vendor information extensions
RFC 1091 Telnet Terminal-Type Option
RFC 1093 NSFNET routing architecture
RFC 1101 DNS encoding of network names and other types
RFC 1119 Network Time Protocol (version 2) specification and implementation
RFC 1122 Requirements for Internet Hosts - Communication Layers
RFC 1141 Incremental updating of the Internet checksum
RFC 1142 OSI IS-IS Intra-domain Routing Protocol
RFC 1164 Application of the Border Gateway Protocol in the Internet
RFC 1166 Internet address used by Internet Protocol (IP)
RFC 1171 Point-to-Point Protocol for the transmission of multi-protocol datagrams over Point-to-Point links
RFC 1172 Point-to-Point Protocol (PPP) initial configuration options
RFC 1185 TCP Extension for High-Speed Paths
RFC 1191 Path MTU discovery
RFC 1195 OSI ISIS for IP and Dual Environments
RFC 1213 Management Information Base for Network Management of TCP/IP-based internets
RFC 1253 (OSPF v2)
RFC 1265 BGP Protocol Analysis
RFC 1266 Experience with the BGP Protocol
RFC 1268 Application of the Border Gateway Protocol in the Internet
RFC 1271 Remote Network Monitoring Management Information Base
RFC 1284 Definitions of Managed Objects for the Ethernetlike Interface Types
RFC 1286 Definitions of Managed Objects for Bridges
RFC 1294 Multiprotocol Interconnect over Frame Relay
RFC 1305 NTPv3 (IPv4 only)
RFC 1321 The MD5 Message-Digest Algorithm
RFC 1323 TCP Extensions for High Performance
RFC 1331 The Point-to-Point Protocol (PPP) for the Transmission of Multi-protocol Datagrams over Point-to-Point Links

Telephony Tones and Telephony Signals
RFC 2865 Remote Authentication Dial In User Service (RADIUS)
RFC 2866 RADIUS Accounting
RFC 2868 RADIUS Attributes for Tunnel Protocol Support
RFC 2869 RADIUS Extensions
RFC 2884 Performance Evaluation of Explicit Congestion Notification (ECN) in IP Networks.
RFC 2894 Router Renumbering for IPv6
RFC 2917 A Core MPLS IP VPN Architecture
RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations
RFC 2961 RSVP Refresh Overhead Reduction Extensions
RFC 2963 A Rate Adaptive Shaper for Differentiated Services
RFC 2965 HTTP State Management Mechanism
RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS
RFC 2973 IS-IS Mesh Groups
RFC 2976 The SIP INFO Method
RFC 2993 Architectural Implications of NAT
RFC 3011 The IPv4 Subnet Selection Option for DHCP
RFC 3022 Traditional IP Network Address Translator (Traditional NAT)
RFC 3024 Reverse Tunneling for Mobile IP, revised
RFC 3025 Mobile IP Vendor/Organization-Specific Extensions
RFC 3027 Protocol Complications with the IP Network Address Translator
RFC 3031 Multiprotocol Label Switching Architecture

IP multicast
RFC 1112 IGMP
RFC 2362 PIM Sparse Mode
RFC 2710 Multicast Listener Discovery (MLD) for IPv6
RFC 2934 Protocol Independent Multicast MIB for IPv4
RFC 3376 IGMPv3
RFC 3376 IGMPv3 (host joins only)
RFC 5059 Bootstrap Router (BSR) Mechanism for Protocol Independent Multicast (PIM)

IPv6
RFC 2080 RIPng for IPv6
RFC 2460 IPv6 Specification
RFC 2473 Generic Packet Tunneling in IPv6

Technical Specifications

RFC 1332 The PPP Internet Protocol Control
Protocol (IPCP)
RFC 1333 PPP Link Quality Monitoring
RFC 1334 PPP Authentication Protocols
RFC 1349 Type of Service
RFC 1350 TFTP Protocol (revision 2)
RFC 1364 BGP OSPF Interaction
RFC 1370 Applicability Statement for OSPF
RFC 1377 The PPP OSI Network Layer Control
Protocol (OSINLCP)
RFC 1393 Traceroute Using an IP Option
RFC 1395 BOOTP (Bootstrap Protocol) Vendor
Information Extensions
RFC 1398 Definitions of Managed Objects for the
Ethernet-Like Interface Types
RFC 1403 BGP OSPF Interaction
RFC 1444 Conformance Statements for version 2 of
the Simple Network Management Protocol
(SNMPv2)
RFC 1449 Transport Mappings for version 2 of the
Simple Network Management Protocol (SNMPv2)
RFC 1471 The Definitions of Managed Objects for
the Link Control Protocol of the Point-to-Point
Protocol
RFC 1473 The Definitions of Managed Objects for
the IP Network Control Protocol of the Point-to-
Point Protocol
RFC 1483 Multiprotocol Encapsulation over ATM
Adaptation Layer 5
RFC 1490 Multiprotocol Interconnect over Frame
Relay
RFC 1497 BOOTP (Bootstrap Protocol) Vendor
Information Extensions
RFC 1519 CIDR
RFC 1531 Dynamic Host Configuration Protocol
RFC 1532 Clarifications and Extensions for the
Bootstrap Protocol
RFC 1533 DHCP Options and BOOTP Vendor
Extensions
RFC 1534 Interoperation Between DHCP and
BOOTP
RFC 1541 Dynamic Host Configuration Protocol
RFC 1542 BOOTP Extensions
RFC 1542 Clarifications and Extensions for the
Bootstrap Protocol
RFC 1548 The Point-to-Point Protocol (PPP)
RFC 1549 PPP in HDLC Framing
RFC 1570 PPP LCP (Point-to-Point Protocol Link
Control Protocol) Extensions
RFC 1577 Classical IP and ARP over ATM
RFC 1597 Address Allocation for Private Internets

RFC 2475 IPv6 DiffServ Architecture
RFC 2529 Transmission of IPv6 Packets over IPv4
RFC 2545 Use of MP-BGP-4 for IPv6
RFC 2553 Basic Socket Interface Extensions for
IPv6
RFC 2740 OSPFv3 for IPv6
RFC 2893 Transition Mechanisms for IPv6 Hosts
and Routers
RFC 3056 Connection of IPv6 Domains via IPv4
Clouds
RFC 3162 RADIUS and IPv6
RFC 3315 DHCPv6 (client and relay)
RFC 5340 OSPF for IPv6

MIBs
RFC 1213 MIB II
RFC 1493 Bridge MIB
RFC 1724 RIPv2 MIB
RFC 1850 OSPFv2 MIB
RFC 1907 SNMPv2 MIB
RFC 2011 SNMPv2 MIB for IP
RFC 2012 SNMPv2 MIB for TCP
RFC 2013 SNMPv2 MIB for UDP
RFC 2096 IP Forwarding Table MIB
RFC 2233 Interfaces MIB
RFC 2273 SNMP-NOTIFICATION-MIB
RFC 2571 SNMP Framework MIB
RFC 2572 SNMP-MPD MIB
RFC 2573 SNMP-Notification MIB
RFC 2574 SNMP USM MIB
RFC 2674 802.1p and IEEE 802.1Q Bridge MIB
RFC 2737 Entity MIB (Version 2)
RFC 2863 The Interfaces Group MIB
RFC 3813 MPLS LSR MIB

Network management
IEEE 802.1D (STP)
RFC 1098 Simple Network Management Protocol
(SNMP)
RFC 1158 Management Information Base for
network management of TCP/IP-based internets:
MIB-II
RFC 1212 Concise MIB definitions
RFC 1215 Convention for defining traps for use with
the SNMP
RFC 1389 RIPv2 MIB Extension
RFC 1448 Protocol Operations for version 2 of the
Simple Network Management Protocol (SNMPv2)
RFC 1450 Management Information Base (MIB) for
version 2 of the Simple Network Management
Protocol (SNMPv2)

Technical Specifications

RFC 1618 PPP over ISDN
RFC 1619 PPP over SONET/SDH (Synchronous Optical Network/Synchronous Digital Hierarchy)
RFC 1624 Incremental Internet Checksum
RFC 1631 NAT
RFC 1650 Definitions of Managed Objects for the Ethernet-like Interface Types using SMIv2
RFC 1661 The Point-to-Point Protocol (PPP)
RFC 1662 PPP in HDLC-like Framing
RFC 1700 Assigned Numbers
RFC 1701 Generic Routing Encapsulation
RFC 1702 Generic Routing Encapsulation over IPv4 networks
RFC 1717 The PPP Multilink Protocol (MP)
RFC 1721 RIP-2 Analysis
RFC 1722 RIP-2 Applicability
RFC 1723 RIP v2
RFC 1724 RIP Version 2 MIB Extension
RFC 1757 Remote Network Monitoring Management Information Base
RFC 1777 Lightweight Directory Access Protocol
RFC 1812 IPv4 Routing
RFC 1825 Security Architecture for the Internet Protocol
RFC 1826 IP Authentication Header
RFC 1827 IP Encapsulating Security Payload (ESP)
RFC 1829 The ESP DES-CBC Transform
RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses
RFC 1884 IP Version 6 Addressing Architecture
RFC 1885 Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification
RFC 1886 DNS Extensions to support IP version 6
RFC 1889 RTP (Real-Time Protocol): A Transport Protocol for Real-Time Applications. Audio-Video Transport Working Group
RFC 1933 Transition Mechanisms for IPv6 Hosts and Routers
RFC 1945 Hypertext Transfer Protocol -- HTTP/1.0
RFC 1962 The PPP Compression Control Protocol (CCP)
RFC 1966 BGP Route Reflection An alternative to full mesh IBGP
RFC 1970 Neighbor Discovery for IP Version 6 (IPv6)
RFC 1971 IPv6 Stateless Address Autoconfiguration
RFC 1972 A Method for the Transmission of IPv6 Packets over Ethernet Networks
RFC 1981 Path MTU Discovery for IP version 6
RFC 1982 Serial Number Arithmetic

RFC 1902 Structure of Management Information for Version 2 of the Simple Network Management Protocol (SNMPv2)
RFC 1903 SNMPv2 Textual Conventions
RFC 1904 SNMPv2 Conformance
RFC 1905 SNMPv2 Protocol Operations
RFC 1906 SNMPv2 Transport Mappings
RFC 1908 Coexistence between Version 1 and Version 2 of the Internet-standard Network Management Framework
RFC 1918 Private Internet Address Allocation
RFC 2037 Entity MIB using SMIv2
RFC 2261 An Architecture for Describing SNMP Management Frameworks
RFC 2262 Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)
RFC 2263 SNMPv3 Applications
RFC 2264 User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3)
RFC 2265 View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)
RFC 2272 SNMPv3 Management Protocol
RFC 2273 SNMPv3 Applications
RFC 2274 USM for SNMPv3
RFC 2275 VACM for SNMPv3
RFC 2575 SNMPv3 View-based Access Control Model (VACM)
RFC 3164 BSD syslog Protocol
RFC 3411 An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks
RFC 3412 Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)
RFC 3413 Simple Network Management Protocol (SNMP) Applications
RFC 3414 SNMPv3 User-based Security Model (USM)
RFC 3415 View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)
RFC 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP)

OSPF

RFC 1245 OSPF protocol analysis
RFC 1246 Experience with OSPF
RFC 1583 OSPFv2
RFC 1587 OSPF NSSA
RFC 1765 OSPF Database Overflow

Technical Specifications

RFC 1989 PPP Link Quality Monitoring
RFC 1990 The PPP Multilink Protocol (MP)
RFC 1994 PPP Challenge Handshake
Authentication Protocol (CHAP)
RFC 2001 TCP Slow Start, Congestion Avoidance,
Fast Retransmit, and Fast Recovery Algorithms
RFC 2002 IP Mobility Support
RFC 2003 IP Encapsulation within IP
RFC 2011 SNMPv2 Management Information Base
for the Internet Protocol using SMIv2
RFC 2012 SNMPv2 Management Information Base
for the Transmission Control Protocol using SMIv2
RFC 2013 SNMPv2 Management Information Base
for the User Datagram Protocol using SMIv2
RFC 2018 TCP Selective Acknowledgement
Options
RFC 2021 Remote Network Monitoring
Management Information Base Version 2 using
SMIv2
RFC 2073 An IPv6 Provider-Based Unicast Address
Format
RFC 2082 RIP-2 MD5 Authentication
RFC 2091 Triggered Extensions to RIP to Support
Demand Circuits
RFC 2104 HMAC: Keyed-Hashing for Message
Authentication
RFC 2131 DHCP
RFC 2132 DHCP Options and BOOTP Vendor
Extensions
RFC 2136 Dynamic Updates in the Domain Name
System (DNS UPDATE)
RFC 2138 Remote Authentication Dial In User
Service (RADIUS)
RFC 2205 Resource ReSerVation Protocol (RSVP)
-- Version 1 Functional Specification
RFC 2209 Resource ReSerVation Protocol (RSVP)
-- Version 1 Message Processing Rules
RFC 2210 Use of RSVP (Resource Reservation
Protocol) in Integrated Services
RFC 2225 Classical IP and ARP over ATM
RFC 2236 IGMP Snooping
RFC 2246 The TLS Protocol Version 1.0
RFC 2251 Lightweight Directory Access Protocol
(v3)
RFC 2252 Lightweight Directory Access Protocol
(v3): Attribute Syntax Definitions
RFC 2283 MBGP
RFC 2292 Advanced Sockets API for IPv6
RFC 2309 Recommendations on queue
management and congestion avoidance in the
Internet

RFC 1850 OSPFv2 Management Information Base
(MIB), traps
RFC 2328 OSPFv2
RFC 2370 OSPF Opaque LSA Option
RFC 3101 OSPF NSSA

QoS/CoS

IEEE 802.1p (CoS)
RFC 2474 DS Field in the IPv4 and IPv6 Headers
RFC 2475 DiffServ Architecture
RFC 2597 DiffServ Assured Forwarding (AF)
RFC 2598 DiffServ Expedited Forwarding (EF)
RFC 2697 A Single Rate Three Color Marker
RFC 3168 The Addition of Explicit Congestion
Notification (ECN) to IP
RFC 3247 Supplemental Information for the New
Definition of the EF PHB (Expedited Forwarding
Per-Hop Behavior)
RFC 3260 New Terminology and Clarifications for
DiffServ

Security

IEEE 802.1X Port Based Network Access Control
RFC 2082 RIP-2 MD5 Authentication
RFC 2104 Keyed-Hashing for Message
Authentication
RFC 2138 RADIUS Authentication
RFC 2139 RADIUS Accounting
RFC 2408 Internet Security Association and Key
Management Protocol (ISAKMP)
RFC 2409 The Internet Key Exchange (IKE)
RFC 2412 The OAKLEY Key Determination
Protocol
RFC 2459 Internet X.509 Public Key Infrastructure
Certificate and CRL Profile
RFC 2818 HTTP Over TLS
RFC 2865 RADIUS Authentication
RFC 2866 RADIUS Accounting
RFC 3579 RADIUS Support For Extensible
Authentication Protocol (EAP)
RFC 3580 IEEE 802.1X Remote Authentication Dial
In User Service (RADIUS) Usage Guidelines

VPN
RFC 1828 IP Authentication using Keyed MD5
RFC 1853 IP in IP Tunneling
RFC 2401 Security Architecture for the Internet
Protocol
RFC 2402 IP Authentication Header
RFC 2403 The Use of HMAC-MD5-96 within ESP
and AH

Technical Specifications

RFC 2463 Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification

RFC 2464 Transmission of IPv6 Packets over Ethernet Networks

RFC 2465 Management Information Base for IP Version 6: Textual Conventions and General Group

RFC 2466 Management Information Base for IP Version 6: ICMPv6 Group

RFC 2472 IP Version 6 over PPP

RFC 2474 Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers

RFC 2507 IP Header Compression

RFC 2508 Compressing IP/UDP/RTP Headers for Low-Speed Serial Links

RFC 2509 IP Header Compression over PPP

RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols

RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE)

RFC 2519 A Framework for Inter-Domain Route Aggregation

RFC 2529 Transmission of IPv6 over IPv4 Domains without Explicit Tunnels

RFC 2543 SIP: Session Initiation Protocol

RFC 2548 (MS-RAS-Vendor only)

RFC 2553 Basic Socket Interface Extensions for IPv6

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 2406 IP Encapsulating Security Payload (ESP)

RFC 2407 The Internet IP Security Domain of Interpretation for ISAKMP

RFC 2410 The NULL Encryption Algorithm and Its Use With IPSec

RFC 2411 IP Security Document Roadmap

RFC 3948 - UDP Encapsulation of IPSec ESP Packets

RFC 4301 - Security Architecture for the Internet Protocol

RFC 4302 - IP Authentication Header (AH)

RFC 4303 - IP Encapsulating Security Payload (ESP)

RFC 4305 - Cryptographic Algorithm Implementation Requirements for ESP and AH

Accessories

HPE MSR3000 Series accessories

Transceivers

HP X115 100M SFP LC FX Transceiver	JD102B
HP X110 100M SFP LC LX Transceiver	JD120B
HP X110 100M SFP LC LH40 Transceiver	JD090A
HP X110 100M SFP LC LH80 Transceiver	JD091A
HP X120 1G SFP LC SX Transceiver	JD118B
HP X120 1G SFP LC LX Transceiver	JD119B
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 X120 1G SFP LC LH100 Transceiver	JD103A
HP X120 1G SFP LC BX 10-U Transceiver	JD098B
HP X120 1G SFP LC BX 10-D Transceiver	JD099B
HP X120 1G SFP RJ45 T Transceiver	JD089B

Cables

HP X200 V.24 DTE 3m Serial Port Cable	JD519A
HP X200 V.24 DCE 3m Serial Port Cable	JD521A
HP X200 V.35 DTE 3m Serial Port Cable	JD523A
HP X200 V.35 DCE 3m Serial Port Cable	JD525A
HP X260 RS449 3m DTE Serial Port Cable	JF825A
HP X260 RS449 3m DCE Serial Port Cable	JF826A
HP X260 RS530 3m DTE Serial Port Cable	JF827A
HP X260 RS530 3m DCE Serial Port Cable	JF828A
HP X260 Auxiliary Router Cable	JD508A
HP X260 E1 RJ45 3m Router Cable	JD509A
HP X260 E1 RJ45 20m Router Cable	JD517A
HP X260 E1 (2) BNC 75 ohm 3m Router Cable	JD175A
HP X260 E1 BNC 20m Router Cable	JD514A
HP X260 E1 2 BNC 75 ohm 40m Router Cable	JD516A
HP X260 E1 RJ45 BNC 75-120 ohm Conversion Router Cable	JD511A
HP X260 2E1 BNC 3m Router Cable	JD643A
HP X260 8E1 BNC 75 ohm 3m Router Cable	JD512A
HP X260 T1 Router Cable	JD518A
HP X260 SIC-8AS RJ45 0.28m Router Cable	JD642A
HP X260 mini D-28 to 4-RJ45 0.3m Router Cable	JG263A
HP X260 T3/E3 Router Cable	JD531A
HP X260 E3-30 E3/T3 Router Cable	JD533A
HP X200 Transit Plug D25F MP8(S) Single Cable	JD636A
HP X200 Transit RJ45 0.5m Single Cable	JD641A
HP X260 E1 RJ45 to 2xBNC 75ohm 3m Router Cable	JH294A

Power Supply

HP X351 300W 100-240VAC to 12VDC Power Supply	JG527A

Accessories

HP X351 300W -48/-60VDC to 12VDC Power Supply	JG528A
HP 5800 750W AC Power Supply	JC089A
HP RPS 800 Redundant Power Supply	JD183A

Router Modules

HP MSR 1-port E1/CE1/PRI SIC Module	JG604A
HP MSR 9-port 10/100 DSIC Module	JD574B
HP MSR 9-port 10/100 PoE DSIC Module	JD621A
HP MSR 4-port 10/100 PoE SIC Module	JD620A
HP MSR 4-port 10/100 SIC Module	JD573B
HP MSR 4-port Gig-T Switch SIC Module	JG739A
HP MSR 4-port Gig-T PoE Switch SIC Module	JG740A
HP MSR 1-port 10/100 SIC Module	JD545B
HP 1-port 100Mbt SFP SIC Router Module	JF280A
HP MSR 1-port GbE Combo SIC Module	JG738A
HP MSR 2-port FXO SIC Module	JD558A
HP MSR 2-port FXS SIC Module	JD560A
HP MSR 1-port E1-Voice SIC Module	JD575A
HP MSR 1-port T1-Voice SIC Module	JD576A
HP MSR 2 FXS +1 FXO Voice Interface SIC Module	JD632A
HP MSR 4-port FXS / 1-port FXO DSIC Module	JG189A
HP 2-port ISDN-S/T Voice Interface SIC Module	JF821A
HP MSR 1-port Fractional E1 SIC Module	JD634B
HP MSR 2-port Fractional E1 SIC Module	JF842A
HP MSR 1-port Fractional SIC Module	JD538A
HP MSR 1-port Enhanced Serial SIC Module	JD557A
HP MSR 2-port Enhanced Sync / Async Serial SIC Module	JG736A
HP MSR 4-port Enhanced Sync / Async Serial SIC Module	JG737A
HP MSR 1-port ISDN-S/T SIC Module	JD571A
HP 8-port Asynchronous Serial Interface SIC Router Module	JF281A
HP MSR 16-port Async Serial SIC Module	JG186A
HP MSR HSPA/WCDMA SIC Module	JG187A
HP MSR 1-port ADSL2+ SIC Module	JD537A
HP MSR 1-port ADSL over ISDN BRI U SIC Module	JG056B
HP MSR 1-port 8-wire G.SHDSL (RJ45) DSIC Module	JG191A
HP MSR 4G LTE SIC Module for Verizon/LTE 700 MHz/CDMA Rev A	JG742A
HP MSR 4G LTE SIC Module for ATT/LTE 700/1700/2100 MHz and UMTS/HSPA+/HSPA/EDGE/GRPS/GSM	JG743A
HP MSR 4G LTE SIC Module for Global/LTE 800/900/1800/2100/2600 MHz and UMTS/HSPA+/HSPA/EDGE/GRPS/GSM	JG744A
HP MSR 1U HMIM Adapter Module	JG416A
HP MSR 0.5U HMIM Adapter Module	JG415A
HP MSR 1-port E1 Voice HMIM Module	JG429A
HP MSR 1-port T1 Voice HMIM Module	JG430A
HP MSR 2-port E1 Voice HMIM Module	JG431A
HP MSR 2-port T1 Voice HMIM Module	JG432A
HP MSR 4-port FXS HMIM Module	JG446A
HP MSR 4-port FXO HMIM Module	JG447A

Accessories

HP MSR 4-port E and M HMIM Module	JG448A
HP MSR 16-port FXS HMIM Module	JG434A
HP MSR 4-port Enhanced Sync / Async Serial HMIM Module	JG442A
HP MSR 8-port Enhanced Sync / Async Serial HMIM Module	JG443A
HP MSR 2-port E1 / CE1 / PRI HMIM Module	JG450A
HP MSR 4-port E1 / CE1 / PRI HMIM Module	JG451A
HP MSR 4-port E1 / Fractional E1 HMIM Module	JG453A
HP MSR 8-port E1 / CE1 / PRI (75ohm) HMIM Module	JG452A
HP MSR 2-port T1 / CT1 / PRI HMIM Module	JG456A
HP MSR 4-port T1 / Fractional T1 HMIM Module	JG457A
HP MSR 1-port E3 / CE3 / FE3 HMIM Module	JG436A
HP MSR 1-port T3 / CT3 / FT3 HMIM Module	JG435A
HP MSR 1-port OC-3c / STM-1c POS HMIM Module	JG438A
HP MSR 2-port Gig-T HMIM Module	JG420A
HP MSR 4-port Gig-T HMIM Module	JG421A
HP MSR 8-port Gig-T HMIM Module	JG422A
HP MSR 2-port 1000BASE-X HMIM Module	JG423A
HP MSR 4-port 1000BASE-X HMIM Module	JG424A
HP MSR 8-port 1000BASE-X HMIM Module	JG425A
HP MSR 24-port Gig-T Switch HMIM Module	JG426A
HP MSR 24-port Gig-T PoE Switch HMIM Module	JG427A
HP MSR 8-port 10/100/1000BASE-T / 2-port 1000BASE-X (Combo) Switch HMIM Module	JG741A
HP MSR 1-port OC-3 / STM-1 CPOS HMIM Module	JG428A
HP MSR Open Application Platform (OAP) with VMware vSphere? MIM Module	JG532A
HP MSR G2 128-channel Voice Processing Module	JG417A
HP MSR 8-port 100BASE-FX/1000BASE-X / 4-port 1000BASE-T (Combo) L2/L3 HMIM Module	JH238A
HP MSR 16-port Enhanced Async Serial HMIM Module	JG445A
HP MSR 8-port E1 / CE1 / T1 / CT1 / PRI HMIM Module	JH169A
HP MSR 8-port E1 / Fractional E1 / T1 / Fractional T1 HMIM Module	JH172A
HP MSR HSPA+ / WCDMA SIC Module	JG929A

Power cords

HP X290 MSR30 1m RPS Cable	JD637A

Memory

HP X600 1G Compact Flash Card	JC684A
HP X600 512M Compact Flash Card	JC685A
HP X600 256M Compact Flash Card	JC686A
HP X610 2GB DDR3 SDRAM UDIMM Memory	JG529A
HP X610 4GB DDR3 SDRAM UDIMM Memory	JG530A

Summary of Changes

Date	Version History	Action	Description of Change:
01-Dec-2015	From Version 15 to 16	Changed	Overview and Technical Specifications updated
28-Aug-2015	From Version 14 to 15	Changed	Configuration section updated
17-Aug-2015	From Version 13 to 14	Added	SKUs added: • JG445A • JH169A • JH172A • JH238A • JH294A • JG929A
		Changed	Updated Features and benefits, Configuration, Technical Specifications and Accessories
24-Feb-2015	From Version 12 to 13	Added	Adding new rule 10 to Box Level CTO section
06-Oct-2014	From Version 11 to 12	Removed	Removed SKU JD572A
		Changed	Configuration section updated
18-Aug-2014	From Version 10 to 11	Added	Added 9 new accessories: JG428A, JG432A, JG434A, JG741A, JG736A, JG737A, JG738A, JG739A, JG740A
		Changed	Content Edits
10-June-2014	From Version 9 to 10	Added	3 new models: JG407A, JG408A, JG410A; 13 new accessories: JG604A, JG420A, JG421A, JG422A, JG423A, JG424A, JG425A, JG426A, JG427A, JG742A, JG743A, JG744A, JG528A
10-Feb-2014	From Version 8 to 9	Changed	Key features was revised.
31-Jan-2014	From Version 7 to 8	Added	GRE tunnels was added to Technical Specifications.
17-Dec-2013	From Version 6 to 7	Changed	Overview image callout for HP MSR3012 AC Router-Front was revised.
09-Dec-2013	From Version 5 to 6	Changed	Power Supplies, Modules, and Cables were revised.
22-Nov-2013	From Version 4 to 5	Changed	Router Chassis, CTO Router Chassis, Power Supplies, Modules, and Cables were revised.
14-Oct-2013	From Version 3 to 4	Added	Overview images were added.
30-Sep-2013	From Version 2 to 3	Changed	Minor edits were made throughout Configuration.
27-Sep-2013	From Version 1 to 2	Added	Configuration was added.

Summary of Changes

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