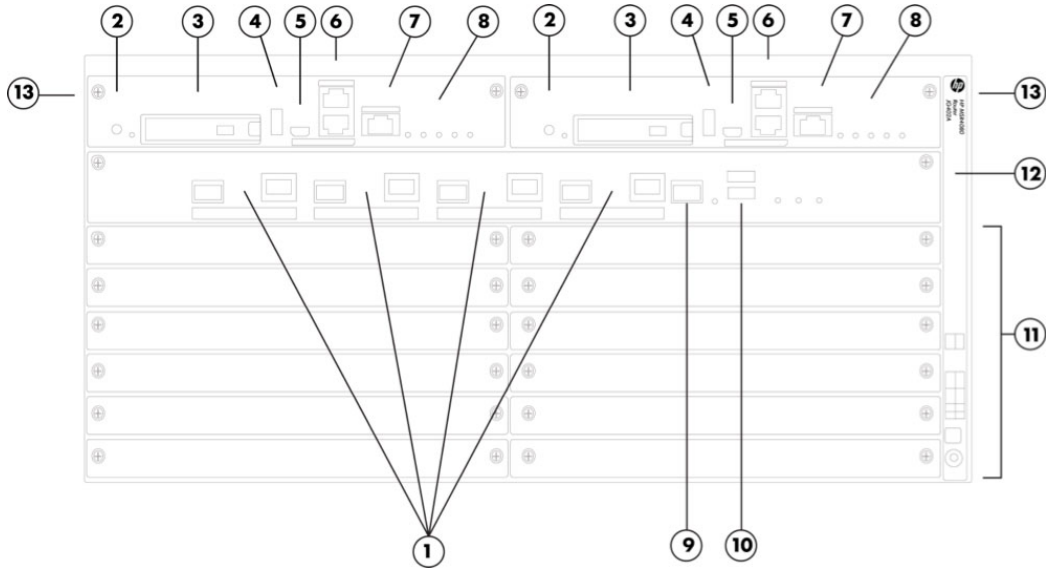


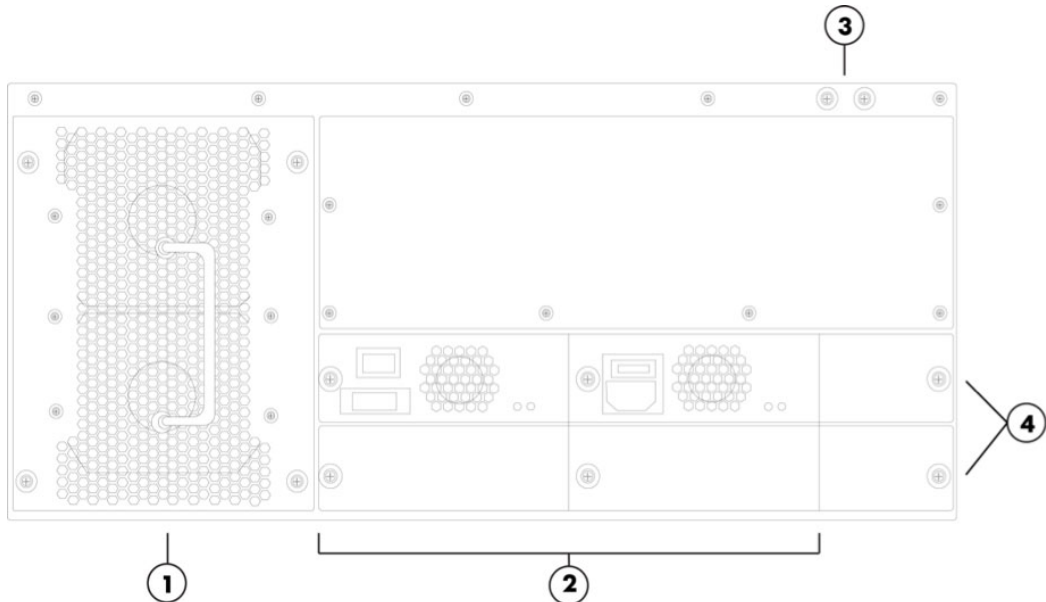
### Overview

### HPE MSR4000 Series



**HP MSR4080 Router Chassis (SPU-200) - Front View**

- |                                       |   |
|---------------------------------------|---|
| 1. 4 Fixed COMBO 1000M RJ45/SFP ports | 8. System Activity LEDs                                       |
| 2. Reset Button                       | 9. SFP+ port  |
| 3. CF Card Slot                       | 10. 2 USB 2.0 Port for 3G modem and USB disk                  |
| 4. USB Port                           | 11. 8-HMIM modules slot (4 Half Height + 4 Full Height Slots) |
| 5. USB console port                   | 12. Service Processing Unit (SPU)                             |
| 6. CON/AUX port                       | 13. Main Processing Units (MPU)                               |
| 7. Management Port                    |   |



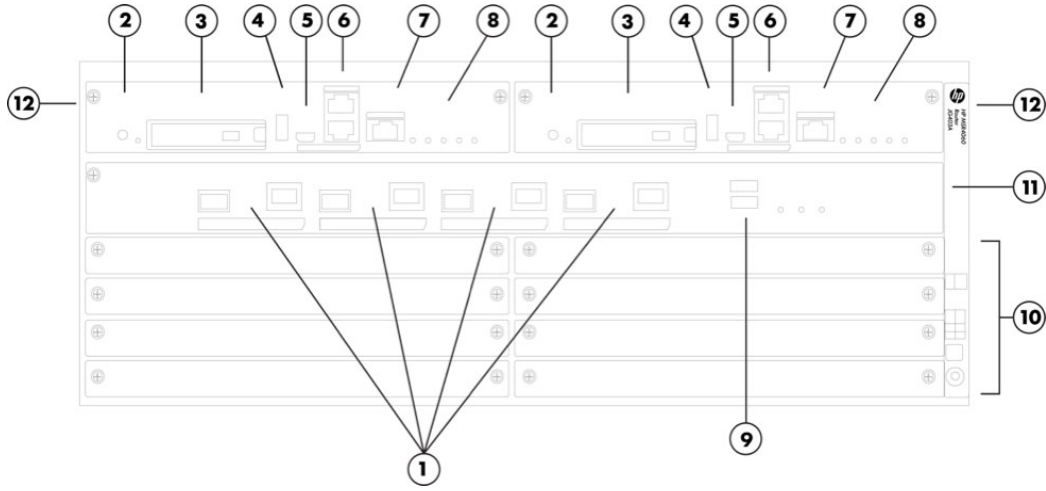
**HP MSR4080 Router Chassis - Rear View**

- |             |                       |
|-------------|-----------------------|
| 1. Fan tray | 3. Grounding Terminal |
|-------------|-----------------------|

Overview

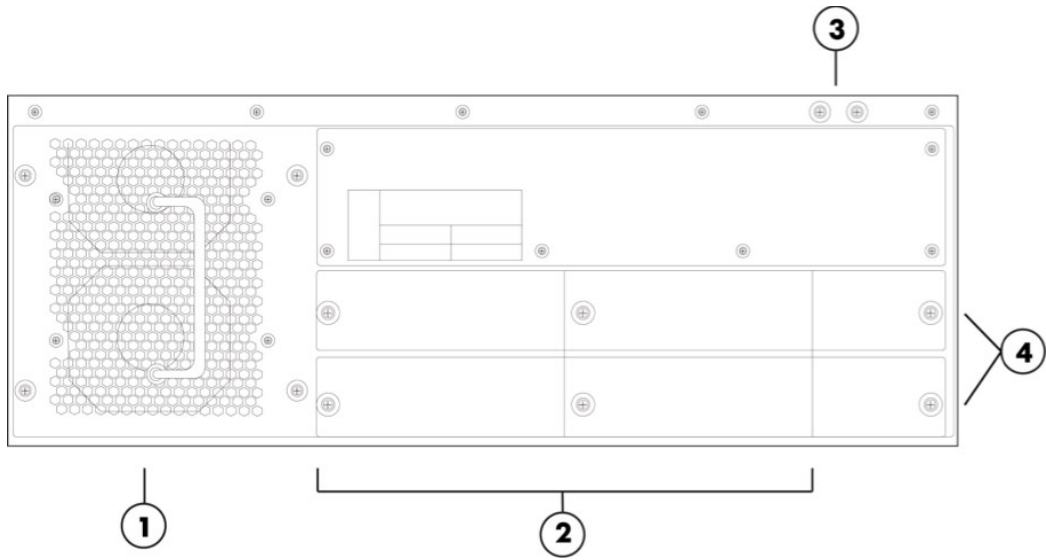
2. Power Supplies

4. Filler panels of the PoE power supply slots



**HP MSR4060 Router Chassis(SPU-100) - Front View**

- |                                       |   |
|---------------------------------------|---|
| 1. 4 Fixed COMBO 1000M RJ45/SFP ports | 7. Management Port  |
| 2. Reset Button                       | 8. System Activity LEDs                                       |
| 3. CF Card Slot                       | 9. 2 USB 2.0 Port for 3G modem and USB disk                   |
| 4. USB Port                           | 10. 6-HMIM modules slot (4 Half Height + 2 Full Height Slots) |
| 5. USB console port                   | 11. Service Processing Unit                                   |
| 6. CON/AUX port                       | 12. Main Processing Units                                     |



**HP MSR4060 Router Chassis - Rear View**

- |                   |  |
|-------------------|--|
| 1. Fan Tray       | 3. Grounding Terminal                          |
| 2. Power Supplies | 4. Filler panels of the PoE power supply slots |

Models

- HP MSR4060 Router Chassis
- HP MSR4080 Router Chassis

- JG403A
- JG402A

Key features

## Overview

- Up to 36 Mpps forwarding performance; support for multiple concurrent services
- High reliability with separated hardware data and control planes, and dual MPUs
- Open Application Platform for HPE AllianceOne applications
- Powerful aggregation capacity; integrated 10GbE; support for up to 64 E1 or eight E3/T3 ports
- Zero-touch solution with single pane-of-glass management

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## Product overview

The HPE MSR4000 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 extra large branch offices, headquarters, and campuses. This gives your IT personnel the benefit of reduced complexity, and simplified configuration, deployment, and management. The MSR4000 series leverages separated data and control planes, dual main processing units (MPUs), and support for up to four power supplies, which provides outstanding performance and reliability.

The MSR4000 routers provide a full-featured, resilient routing platform with the latest multicore CPUs, offer 10 Gigabit SFP+ integrated, provide an enhanced PCI bus, and ship with the latest version of HPE Comware software to help ensure high performance with concurrent services. The MSR4000 series provides a full-featured, resilient routing platform, including IPv6 and MPLS, with up to 36 Mpps forwarding capacity and 28 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 MSR4000 series provides an agile, flexible network infrastructure that enables you to quickly adapt to your changing business requirements while delivering integrated concurrent services on a single, easy-to-manage platform.

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## Features and benefits

### Performance

- **Excellent forwarding performance**  
provides forwarding performance up to 20 Mpps (13.4 Gb/s); meets the bandwidth-intensive application demands of enterprise businesses
- **Powerful security capacity**  
provides forwarding performance up to 20 Mpps (13.4 Gb/s); meets the bandwidth-intensive application demands of enterprise businesses

### 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, firewall, VPN, and SIP/voice gateway all in one device
- **Advanced hardware architecture**  
provides multicore processors, gigabit switching, and PCIE bus; dual Main Processing Units, four internal power supplies (N+1 configuration), and internal and external CF cards are offered; new high-performance MIM modules (HMIM) supported
- **New operation system version**  
ships with new Comware v7 operating system delivering the latest in virtualization and routing

## Overview

- **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
- **Distributed architecture with separation of data and control planes**  
delivers enhanced fault tolerance and facilitates near continuous operation and zero service disruption during planned or unplanned control-plane events; service processing units (SPUs) perform data forwarding, encryption/decryption, and analyzing/filtering of data packets; main processing units perform route calculation, forward table maintenance, and configure and monitor the SPU
- **Field-programmable gate array (FPGA)**  
improves the bandwidth of SIC 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
- **Main processing unit (MPU)**  
provides 1 GbE management port; has default of 512 MB internal CF and 2 GB DDR3 memory
- **Service processing units (SPU)**  
includes four 1000BASE-T and four SFP (Combo) slots, two voice processing module slots, and 2 GB DDR3 memory; SPU 200/300 also has one 10GbE SFP+ slot; Forwarding performance: 10Mpps (SPU-100), 20Mpps (SPU-200), 36Mpps (SPU-300)

## Connectivity

- **Powerful aggregation capacity**  
supports integrated 10GbE LAN, and up to 64 E1 or eight E3/T3 ports
- **High-density port connectivity**  
provides up to eight interface module slots and up to four on-board Gigabit Ethernet and one 10GbE ports
- **Multiple WAN interfaces**  
provides traditional links with E1, T1, Serial, and ISDN; high-density Ethernet access with WAN Fast Ethernet and Gigabit Ethernet; and high-speed E3/T3, 155 Mb/s OC3 access options
- **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
- **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

## Overview

flexibility

- **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

- **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

## 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

## Overview

- **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 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 and IPv6 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)

- **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

## Overview

- **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
- **Other QoS technologies**  
supports traffic shaping, MPLS QoS, and MP QoS/LFI

## Security

- **Enhanced stateful firewall**  
Application layer protocol inspection, Transport layer protocol inspection, ICMP error message check, and TCP 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 NAT 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

## Overview

### 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)
- **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 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, Web content filtering, and application prioritization and enhancement
- **Embedded NetStream**  
improves traffic distribution using powerful scheduling algorithms, including Layer 4 to 7 services; monitors the health status of servers and firewalls
- **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

- **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
- **In-Service Software Upgrade (ISSU)**  
lowers downtime caused by planned maintenance and software upgrades
- **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
- **Multiple internal power supply slots**  
delivers higher reliability with a maximum of four internal power supplies, which can be installed
- **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.
- **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.



## Overview

### 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
- **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 traceroute 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

### Ease of deployment

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

### Additional information

## Overview

- **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
- **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**  
to 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 MSR4080 Router Chassis JG402A

- Must select 1 Main Processing Unit
- Must select 1 Service Processing Unit
- Must select 1 Power Supply
- 8-HMIM modules slot (4 Half Height + 4 Full Height Slots)
- 5U - Height

HP MSR4060 Router Chassis JG403A

- Must select 1 Main Processing Unit
- Must select 1 Service Processing Unit
- Must select 1 Power Supply
- 6-HMIM modules slot (4 Half Height + 2 Full Height Slots)
- 4U - Height

## Box Level Integration CTO Models

### CTO Router Chassis

HP MSR CTO Router Solution JG500A

- SSP trigger sku

HP MSR4080 Router Chassis JG402A

- Must select 1 Main Processing Unit
- Must select 1 Service Processing Unit
- Must select 1 Power Supply
- 8-HMIM modules slot (4 Half Height + 4 Full Height Slots)
- 5U - Height

See Configuration  
**NOTE:1**

HP MSR4060 Router Chassis JG403A

- Must select 1 Main Processing Unit
- Must select 1 Service Processing Unit
- Must select 1 Power Supply
- 6-HMIM modules slot (4 Half Height + 2 Full Height Slots)

See Configuration  
**NOTE:1**

## Configuration

- 4U - Height

Configuration Rules:

Note 1 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)

## Rack Level Integration CTO Models

### Router Chassis

HP MSR4080 Router Chassis

- Must select 1 Main Processing Unit
- Must select 1 Service Processing Unit
- Must select 1 Power Supply
- 8-HMIM modules slot (4 Half Height + 4 Full Height Slots)
- 5U - Height

JG402A

See Configuration  
**NOTE:1**

HP MSR4060 Router Chassis

- Must select 1 Main Processing Unit
- Must select 1 Service Processing Unit
- Must select 1 Power Supply
- 6-HMIM modules slot (4 Half Height + 2 Full Height Slots)
- 4U - Height

JG403A

See Configuration  
**NOTE:1**

Configuration Rules:

Note 1 If the CTO Router Chassis needs to be racked, Then the CTO Base Model needs to integrate (with #0D1) to the HP Networking Rack.

## Power Supplies

System (std 0// max 4) User Selection (min 1 // max 2 or max 4) per MSR4000 Router Chassis

HP X351 300W DC Power Supply

JG528A  
See Configuration  
**NOTE:4, 6**

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

JG527A  
See Configuration  
**NOTE:1, 2, 4, 6**

PDU Cable NA/MEX/TW/JP

JG527A#B2B

## Configuration

- 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)

HP 5800 750W AC PoE Power Supply

JC089A

See Configuration

**NOTE:**1, 5, 6

PDU Cable NA/MEX/TW/JP

JC089A#B2B

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

PDU Cable ROW

JC089A#B2C

- 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 switch .  
(Offered only in NA, Mexico,, Taiwan, and Japan)
- Note 4            Maximum of 4 of this Power Supply for MSR4080 - JG402A and MSR4060 - JG403A.  
min=0\ max=4
- Note 5            Maximum of 2 of this Power Supply for MSR4080 - JG402A and MSR4060 - JG403A  
min=0\ max=2
- 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)

Configurator Blue Text:

## Configuration

HP 5800 750W AC PoE Power Supply (JC089A) is only supported in slot 1 and slot 3 in the MSR4000 Router Chassis.

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

## Main Processing Units

HP MSR4000 MPU-100 Main Processing Unit

- default=2GB \ max=4GB DDR SDRAM (4GB Max, by replacing existing single 2GB SDRAM)
- External CF Card slot - Default 0 // max 1 CF Card

JG412A

See Configuration

**NOTE:**1, 2, 3, 5

Configuration Rules:

Note 1 Service Processing Units (JG670A, JG413A or JG414A) must be selected with the Main Processing Unit (JG412A/JG869A)

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

Note 3 The following CF Card install into this Module:  
HP X600 256M Compact Flash Card JC686A  
HP X600 512M Compact Flash Card JC685A  
HP X600 1G Compact Flash Card JC684A

Note 5 No mixing of any type of MPU. Must all be the same sku.

## Service Processing Units

HP MSR4000 SPU-100 Service Processing Unit

- 4 Fixed COMBO 1000M RJ45/SFP ports
- min=0 \ max=4 SFP Transceivers
- min=0 \ max=2 VPM Modules
- default=2GB \ max=2GB DDR SDRAM

JG413A

See Configuration

**NOTE:**1, 2

HP MSR4000 SPU-200 Service Processing Unit

- 4 Fixed COMBO 1000M RJ45/SFP ports
- min=0 \ max=4 SFP Transceivers
- 1 - SFP+ Port
- min=0 \ max=1 SFP+ Transceiver
- min=0 \ max=2 VPM Modules
- default=2GB \ max=2GB DDR SDRAM

JG414A

See Configuration

**NOTE:**1, 2, 3

HP MSR4000 SPU-300 Svc Processing Unit

JG670A

## Configuration

- 4 Fixed COMBO 1000M RJ45/SFP ports
- min=0 \ max=4 SFP Transceivers
- 1 - SFP+ Port
- min=0 \ max=1 SFP+ Transceiver
- min=0 \ max=2 VPM Modules
- default=4GB \ max=4GB DDR SDRAM

See Configuration

**NOTE:**1, 2, 3

### Configuration Rules:

Note 1	The following SFP Transceivers install into this SPU:	
	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 2	The following VPM Modules install into this SPU:	
	HP MSR G2 128-channel Voice Processing Module	JG417A
Note 3	The following SFP+ Transceivers install into this SPU:	
	HP X130 10G SFP+ LC SR Transceiver	JD092B
	HP X130 10G SFP+ LC LRM Transceiver	JD093B
	HP X130 10G SFP+ LC LR Transceiver	JD094B
	HP X130 10G SFP+ LC ER 40km Transceiver	JG234A
	HP X240 10G SFP+ to SFP+ 0.65m Direct Attach Copper Cable	JD095C
	HP X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable	JD096C
	HP X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	JD097C
	HP X240 10G SFP+ to SFP+ 5m Direct Attach Copper Cable	JG081C

## HMIM Modules

System (std 0 // max 6 or 8) User Selection (min 0 // max 6 or 8) per Router Chassis (See Modules for Port information)

HP MSR 1-port E1 Voice HMIM Module	JG429A
<ul style="list-style-type: none"> <li>• (Full Height Module; Takes up 1 - Full Height slot or 2 - Half Height slots, vertically)</li> </ul>	See Configuration
min=0 \ max=1 E1 Cable	<b>NOTE:</b> 1, 3, 5, 11

## Configuration

HP MSR 1-port T1 Voice HMIM Module	JG430A
<ul style="list-style-type: none"> <li>(Full Height Module; Takes up 1 - Full Height slot or 2 - Half Height slots, vertically) min=0 \ max=1 E1 Cable</li> </ul>	See Configuration <b>NOTE:</b> 1, 3, 10, 11
HP MSR 2-port E1 Voice HMIM Module	JG431A
<ul style="list-style-type: none"> <li>(Full Height Module; Takes up 1 - Full Height slot or 2 - Half Height slots, vertically) min=0 \ max=1 E1 Cable</li> </ul>	See Configuration <b>NOTE:</b> 1, 3, 5, 11
HP MSR 1-port T3 / CT3 / FT3 HMIM Module	JG435A
<ul style="list-style-type: none"> <li>(Half Height Module; Takes up 1 Half Height or 1 Full Height slot) min=0 \ max=2 E3/T3 Cable</li> </ul>	See Configuration <b>NOTE:</b> 2, 4, 6
HP MSR 1-port E3 / CE3 / FE3 HMIM Module	JG436A
<ul style="list-style-type: none"> <li>(Half Height Module; Takes up 1 Half Height or 1 Full Height slot) min=0 \ max=2 E3/T3 Cable</li> </ul>	See Configuration <b>NOTE:</b> 2, 4, 6
HP MSR 1-port OC-3c / STM-1c POS HMIM Module	JG438A
<ul style="list-style-type: none"> <li>(Half Height Module; Takes up 1 Half Height or 1 Full Height slot) min=0 \ max=1 SFP Transceiver</li> </ul>	See Configuration <b>NOTE:</b> 2, 4, 7
HP MSR 4-port Enhanced Sync / Async Serial HMIM Module	JG442A
<ul style="list-style-type: none"> <li>(Half Height Module; Takes up 1 Half Height or 1 Full Height slot) min=0 \ max=4 Serial Port Cable</li> </ul>	See Configuration <b>NOTE:</b> 2, 4, 8
HP MSR 8-port Enhanced Sync / Async Serial HMIM Module	JG443A
<ul style="list-style-type: none"> <li>(Half Height Module; Takes up 1 Half Height or 1 Full Height slot) min=0 \ max=8 Serial Port Cable</li> </ul>	See Configuration <b>NOTE:</b> 2, 4, 8
HP MSR 4-port FXS HMIM Module	JG446A
<ul style="list-style-type: none"> <li>(Half Height Module; Takes up 1 Half Height or 1 Full Height slot)</li> </ul>	See Configuration <b>NOTE:</b> 2, 4
HP MSR 4-port FXO HMIM Module	JG447A
<ul style="list-style-type: none"> <li>(Half Height Module; Takes up 1 Half Height or 1 Full Height slot)</li> </ul>	See Configuration <b>NOTE:</b> 2, 4
HP MSR 4-port E&M HMIM Module	JG448A
<ul style="list-style-type: none"> <li>(Half Height Module; Takes up 1 Half Height or 1 Full Height slot)</li> </ul>	See Configuration <b>NOTE:</b> 2, 4



## Configuration

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

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

JG450A

See Configuration

**NOTE:**2, 4, 5

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

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

JG451A

See Configuration

**NOTE:**2, 4, 5

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

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

JG452A

See Configuration

**NOTE:**2, 4, 9

### HP MSR 4-port E1 / Fractional E1 HMIM Module

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

JG453A

See Configuration

**NOTE:**2, 4, 5

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

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

JG456A

See Configuration

**NOTE:**2, 4

### HP MSR 4-port T1 / Fractional T1 HMIM Module

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

JG457A

See Configuration

**NOTE:**2, 4

### HP MSR 2p Gig-T HMIM Mod

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

JG420A

See Configuration

**NOTE:**2, 4

### HP MSR 4p Gig-T HMIM Mod

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

JG421A

See Configuration

**NOTE:**2, 4

### HP MSR 8p Gig-T HMIM Mod

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

JG422A

See Configuration

**NOTE:**2, 4

### HP MSR 2p 1000BASE-X HMIM Mod

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

JG423A

See Configuration

**NOTE:**2, 4, 14

### HP MSR 4p 1000BASE-X HMIM Mod

JG424A

## Configuration

<ul style="list-style-type: none"> <li>• (Half Height Module; Takes up 1 Half Height or 1 Full Height slot)</li> <li>• min=0 \ max=4 SFP Modules</li> </ul>	See Configuration <b>NOTE:</b> 2, 4, 14
HP MSR 8p 1000BASE-X HMIM Mod <ul style="list-style-type: none"> <li>• (Half Height Module; Takes up 1 Half Height or 1 Full Height slot)</li> <li>• min=0 \ max=8 SFP Modules</li> </ul>	JG425A See Configuration <b>NOTE:</b> 2, 4, 14
HP MSR 24p Gig-T Switch HMIM Mod <ul style="list-style-type: none"> <li>• (Full Height Module; Takes up 1 - Full Height slot or 2 - Half Height slots, vertically)</li> </ul>	JG426A See Configuration <b>NOTE:</b> 1, 3, 11
HP MSR 24p Gig-T PoE Switch HMIM Mod <ul style="list-style-type: none"> <li>• (Full Height Module; Takes up 1 - Full Height slot or 2 - Half Height slots, vertically)</li> </ul>	JG427A See Configuration <b>NOTE:</b> 1, 3, 11
HP MSR 1p OC-3/STM-1 CPOS HMIM Mod <ul style="list-style-type: none"> <li>• (Half Height Module; Takes up 1 Half Height or 1 Full Height slot)</li> <li>• min=0 \ max=1 SFP Transceiver</li> </ul>	JG428A See Configuration <b>NOTE:</b> 2, 4, 7
HP MSR 2p T1 Voice HMIM Mod <ul style="list-style-type: none"> <li>• (Full Height Module; Takes up 1 - Full Height slot or 2 - Half Height slots, vertically)</li> <li>• min=0 \ max=2 T1 Cable</li> </ul>	JG432A See Configuration <b>NOTE:</b> 1, 3, 10
HP MSR 16p FXS HMIM Mod <ul style="list-style-type: none"> <li>• (Full Height Module; Takes up 1 - Full Height slot or 2 - Half Height slots, vertically)</li> </ul>	JG434A See Configuration <b>NOTE:</b> 1, 3
HP MSR 8p BASE-T/2p Combo Swch HMIM Mod <ul style="list-style-type: none"> <li>• (Half Height Module; Takes up 1 Half Height or 1 Full Height slot)</li> <li>• min=0 \ max=2 SFP Transceivers</li> </ul>	JG741A See Configuration <b>NOTE:</b> 2, 4, 7, 14
HP MSR 16p Enh Async Serial HMIM Mod <ul style="list-style-type: none"> <li>• (Full Height Module; Takes up 1 - Full Height slot or 2 - Half Height slots, vertically)</li> </ul>	JG445A See Configuration <b>NOTE:</b> 1, 3
HP MSR 8-port E1/CE1/T1/CT1/PRI HMIM Mod <ul style="list-style-type: none"> <li>• (Half Height Module; Takes up 1 Half Height or 1 Full Height slot)</li> <li>• min=0 \ max=8 E1/T1 Cable</li> </ul>	JH169A See Configuration <b>NOTE:</b> 2, 4, 10, 15, 16
HP MSR 8-port E1/FE1/T1/FT1 HMIM Mod <ul style="list-style-type: none"> <li>• (Half Height Module; Takes up 1 Half Height or 1 Full Height slot)</li> <li>• min=0 \ max=8 E1/T1 Cable</li> </ul>	JH172A See Configuration <b>NOTE:</b> 2, 4, 10, 15, 16

## Configuration

HP MSR 8p BASE-X/4p Combo L2/L3 HMIM Mod	JH238A
<ul style="list-style-type: none"> <li>(Half Height Module; Takes up 1 Half Height or 1 Full Height slot)</li> <li>min=0 \ max=8 SFP Modules</li> </ul>	See Configuration <b>NOTE:</b> 2, 4, 7, 14
HP MSR 1U HMIM Adapter Module	JG416A#B01
<ul style="list-style-type: none"> <li>(Half Height Module; Takes up 1 Half Height or 1 Full Height slot)</li> </ul>	See Configuration <b>NOTE:</b> 2, 4, 12
HP MSR 0.5U HMIM Adapter Module	JG415A#B01
<ul style="list-style-type: none"> <li>(Half Height Module; Takes up 1 Half Height or 1 Full Height slot)</li> </ul>	See Configuration <b>NOTE:</b> 2, 4, 13

### Configuration Rules:

Note 1	These Modules can install directly to the Router Chassis (JG402A) min=0\ max=6 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 (JG402A) min=0\ max=8 per enclosure	
Note 3	These Modules can install directly to the Router Chassis (JG403A) min=0\ max=4 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 (JG403A) min=0\ max=6 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
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

## Configuration

	HP X260 RS449 3m DTE Serial Port Cable	JF825A
	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
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	Full Height Module; Takes up 1 - Full Height slot or 2 - Half Height slots, vertically	
Note 12	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
	HP MSR Open Application Platform (OAP) with VMware vSphere? MIM Module	JG532A
Note 13	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

## Configuration

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 14 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
HP X120 1G SFP RJ45 T Transceiver	JD089B

Note 15 The following E1 Cables install into this Module:

HP X260 E1 RJ45 to 2xBNC 75ohm 3m Router Cable	JH294A
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Note 16 The following E1 Cables install into this Module:

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 <b>NOTE:</b> 1, 2
HP MSR SSB Com MIM Mod pwrby Msft Lync	JG587A See Configuration <b>NOTE:</b> 1, 2
HP MSR MSB Com MIM Mod pwrby Msft Lync	JG588A See Configuration <b>NOTE:</b> 1, 2

Note 1 This Module installs into JG416A.  
JG402A min=0\ max=6 per enclosure  
JG403A min=0\ max=4 per enclosure

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

## Configuration

### VPM Modules

HP MSR G2 128-channel Voice Processing Module

JG417A

See Configuration

**NOTE:1**

Configuration Rules:

Note 1            These Modules can install directly to the Service Processing Unit  
min=0\ max=2 per SPU

### Transceivers

#### SFP Transceivers

System (std 0 // max 4) User Selection (min 0 // max 4) per SPU

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

#### SFP+ Transceivers

## Configuration

HP X130 10G SFP+ LC SR Transceiver	JD092B
HP X130 10G SFP+ LC LRM Transceiver	JD093B
HP X130 10G SFP+ LC LR Transceiver	JD094B
HP X130 10G SFP+ LC ER 40km Transceiver	JG234A
HP X240 10G SFP+ SFP+ 0.65m DAC Cable	JD095C#B01
HP X240 10G SFP+ SFP+ 1.2m DAC Cable	JD096C#B01
HP X240 10G SFP+ SFP+ 3m DAC Cable	JD097C#B01
HP X240 10G SFP+ SFP+ 5m DAC Cable	JG081C#B01

## 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 Rtr Cable	JD175A
HP X260 E1 BNC 20m Router Cable	JD514A





## Configuration

HP X600 512M Compact Flash Card JC685A

HP X600 256M Compact Flash Card JC686A

### Opacity Shield Kit

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

HP MSR4060 Opcty Shld Kit

JG602A

**NOTE:** Supported on the HP MSR4060 Routers (JG403A). See Configuration **NOTE:1**

HP MSR4080 Opcty Shld Kit

JG603A

**NOTE:** Supported on the HP MSR4080 Routers (JG402A). See Configuration **NOTE:1**

Configuration Rules:

Note 1 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 (100) Lbl

JG586A

**NOTE:** Supported on the HP MSR4060/MSR4080 Routers (JG403A,JG402A). See Configuration **NOTE:1**

Configuration Rules:

Note 1 If selected with a CTO Router Solution, Quantity 1 of JG602A#B01 or JG603A#B01 must also be ordered.

Remarks: Each JG602A or JG603A would use 1 of JG586A.

## Technical Specifications

### HP MSR4060 Router Chassis (JG403A)

<b>I/O ports and slots</b>	2 MPU (Main Processing Unit) slots 1 SPU (Service Processing Unit) slot 6 HMIM slots 4 Power Supply slots												
<b>AP characteristics</b> Radios (via optional modules)	3G, 4G LTE												
<b>Physical characteristics</b>	<table border="0"> <tr> <td style="vertical-align: top;"><b>Dimensions</b></td> <td>17.32(w) x 18.9(d) x 6.89(h) in (44 x 48 x 17.50 cm) (4U height)</td> </tr> <tr> <td style="vertical-align: top;"><b>Weight</b></td> <td>45.52 lb (20.65 kg)</td> </tr> </table>	<b>Dimensions</b>	17.32(w) x 18.9(d) x 6.89(h) in (44 x 48 x 17.50 cm) (4U height)	<b>Weight</b>	45.52 lb (20.65 kg)								
<b>Dimensions</b>	17.32(w) x 18.9(d) x 6.89(h) in (44 x 48 x 17.50 cm) (4U height)												
<b>Weight</b>	45.52 lb (20.65 kg)												
<b>Memory and processor</b>	MPU-100, 2 cores RISC @ 1 GHz, 512 MB flash capacity, 2 GB DDR3 SDRAM SPU-100, 8 cores RISC @ 1 GHz, 2 GB DDR3 SDRAM SPU-200, 16 cores RISC @ 1 GHz, 2 GB DDR3 SDRAM SPU-300, 32 cores RISC @ 1 GHz, 4 GB DDR3 SDRAM												
<b>Mounting and enclosure</b>	Desktop or can be mounted in a EIA standard 19-inch telco rack when used with the rack-mount kit in the package.												
<b>Performance</b>	<table border="0"> <tr> <td style="vertical-align: top;"><b>Throughput</b></td> <td>up to 36 Mpps (64-byte packets)</td> </tr> <tr> <td style="vertical-align: top;"><b>Routing table size</b></td> <td>1000000 entries (IPv4), 1000000 entries (IPv6)</td> </tr> <tr> <td style="vertical-align: top;"><b>Forwarding table size</b></td> <td>1000000 entries (IPv4), 1000000 entries (IPv6)</td> </tr> </table>	<b>Throughput</b>	up to 36 Mpps (64-byte packets)	<b>Routing table size</b>	1000000 entries (IPv4), 1000000 entries (IPv6)	<b>Forwarding table size</b>	1000000 entries (IPv4), 1000000 entries (IPv6)						
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<b>Routing table size</b>	1000000 entries (IPv4), 1000000 entries (IPv6)												
<b>Forwarding table size</b>	1000000 entries (IPv4), 1000000 entries (IPv6)												
<b>Environment</b>	<table border="0"> <tr> <td style="vertical-align: top;"><b>Operating temperature</b></td> <td>32°F to 113°F (0°C to 45°C)</td> </tr> <tr> <td style="vertical-align: top;"><b>Operating relative humidity</b></td> <td>5% to 90%, noncondensing</td> </tr> <tr> <td style="vertical-align: top;"><b>Nonoperating/Storage temperature</b></td> <td>-40°F to 158°F (-40°C to 70°C)</td> </tr> <tr> <td style="vertical-align: top;"><b>Nonoperating/Storage relative humidity</b></td> <td>5% to 90%, noncondensing</td> </tr> <tr> <td style="vertical-align: top;"><b>Altitude</b></td> <td>up to 16,404 ft (5 km)</td> </tr> </table>	<b>Operating temperature</b>	32°F to 113°F (0°C to 45°C)	<b>Operating relative humidity</b>	5% to 90%, noncondensing	<b>Nonoperating/Storage temperature</b>	-40°F to 158°F (-40°C to 70°C)	<b>Nonoperating/Storage relative humidity</b>	5% to 90%, noncondensing	<b>Altitude</b>	up to 16,404 ft (5 km)		
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<b>Nonoperating/Storage relative humidity</b>	5% to 90%, noncondensing												
<b>Altitude</b>	up to 16,404 ft (5 km)												
<b>Electrical characteristics</b>	<table border="0"> <tr> <td style="vertical-align: top;"><b>Frequency</b></td> <td>50/60 Hz</td> </tr> <tr> <td style="vertical-align: top;"><b>Maximum heat dissipation</b></td> <td>285/347 BTU/hr (300.67/366.09 kJ/hr), lower number is with SPU-100 module installed; higher number is for SPU-200</td> </tr> <tr> <td style="vertical-align: top;"><b>Voltage</b></td> <td>100 - 240 VAC, rated -36 to -75 VDC, rated (depending on power supply chosen)</td> </tr> <tr> <td style="vertical-align: top;"><b>Maximum power rating</b></td> <td>300 W</td> </tr> <tr> <td style="vertical-align: top;"><b>PoE power</b></td> <td>450 W PoE+</td> </tr> <tr> <td style="vertical-align: top;"><b>Notes</b></td> <td>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</td> </tr> </table>	<b>Frequency</b>	50/60 Hz	<b>Maximum heat dissipation</b>	285/347 BTU/hr (300.67/366.09 kJ/hr), lower number is with SPU-100 module installed; higher number is for SPU-200	<b>Voltage</b>	100 - 240 VAC, rated -36 to -75 VDC, rated (depending on power supply chosen)	<b>Maximum power rating</b>	300 W	<b>PoE power</b>	450 W PoE+	<b>Notes</b>	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
<b>Frequency</b>	50/60 Hz												
<b>Maximum heat dissipation</b>	285/347 BTU/hr (300.67/366.09 kJ/hr), lower number is with SPU-100 module installed; higher number is for SPU-200												
<b>Voltage</b>	100 - 240 VAC, rated -36 to -75 VDC, rated (depending on power supply chosen)												
<b>Maximum power rating</b>	300 W												
<b>PoE power</b>	450 W PoE+												
<b>Notes</b>	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												

## Technical Specifications

one/maximum of four power supplies should be ordered.

<b>Reliability</b>	<b>MTBF (years)</b>	178.66
<b>Safety</b>	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	
<b>Emissions</b>	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	
<b>Telecom</b>	FCC part 68; CS-03	
<b>Management</b>	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	
<b>Services</b>	Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> 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 MSR4080 Router Chassis (JG402A)

<b>I/O ports and slots</b>	2 MPU (Main Processing Unit) slots 1 SPU (Service Processing Unit) slot 8 HMIM slots 4 Power Supply slots	
<b>AP characteristics</b>	3G, 4G LTE Radios (via optional modules)	
<b>Physical characteristics</b>	<b>Dimensions</b>	17.32(w) x 18.9(d) x 8.64(h) in (44 x 48 x 21.95 cm) (5U height)
	<b>Weight</b>	49.93 lb (22.65 kg)
<b>Memory and processor</b>	MPU-100, 2 cores RISC @ 1 GHz, 512 MB flash capacity, 2 GB DDR3 SDRAM SPU-100, 8 cores RISC @ 1 GHz, 2 GB DDR3 SDRAM SPU-200, 16 cores RISC @ 1 GHz, 2 GB DDR3 SDRAM SPU-300, 32 cores RISC @ 1 GHz, 4 GB DDR3 SDRAM	
<b>Mounting and enclosure</b>	Desktop or can be mounted in a EIA standard 19-inch telco rack when used with the rack-mount kit in the package.	
<b>Performance</b>	<b>Throughput</b>	up to 36 Mpps (64-byte packets)
	<b>Routing table size</b>	1000000 entries (IPv4), 1000000 entries (IPv6)
	<b>Forwarding table size</b>	1000000 entries (IPv4), 1000000 entries (IPv6)
<b>Environment</b>	<b>Operating temperature</b>	32°F to 113°F (0°C to 45°C)
	<b>Operating relative humidity</b>	5% to 90%, noncondensing
	<b>Nonoperating/Storage</b>	-40°F to 158°F (-40°C to 70°C)

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	<b>temperature</b>	
	<b>Nonoperating/Storage relative humidity</b>	5% to 90%, noncondensing
	<b>Altitude</b>	up to 16,404 ft (5 km)
<b>Electrical characteristics</b>	<b>Frequency</b>	50/60 Hz
	<b>Maximum heat dissipation</b>	297/358 BTU/hr (313.33/377.69 kJ/hr), lower number is with SPU-100 module installed; higher number is for SPU-200
	<b>Voltage</b>	100 - 240 VAC, rated -36 to -75 VDC, rated (depending on power supply chosen)
	<b>Maximum power rating</b>	300 W
	<b>PoE power</b>	450 W PoE+
	<b>Notes</b>	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 our power supplies should be ordered.
<b>Reliability</b>	<b>MTBF (years)</b>	178.66
<b>Safety</b>		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
<b>Emissions</b>		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
<b>Telecom</b>		FCC part 68; CS-03
<b>Management</b>		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
<b>Services</b>		Refer to the Hewlett Packard Enterprise website at <a href="http://www.hpe.com/networking/services">http://www.hpe.com/networking/services</a> 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 BGP

(applies to all products in series)	RFC 1163 Border Gateway Protocol (BGP)	RFC 2796 BGP Route Reflection	RFC 4275 BGP-4 MIB Implementation Survey
	RFC 1267 Border Gateway	RFC 2842 Capability Advertisement with BGP-4	RFC 4276 BGP-4 Implementation Report
		RFC 2858 BGP-4 Multi-Protocol	

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Protocol 3 (BGP-3)	Extensions	RFC 4277 Experience with the BGP-4 Protocol
RFC 1657 Definitions of Managed Objects for BGPv4	RFC 2918 Route Refresh Capability	RFC 4360 BGP Extended Communities Attribute
RFC 1771 BGPv4	RFC 3065 Autonomous System Confederations for BGP	RFC 4456 BGP Route Reflection: An Alternative to Full Mesh Internal BGP (IBGP)
RFC 1772 Application of the BGP	RFC 3107 Support BGP carry Label for MPLS	RFC 4724 Graceful Restart Mechanism for BGP
RFC 1773 Experience with the BGP-4 Protocol	RFC 3392 Capabilities Advertisement with BGP-4	RFC 4760 Multiprotocol Extensions for BGP-4
RFC 1774 BGP-4 Protocol Analysis	RFC 4271 A Border Gateway Protocol 4 (BGP-4)	RFC1998 An Application of the BGP Community Attribute in Multi-home Routing
RFC 1965 BGP-4 confederations	RFC 4273 Definitions of Managed Objects for BGP-4	
RFC 1997 BGP Communities Attribute	RFC 4274 BGP-4 Protocol Analysis	
RFC 2439 BGP Route Flap Damping		
RFC 2547 BGP/MPLS VPNs		
<b>Denial of service protection</b>		
CPU DoS Protection		
Rate Limiting by ACLs		
<b>Device management</b>		
RFC 1155 Structure and Mgmt Information (SMIv1)	RFC 1908 (SNMP v1/2 Coexistence)	RFC 2578-2580 SMIv2
RFC 1157 SNMPv1/v2c	RFC 1945 Hypertext Transfer Protocol -- HTTP/1.0	RFC 2579 (SMIv2 Text Conventions)
RFC 1305 NTPv3	RFC 2271 Framework	RFC 2580 (SMIv2 Conformance)
RFC 1591 DNS (client)	RFC 2573 (SNMPv3 Applications)	RFC 3416 (SNMP Protocol Operations v2)
RFC 1902 (SNMPv2)	RFC 2576 (Coexistence between SNMP V1, V2, V3)	RFC 3417 (SNMP Transport Mappings)
<b>General protocols</b>		
RFC 2385 BGP Session Protection via TCP MD5	RFC 1717 The PPP Multilink Protocol (MP)	RFC 2472 IP Version 6 over PPP
RFC 1027 Proxy ARP	RFC 1721 RIP-2 Analysis	RFC 2474 Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers
RFC 1034 Domain names - concepts and facilities	RFC 1722 RIP-2 Applicability	RFC 2507 IP Header Compression
RFC 1035 Domain names - implementation and specification	RFC 1723 RIP v2	RFC 2508 Compressing IP/UDP/RTP Headers for Low-Speed Serial Links
RFC 1048 BOOTP (Bootstrap Protocol) vendor information extensions	RFC 1724 RIP Version 2 MIB Extension	RFC 2509 IP Header Compression over PPP
RFC 1054 Host extensions for IP multicasting	RFC 1757 Remote Network Monitoring Management Information Base	RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols
RFC 1058 RIPv1	RFC 1777 Lightweight Directory Access Protocol	RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE)
RFC 1059 Network Time Protocol (version 1) specification and implementation	RFC 1812 IPv4 Routing	RFC 2519 A Framework for Inter-Domain Route Aggregation
RFC 1060 Assigned numbers	RFC 1825 Security Architecture for the Internet Protocol	RFC 2529 Transmission of IPv6 over IPv4 Domains without Explicit Tunnels
RFC 1063 IP MTU (Maximum Transmission Unit) discovery options	RFC 1826 IP Authentication Header	RFC 2543 SIP: Session Initiation Protocol
RFC 1071 Computing the Internet Checksum	RFC 1827 IP Encapsulating Security Payload (ESP)	
RFC 1072 TCP extensions for	RFC 1829 The ESP DES-CBC Transform	
	RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses	

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long-delay paths	RFC 1884 IP Version 6	RFC 2548 (MS-RAS-Vendor only)
RFC 1079 Telnet terminal speed option	Addressing Architecture	RFC 2553 Basic Socket Interface Extensions for IPv6
RFC 1084 BOOTP (Bootstrap Protocol) vendor information extensions	RFC 1885 Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification	RFC 2570 Introduction to Version 3 of the Internet-standard Network Management Framework
RFC 1091 Telnet Terminal-Type Option	RFC 1886 DNS Extensions to support IP version 6	RFC 2581 TCP Congestion Control
RFC 1093 NSFNET routing architecture	RFC 1889 RTP (Real-Time Protocol): A Transport Protocol for Real-Time Applications.	RFC 2597 Assured Forwarding PHB Group
RFC 1101 DNS encoding of network names and other types	Audio-Video Transport Working Group	RFC 2598 An Expedited Forwarding PHB
RFC 1119 Network Time Protocol (version 2) specification and implementation	RFC 1933 Transition Mechanisms for IPv6 Hosts and Routers	RFC 2615 PPP over SONET/SDH (Synchronous Optical Network/Synchronous Digital Hierarchy)
RFC 1122 Requirements for Internet Hosts - Communication Layers	RFC 1945 Hypertext Transfer Protocol -- HTTP/1.0	RFC 2616 HTTP Compatibility v1.1
RFC 1141 Incremental updating of the Internet checksum	RFC 1962 The PPP Compression Control Protocol (CCP)	RFC 2617 HTTP Authentication: Basic and Digest Access Authentication
RFC 1142 OSI IS-IS Intra-domain Routing Protocol	RFC 1966 BGP Route Reflection An alternative to full mesh IBGP	RFC 2618 RADIUS Authentication Client MIB
RFC 1164 Application of the Border Gateway Protocol in the Internet	RFC 1970 Neighbor Discovery for IP Version 6 (IPv6)	RFC 2620 RADIUS Accounting Client MIB
RFC 1166 Internet address used by Internet Protocol (IP)	RFC 1971 IPv6 Stateless Address Autoconfiguration	RFC 2644 Changing the Default for Directed Broadcasts in Routers
RFC 1171 Point-to-Point Protocol for the transmission of multi-protocol datagrams over Point-to-Point links	RFC 1972 A Method for the Transmission of IPv6 Packets over Ethernet Networks	RFC 2661 L2TP
RFC 1172 Point-to-Point Protocol (PPP) initial configuration options	RFC 1981 Path MTU Discovery for IP version 6	RFC 2663 NAT Terminology and Considerations
RFC 1185 TCP Extension for High-Speed Paths	RFC 1982 Serial Number Arithmetic	RFC 2665 Definitions of Managed Objects for the Ethernet-like Interface Types
RFC 1191 Path MTU discovery	RFC 1989 PPP Link Quality Monitoring	RFC 2668 Definitions of Managed Objects for IEEE 802.3 Medium Attachment Units (MAUs)
RFC 1195 OSI ISIS for IP and Dual Environments	RFC 1990 The PPP Multilink Protocol (MP)	RFC 2675 IPv6 Jumbograms
RFC 1213 Management Information Base for Network Management of TCP/IP-based internets	RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)	RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5
RFC 1253 (OSPF v2)	RFC 2001 TCP Slow Start, Congestion Avoidance, Fast Retransmit, and Fast Recovery Algorithms	RFC 2685 Virtual Private Networks Identifier
RFC 1265 BGP Protocol Analysis	RFC 2002 IP Mobility Support	RFC 2686 The Multi-Class Extension to Multi-Link PPP
RFC 1266 Experience with the BGP Protocol	RFC 2003 IP Encapsulation within IP	RFC 2694 DNS extensions to Network Address Translators (DNS_ALG)
RFC 1268 Application of the Border Gateway Protocol in the Internet	RFC 2011 SNMPv2 Management Information Base for the Internet Protocol using SMIv2	RFC 2698 A Two Rate Three Color Marker
RFC 1271 Remote Network Monitoring Management	RFC 2012 SNMPv2 Management Information Base for the	RFC 2702 Requirements for

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Information Base	Transmission Control Protocol	Traffic Engineering Over MPLS
RFC 1284 Definitions of Managed	using SMIv2	RFC 2711 IPv6 Router Alert
Objects for the Ethernetlike	RFC 2013 SNMPv2 Management	Option
Interface Types	Information Base for the User	RFC 2716 PPP EAP TLS
RFC 1286 Definitions of Managed	Datagram Protocol using SMIv2	Authentication Protocol
Objects for Bridges	RFC 2018 TCP Selective	RFC 2747 RSVP Cryptographic
RFC 1294 Multiprotocol	Acknowledgement Options	Authentication
Interconnect over Frame Relay	RFC 2021 Remote Network	RFC 2763 Dynamic Name-to-
RFC 1305 NTPv3 (IPv4 only)	Monitoring Management	System ID mapping
RFC 1321 The MD5 Message-	Information Base Version 2 using	RFC 2784 Generic Routing
Digest Algorithm	SMIv2	Encapsulation (GRE)
RFC 1323 TCP Extensions for	RFC 2073 An IPv6 Provider-	RFC 2787 Definitions of Managed
High Performance	Based Unicast Address Format	Objects for the Virtual Router
RFC 1331 The Point-to-Point	RFC 2082 RIP-2 MD5	Redundancy Protocol
Protocol (PPP) for the	Authentication	RFC 2827 Network Ingress
Transmission of Multi-protocol	RFC 2091 Triggered Extensions	Filtering: Defeating Denial of
Datagrams over Point-to-Point	to RIP to Support Demand	Service Attacks Which Employ IP
Links	Circuits	Source Address Spoofing
RFC 1332 The PPP Internet	RFC 2104 HMAC: Keyed-Hashing	RFC 2833 RTP Payload for DTMF
Protocol Control Protocol (IPCP)	for Message Authentication	Digits, Telephony Tones and
RFC 1333 PPP Link Quality	RFC 2131 DHCP	Telephony Signals
Monitoring	RFC 2132 DHCP Options and	RFC 2865 Remote Authentication
RFC 1334 PPP Authentication	BOOTP Vendor Extensions	Dial In User Service (RADIUS)
Protocols	RFC 2136 Dynamic Updates in	RFC 2866 RADIUS Accounting
RFC 1349 Type of Service	the Domain Name System (DNS	RFC 2868 RADIUS Attributes for
RFC 1350 TFTP Protocol (revision	UPDATE)	Tunnel Protocol Support
2)	RFC 2138 Remote Authentication	RFC 2869 RADIUS Extensions
RFC 1364 BGP OSPF Interaction	Dial In User Service (RADIUS)	RFC 2884 Performance
RFC 1370 Applicability Statement	RFC 2205 Resource ReSerVation	Evaluation of Explicit Congestion
for OSPF	Protocol (RSVP) -- Version 1	Notification (ECN) in IP Networks.
RFC 1377 The PPP OSI Network	Functional Specification	RFC 2894 Router Renumbering
Layer Control Protocol	RFC 2209 Resource ReSerVation	for IPv6
(OSINLCP)	Protocol (RSVP) -- Version 1	RFC 2917 A Core MPLS IP VPN
RFC 1393 Traceroute Using an IP	Message Processing Rules	Architecture
Option	RFC 2210 Use of RSVP (Resource	RFC 2925 Definitions of Managed
RFC 1395 BOOTP (Bootstrap	Reservation Protocol) in	Objects for Remote Ping,
Protocol) Vendor Information	Integrated Services	Traceroute, and Lookup
Extensions	RFC 2225 Classical IP and ARP	Operations
RFC 1398 Definitions of Managed	over ATM	RFC 2961 RSVP Refresh
Objects for the Ethernet-Like	RFC 2236 IGMP Snooping	Overhead Reduction Extensions
Interface Types	RFC 2246 The TLS Protocol	RFC 2963 A Rate Adaptive
RFC 1403 BGP OSPF Interaction	Version 1.0	Shaper for Differentiated Services
RFC 1444 Conformance	RFC 2251 Lightweight Directory	RFC 2965 HTTP State
Statements for version 2 of the	Access Protocol (v3)	Management Mechanism
Simple Network Management	RFC 2252 Lightweight Directory	RFC 2966 Domain-wide Prefix
Protocol (SNMPv2)	Access Protocol (v3): Attribute	Distribution with Two-Level IS-IS
RFC 1449 Transport Mappings	Syntax Definitions	RFC 2973 IS-IS Mesh Groups
for version 2 of the Simple	RFC 2283 MBGP	RFC 2976 The SIP INFO Method
Network Management Protocol	RFC 2292 Advanced Sockets API	RFC 2993 Architectural
(SNMPv2)	for IPv6	Implications of NAT
RFC 1471 The Definitions of	RFC 2309 Recommendations on	RFC 3011 The IPv4 Subnet

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Managed Objects for the Link Control Protocol of the Point-to-Point Protocol	queue management and congestion avoidance in the Internet	Selection Option for DHCP
RFC 1473 The Definitions of Managed Objects for the IP Network Control Protocol of the Point-to-Point Protocol	RFC 2327 SDP: Session Description Protocol	RFC 3022 Traditional IP Network Address Translator (Traditional NAT)
RFC 1483 Multiprotocol Encapsulation over ATM Adaptation Layer 5	RFC 2338 VRRP	RFC 3024 Reverse Tunneling for Mobile IP, revised
RFC 1490 Multiprotocol Interconnect over Frame Relay	RFC 2344 Reverse Tunneling for Mobile IP	RFC 3025 Mobile IP Vendor/Organization-Specific Extensions
RFC 1497 BOOTP (Bootstrap Protocol) Vendor Information Extensions	RFC 2358 Definitions of Managed Objects for the Ethernet-like Interface Types	RFC 3027 Protocol Complications with the IP Network Address Translator
RFC 1519 CIDR	RFC 2364 PPP Over AAL5	RFC 3031 Multiprotocol Label Switching Architecture
RFC 1531 Dynamic Host Configuration Protocol	RFC 2365 Administratively Scoped IP Multicast	
RFC 1532 Clarifications and Extensions for the Bootstrap Protocol	RFC 2373 IP Version 6 Addressing Architecture	
RFC 1533 DHCP Options and BOOTP Vendor Extensions	RFC 2374 An IPv6 Aggregatable Global Unicast Address Format	
RFC 1534 Interoperation Between DHCP and BOOTP	RFC 2375 IPv6 Multicast Address Assignments	
RFC 1541 Dynamic Host Configuration Protocol	RFC 2385 Protection of BGP Sessions via the TCP MD5 Signature Option	
RFC 1542 BOOTP Extensions	RFC 2427 Multiprotocol Interconnect over Frame Relay	
RFC 1542 Clarifications and Extensions for the Bootstrap Protocol	RFC 2428 FTP Extensions for IPv6 and NATs	
RFC 1548 The Point-to-Point Protocol (PPP)	RFC 2433 Microsoft PPP CHAP (Challenge Handshake Authentication Protocol) Extensions	
RFC 1549 PPP in HDLC Framing	RFC 2451 The ESP CBC-Mode Cipher Algorithms	
RFC 1570 PPP LCP (Point-to-Point Protocol Link Control Protocol) Extensions	RFC 2452 IP Version 6 Management Information Base for the Transmission Control Protocol	
RFC 1577 Classical IP and ARP over ATM	RFC 2453 RIPv2	
RFC 1597 Address Allocation for Private Internets	RFC 2454 IP Version 6 Management Information Base for the User Datagram Protocol	
RFC 1618 PPP over ISDN	RFC 2461 Neighbor Discovery for IP Version 6 (IPv6)	
RFC 1619 PPP over SONET/SDH (Synchronous Optical Network/Synchronous Digital Hierarchy)	RFC 2462 IPv6 Stateless Address Autoconfiguration	
RFC 1624 Incremental Internet Checksum	RFC 2463 Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification	
RFC 1631 NAT	RFC 2464 Transmission of IPv6 Packets over Ethernet Networks	
RFC 1650 Definitions of Managed Objects for the Ethernet-like		



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Interface Types using SMIv2	RFC 2465 Management Information Base for IP Version 6: Textual Conventions and General Group	
RFC 1661 The Point-to-Point Protocol (PPP)	RFC 2466 Management Information Base for IP Version 6: ICMPv6 Group	
RFC 1662 PPP in HDLC-like Framing		
RFC 1700 Assigned Numbers		
RFC 1701 Generic Routing Encapsulation		
RFC 1702 Generic Routing Encapsulation over IPv4 networks		
<b>IP multicast</b>	RFC 2934 Protocol Independent Multicast MIB for IPv4	RFC 3376 IGMPv3 (host joins only)
RFC 1112 IGMP	RFC 3376 IGMPv3	RFC 5059 Bootstrap Router (BSR) Mechanism for Protocol Independent Multicast (PIM)
RFC 2362 PIM Sparse Mode		
RFC 2710 Multicast Listener Discovery (MLD) for IPv6		
<b>IPv6</b>	RFC 2529 Transmission of IPv6 Packets over IPv4	RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers
RFC 2080 RIPng for IPv6	RFC 2545 Use of MP-BGP-4 for IPv6	RFC 3056 Connection of IPv6 Domains via IPv4 Clouds
RFC 2460 IPv6 Specification	RFC 2553 Basic Socket Interface Extensions for IPv6	RFC 3162 RADIUS and IPv6
RFC 2473 Generic Packet Tunneling in IPv6	RFC 2740 OSPFv3 for IPv6	RFC 3315 DHCPv6 (client and relay)
RFC 2475 IPv6 DiffServ Architecture		RFC 5340 OSPF for IPv6
<b>MIBs</b>	RFC 2012 SNMPv2 MIB for TCP	RFC 2573 SNMP-Notification MIB
RFC 1213 MIB II	RFC 2013 SNMPv2 MIB for UDP	RFC 2574 SNMP USM MIB
RFC 1493 Bridge MIB	RFC 2096 IP Forwarding Table MIB	RFC 2674 802.1p and IEEE 802.1Q Bridge MIB
RFC 1724 RIPv2 MIB	RFC 2233 Interfaces MIB	RFC 2737 Entity MIB (Version 2)
RFC 1850 OSPFv2 MIB	RFC 2273 SNMP-NOTIFICATION-MIB	RFC 2863 The Interfaces Group MIB
RFC 1907 SNMPv2 MIB	RFC 2571 SNMP Framework MIB	RFC 3813 MPLS LSR MIB
RFC 2011 SNMPv2 MIB for IP	RFC 2572 SNMP-MPD MIB	
<b>Network management</b>	RFC 1905 SNMPv2 Protocol Operations	RFC 2272 SNMPv3 Management Protocol
IEEE 802.1D (STP)	RFC 1906 SNMPv2 Transport Mappings	RFC 2273 SNMPv3 Applications
RFC 1098 Simple Network Management Protocol (SNMP)	RFC 1908 Coexistence between Version 1 and Version 2 of the Internet-standard Network Management Framework	RFC 2274 USM for SNMPv3
RFC 1158 Management Information Base for network management of TCP/IP-based internets: MIB-II	RFC 1918 Private Internet Address Allocation	RFC 2275 VACM for SNMPv3
RFC 1212 Concise MIB definitions	RFC 2037 Entity MIB using SMIv2	RFC 2575 SNMPv3 View-based Access Control Model (VACM)
RFC 1215 Convention for defining traps for use with the SNMP	RFC 2261 An Architecture for Describing SNMP Management Frameworks	RFC 3164 BSD syslog Protocol
RFC 1389 RIPv2 MIB Extension	RFC 2262 Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)	RFC 3411 An Architecture for Describing Simple Network Management Frameworks
RFC 1448 Protocol Operations for version 2 of the Simple Network Management Protocol (SNMPv2)		RFC 3412 Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)
RFC 1450 Management Information Base (MIB) for version 2 of the Simple Network		RFC 3413 Simple Network Management Protocol (SNMP)

## Technical Specifications

Management Protocol (SNMPv2)	RFC 2263 SNMPv3 Applications	Applications
RFC 1902 Structure of Management Information for Version 2 of the Simple Network Management Protocol (SNMPv2)	RFC 2264 User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3)	RFC 3414 SNMPv3 User-based Security Model (USM)
RFC 1903 SNMPv2 Textual Conventions	RFC 2265 View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)	RFC 3415 View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)
RFC 1904 SNMPv2 Conformance		RFC 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP)
<b>OSPF</b>	RFC 1587 OSPF NSSA	RFC 2328 OSPFv2
RFC 1245 OSPF protocol analysis	RFC 1765 OSPF Database Overflow	RFC 2370 OSPF Opaque LSA Option
RFC 1246 Experience with OSPF	RFC 1850 OSPFv2 Management Information Base (MIB), traps	RFC 3101 OSPF NSSA
RFC 1583 OSPFv2		
<b>QoS/CoS</b>	RFC 2598 DiffServ Expedited Forwarding (EF)	RFC 3247 Supplemental Information for the New Definition of the EF PHB (Expedited Forwarding Per-Hop Behavior)
IEEE 802.1p (CoS)	RFC 2697 A Single Rate Three Color Marker	RFC 3260 New Terminology and Clarifications for DiffServ
RFC 2474 DS Field in the IPv4 and IPv6 Headers	RFC 3168 The Addition of Explicit Congestion Notification (ECN) to IP	RFC 2865 RADIUS Authentication
RFC 2475 DiffServ Architecture		RFC 2866 RADIUS Accounting
RFC 2597 DiffServ Assured Forwarding (AF)	RFC 2408 Internet Security Association and Key Management Protocol (ISAKMP)	RFC 3579 RADIUS Support For Extensible Authentication Protocol (EAP)
<b>Security</b>	RFC 2409 The Internet Key Exchange (IKE)	RFC 3580 IEEE 802.1X Remote Authentication Dial In User Service (RADIUS) Usage Guidelines
IEEE 802.1X Port Based Network Access Control	RFC 2412 The OAKLEY Key Determination Protocol	
RFC 2082 RIP-2 MD5 Authentication	RFC 2459 Internet X.509 Public Key Infrastructure Certificate and CRL Profile	
RFC 2104 Keyed-Hashing for Message Authentication	RFC 2818 HTTP Over TLS	
RFC 2138 RADIUS Authentication	RFC 2405 The ESP DES-CBC Cipher Algorithm With Explicit IV	RFC 3948 - UDP Encapsulation of IPsec ESP Packets
RFC 2139 RADIUS Accounting	RFC 2406 IP Encapsulating Security Payload (ESP)	RFC 4301 - Security Architecture for the Internet Protocol
<b>VPN</b>	RFC 2407 The Internet IP Security Domain of Interpretation for ISAKMP	RFC 4302 - IP Authentication Header (AH)
RFC 1828 IP Authentication using Keyed MD5	RFC 2410 The NULL Encryption Algorithm and Its Use With IPsec	RFC 4303 - IP Encapsulating Security Payload (ESP)
RFC 1853 IP in IP Tunneling	RFC 2411 IP Security Document Roadmap	RFC 4305 - Cryptographic Algorithm Implementation Requirements for ESP and AH
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		
RFC 2404 The Use of HMAC-SHA-1-96 within ESP and AH		

## Accessories

### HPE MSR4000 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
HP X130 10G SFP+ LC SR Transceiver	JD092B
HP X130 10G SFP+ LC LRM Transceiver	JD093B
HP X130 10G SFP+ LC LR Transceiver	JD094B
HP X130 10G SFP+ LC ER 40km Transceiver	JG234A
HP X240 10G SFP+ to SFP+ 0.65m Direct Attach Copper Cable	JD095C
HP X240 10G SFP+ to SFP+ 1.2m Direct Attach Copper Cable	JD096C
HP X240 10G SFP+ to SFP+ 3m Direct Attach Copper Cable	JD097C
HP X240 10G SFP+ to SFP+ 5m Direct Attach Copper Cable	JG081C

#### 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 T1 Router Cable	JD518A
HP X260 8E1 BNC 75 ohm 3m Router Cable	JD512A

## Accessories

HP X260 T3/E3 Router Cable	JD531A
HP X260 E3-30 E3/T3 Router Cable	JD533A
HP X260 E1 RJ45 to 2xBNC 75ohm 3m Router Cable	JH294A

## Power Supply

HP X351 300W 100-240VAC to 12VDC Power Supply	JG527A
HP X351 300W -48/-60VDC to 12VDC Power Supply	JG528A
HP 5800 750W AC Power Supply	JC089A

## Router Modules

HP MSR4000 MPU-100 Main Processing Unit	JG412A
HP MSR4000 SPU-100 Service Processing Unit	JG413A
HP MSR4000 SPU-200 Service Processing Unit	JG414A
HP MSR4000 SPU-300 Service Processing Unit	JG670A
HP MSR G2 128-channel Voice Processing Module	JG417A
HP MSR 1-port E1 Voice HMIM Module	JG429A
HP MSR 2-port E1 Voice HMIM Module	JG431A
HP MSR 1-port T1 Voice HMIM Module	JG430A
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
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 0.5U HMIM Adapter Module	JG415A
HP MSR 1U HMIM Adapter Module	JG416A
HP MSR 8-port 10/100/1000BASE-T / 2-port 1000BASE-X (Combo) Switch HMIM Module	JG741A
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 1-port OC-3 / STM-1 CPOS HMIM Module	JG428A

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**Accessories**

HP MSR Open Application Platform (OAP) with VMware vSphere? MIM Module	JG532A
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

**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

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## 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: <ul style="list-style-type: none"> <li>• JG445A</li> <li>• JH169A</li> <li>• JH172A</li> <li>• JH238A</li> <li>• JH294A</li> </ul>
		Changed	Updated Overview, Features and Benefits and Accessories
24-Feb-2015	From Version 12 to 13	Changed	Minor change on Configuration section
06-Oct-2014	From Version 11 to 12	Changed	Configuration section updated
18-Aug-2014	From Version 10 to 11	Added	Added 4 new accessories: JG428A, JG432A, JG434A, JG741A
03-July-2014	From Version 9 to 10	Changed	Configuration menu updated.
10-June-2014	From Version 8 to 9	Added	Added two new Router Enclosure Options to Configuration as well as 10 new accessories: JG670A, JG420A, JG421A, JG422A, JG423A, JG424A, JG425A, JG426A, JG427A, JG528A.
10-Feb-2014	From Version 7 to 8	Changed	Key features was revised.
31-Jan-2014	From Version 6 to 7	Added	GRE tunnels was added to Technical Specifications.
22-Nov-2013	From Version 5 to 6	Changed	HIMM Modules and Cables were revised in Configuration.
12-Nov-2013	From Version 4 to 5	Changed	Power Supplies was revised in Configuration.
14-Oct-2013	From Version 3 to 4	Added	Overview images were added.
30-Sep-2013	From Version 2 to 3	Changed	Configuration was reorganized.
27-Sep-2013	From Version 1 to 2	Added	Configuration was added.

## Summary of Changes



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c04315129 - 14640 - Worldwide - V16 - 1-December-2015