

Overview

Models

HP VCX Connect Primary MIM Module	JE252A
HP VCX Connect Secondary MIM Module	JE253A
HP MSR 30-16 Router with VCX Connect Primary MIM, 4-port FXO and 2-port FXS Modules	JD025A
HP MSR 30-40 Router with VCX Connect Primary MIM, 8-port FXO and 4-port FXS Modules	JD026A
HP MSR 30-40 Router with VCX Connect Primary MIM, 8-port BRI-ST and 4-port FXS Modules	JD027A
HP MSR 30-40 Router with VCX Connect Primary MIM, T1, 4-port FXO and 4-port FXS Modules	JD028A
HP MSR 30-40 Router with VCX Connect Primary MIM, E1, 4-port BRI-ST and 4-port FXS Modules	JD029A

Key features

- Economical VoIP bundles with enterprise WAN router
- Built-in phone, messaging, and softphone licenses
- Resiliency with optional redundant server
- Voice, video, IM collaboration, MS Lync interface
- Support up to 600 users with 6 servers

Product overview

HP VCX Connect Unified Communications MIM on MSR series delivers an enterprise-class, full-featured VoIP phone system designed to meet the needs of rugged, collaborative small business work environments with up to 100 phone users. Designed to seamlessly integrate within HP A-MSR 30 series WAN routers, the VCX Connect MIM leverages MSR modularity to provide a true office-in-a-box solution with a comprehensive suite of WAN, LAN, security, and voice interfaces. The VCX Connect MIM's flexible, intuitive design and management help businesses replace legacy PBXs with SIP-based VoIP solutions that provide a full range of collaborative functionality—including Microsoft® OCS/Lync and Exchange UM connectivity, click-to-call, presence, and instant messaging. VCX Connect MIM solution bundles, which combine a VCX Connect MIM module, an A-MSR 30 series router, and various media gateway interfaces, are available to reduce expenses and increase network freedom and flexibility.

Features and benefits

Quality of Service (QoS)

- **Echo cancellation:** automatically adjusts and removes echo from a telephone call
- **Voice activity detection:** the proprietary algorithm is designed to reduce/filter background noise
- **Comfort noise generation:** provides low audible artificial background noise to improve VoIP communications
- **802.1p/Q VLAN tagging:** delivers data to devices based on the priority and type of traffic; supports IEEE 802.1Q

Resiliency and high availability

- **Enhanced high availability:** backup VCX systems, whether co-located with the primary VCX or deployed in another office on the same network, provide geographic survivability and rapid failover for mission-critical communications
- **Optional redundant power supply:** provides seamless business continuity and data protection

Configuration

- **Media gateway support:** streamlines migration to IP communications and provides PSTN connectivity with a full range of either integrated or standalone VoIP gateways
- **Scheduled backups:** System Administration Web interface provides the ability to schedule static and reoccurring full system



Overview

backups

Integration

- **Converged IP telephony and data:** seamlessly integrate the VCX Connect MIM (multifunction interface module) into an HP A-MSR 30 series Power over Ethernet (PoE) or non-PoE router to deliver enterprise-class routing and telephony functionality

Investment protection

- **All-in-one solution:** decreases capital and operating expenses and increases network freedom and flexibility by integrating a comprehensive suite of available telephony, routing, switching, wireless and security interfaces and features—all in the same box
- **Analog phone support:** leverages existing investment in analog phones while implementing a full set of PBX features

Ease of use

- **Built-in licensing:** VCX Connect MIM system ships with default licenses—VCX IP Telephony/IP Messaging Server license, 25 business phone licenses, 25 IP messaging seat licenses, 25 Desktop Communicator softphone licenses, 25 Convergence Client softphone licenses, and 4 analog/entry licenses
- **LDAP synchronization with Microsoft® Active Directory, IBM Lotus Domino, Linux OpenLDAP:** easily integrate, filter, and synchronize employee contact information, thereby simplifying administration and providing reliable connections based on the most current user information
- **Ease of deployment:** VCX Connect MIM's out-of-the-box first-time configuration provides simpler installations using a Web-based, wizard-like interface that walks you through the installation process
- **Easy to use:** GUI-driven central management and configuration
- **NEW Replication status:** System Administration Web interface displays the replication status of primary and secondary pairs

Scalability

- **Supported devices:** let you pay as you grow up to 100 devices per platform and up to 600 devices in total via VCX global directory, which enables up to six VCX Connect MIM platforms to function as a single system

Additional information

- **Optional mobility for telecommuters:** optional HP VCX IP Telecommuting series provides remote users with the full benefit of their corporate IP telephony systems without compromising security
- **Optional multimedia conference bridge:** when businesses require a dense conferencing system to reduce the overhead and cost of expensive third-party conferencing products, the HP VCX V7000 IP Conferencing series provides capabilities that include host and participant Web-based conference controls, instant and emergency conferences with automatic dial-out options, scheduled and meet-me restricted conferences (requires participant passcode), peer-to-peer and one-to-many conferences, and more
- **Optional network management:** uses the HP Intelligent Management Center (IMC) and Voice Services Manager (VSM) to configure, monitor, and enhance the performance of media servers, gateways, and endpoints; to monitor VoIP traffic; and to control voice network quality; enhancements for the IMC VSM include MOS scoring and packet loss notification MIB changes; the VCX license MIBs support IMC

Product architecture

- **Multi-site architecture:** a highly flexible architecture eliminates the dependency on any single component for unprecedented resiliency and end-to-end survivability; allow you to use Web-based centralized administration, global directory, and global voicemail to seamlessly link VCX systems together to scale your IP-PBX network as your business grows
- **Standards-based IP-PBX:** supports standard PBX and advanced telephony and messaging features based on the IETF Session Initiation Protocol (SIP) standards; supports third-party SIP-based applications and devices



Overview

- **Integrated server:** IP telephony and IP messaging modules run on Linux OS
- **Direct SIP integration with Microsoft OCS/Lync and Exchange UM:** VCX direct SIP integration with Microsoft OCS/Lync allows VCX phones/clients to call and have basic features with phones/clients connected to OCS/Lync; OCS/Lync has access to VCX IP-PBX phones, clients, and gateways; VCX supports direct SIP integration with Office Communication Server 2007, Office Communication Server 2007 R2, and Microsoft Lync Server 2010

Technical features

- **Ad hoc conferencing:** VCX Connect MIM supports up to 30 sessions of ad hoc conferencing with a maximum of six parties per conference
- **Shared lines and extension status:** single-line and multi-line phone support and bridged extensions for executives and administrators

User productivity

- **Unified communications:** increases employee collaboration through the audio, video, instant messaging, file sharing, and presence capabilities within the HP Desktop Communicator; extends the Microsoft environment with HP Desktop Communicator Outlook Edition add-on to enable click-to-call/conference via Microsoft Outlook, to capture and retrieve call notes with Microsoft Journal, and to perform desktop call recording; HP VCX is fully integrated with Lotus Sametime
- **Unified messaging:** consolidates users' voicemail, email, and faxes into a single inbox for flexible, location-independent retrieval and management; schedules appropriate times when messages are delivered; sends voicemails to individuals or groups using extensive and easy-to-maintain distribution lists; sets up find me/follow me services to conveniently manage one's own access to help ensure that important calls are not missed; auto-delivers incoming fax calls to email and sends faxes from email
- **Web user interface:** listen to and manage voicemail messages
- **Lotus Domino/Sametime 8.5 support:** Sametime 8.5 can be deployed using a Sametime System Console and new meeting server functionality; VCX provides two packages for Sametime 8.5; can be deployed on Sametime Community Server ("classic" to pre-8.5) or on Sametime Media Manager (for 8.5) using the system console

Voice functionality

- **Hot desking:** mobile users can effortlessly traverse within the VCX system, log into another handset, and have all their desktop extension settings, including voicemail, at their fingertips
- **Call admission control:** fine-tune and throttle media traffic to prevent VoIP over-subscription—even down to a particular extension
- **Pin codes:** prevent unauthorized outbound dialing and/or manage and record telephony calls via forced account codes and customer account and billing codes; PIN code portability allows users to roam the VCX system and utilize their existing data
- **Hunt groups:** built-in call distribution provides agent log-in functionality; support for 3 selectable call routing algorithms
- **Automatic call distribution:** add-on economical call center application that includes 5 selectable routing algorithms, the ability to capture real-time statistics, and support for remote agents in various VCX locations
- **Simultaneous Ring provides mobility for VCX users:** Simultaneous Ring feature allows a user to configure their external phone (such as cell phone) to simultaneously ring with their desktop VCX IP phone; users can answer the call at any of the ringing endpoints; when a user at one of the ringing endpoints answers the call, the other ringing endpoint stops ringing; it allows a user to be reached at two different locations by ringing both locations at the same time
- **350x IP phone background/screen saver image restore :** VCX Web interface provides the ability to reset background/screen saver image to factory defaults on 350x IP phones; if an image is incorrect, VCX will display a notification to the administrator

Warranty and support

- **1-year warranty:** with advance replacement and 30-calendar-day delivery (available in most countries)
- **Electronic and telephone support:** limited electronic and telephone support is available from HP; refer to: www.hp.com/networking/warranty for details on the support provided and the period during which support is available
- **Software releases:** refer to: www.hp.com/networking/warranty for details on the software releases provided and the period



Overview

during which software releases are available for your product(s)



Technical Specifications

HP VCX Connect Primary MIM Module (JE252A)

Ports	1 RJ-45 autosensing 10/100 port (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full
	2 USB 2.0
Physical characteristics	Dimensions 8.27(d) x 5.91(w) x 1.57(h) in. (21 x 15 x 4 cm) (1U height)
	Weight 2.43 lb. (1.1 kg)
Memory and processor	Module Intel® Celeron® @ 600 MHz, 1 GB DDR SODIMM; storage: 160 GB HD
Mounting	VCX Connect Primary module slides into HP A-MSR 30 Series router MIM slot
Environment	Operating temperature 41°F to 104°F (5°C to 40°C)
	Operating relative humidity 10% to 80%
	Nonoperating/Storage temperature -40°F to 158°F (-40°C to 70°C)
Management	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; HTTPS
Notes	Integrated IP Messaging Voice Ports; up to 30 simultaneous auto-attendant, music-on-hold, fax, or voicemail ports supported Support for standalone VCX V7111, VCX V7122, MSR 20-xx, and MSR 30 Series analog, ISDN, and digital gateways
Services	Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP VCX Connect Secondary MIM Module (JE253A)

Ports	1 RJ-45 autosensing 10/100 port (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full
	2 USB 2.0
Physical characteristics	Dimensions 8.27(d) x 5.91(w) x 1.57(h) in. (21 x 15 x 4 cm)
	Weight 2.43 lb. (1.1 kg)
Memory and processor	Module Intel® Celeron® @ 600 MHz, 1 GB DDR SODIMM; storage: 160 GB HD
Mounting	VCX Connect Secondary module slides into HP A-MSR 30 Series router MIM slot
Environment	Operating temperature 41°F to 104°F (5°C to 40°C)
	Operating relative humidity 10% to 80%
	Nonoperating/Storage temperature -40°F to 158°F (-40°C to 70°C)
Management	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; HTTPS
Notes	Integrated IP Messaging Voice Ports; up to 30 simultaneous auto-attendant, music-on-hold, fax, or voicemail ports supported Support for standalone VCX V7111, VCX V7122, MSR 20-xx, and MSR 30 Series analog, ISDN, and digital gateways
Services	Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.



Technical Specifications

HP MSR 30-16 Router with VCX Connect Primary MIM, 4-port FXO and 2-port FXS Modules (JD025A)

Ports	3 RJ-45 autosensing 10/100 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full 3 USB 2.0 4 RJ-11 FXO ports 2 RJ-11 FXS ports 1 Compact Flash port	
Physical characteristics	Dimensions	17.39(d) x 17.4(w) x 1.74(h) in. (44.17 x 44.2 x 4.42 cm) (1U height)
	Weight	16.25 lb. (7.37 kg) including bundle components
Mounting	VCX Connect Primary module slides into HP A-MSR 30 Series router MIM slot; A-MSR30 router mounts in EIA-standard 19 inch telco rack or equipment cabinet or table top (hardware included)	
Environment	Operating temperature	41°F to 104°F (5°C to 40°C)
	Operating relative humidity	10% to 80%
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
Electrical characteristics	Voltage	100-240 VAC
	Frequency	50/60 Hz
Management	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; HTTPS	
Notes	Integrated IP Messaging Voice Ports; up to 30 simultaneous auto-attendant, music-on-hold, fax, or voicemail ports supported MSR 30-16 integrated voice gateways options: <ul style="list-style-type: none"> • Supports up to a maximum of twelve (12) analog voice ports • Supports up to a maximum of eight (8) ISDN voice ports • Supports up to a maximum of four (4) E1 or T1 digital voice spans Support for standalone VCX V7111, VCX V7122, MSR 20-xx, and MSR 30 Series analog, ISDN, and digital gateways Bundle includes MSR 30-16 router with VCX Connect Primary MIM, 2-port FXO SIC (qty 2), and 2-port FXS SIC modules	
Services	3-year, parts only, global next-day advance exchange (UX150E) 3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UX157E) 3-year, 24x7 SW phone support, software updates (UX160E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E) 4-year, 24x7 SW phone support, software updates (UX161E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E) 5-year, 24x7 SW phone support, software updates (UX162E) 3 Yr 6 hr Call-to-Repair Onsite (UX163E) 4 Yr 6 hr Call-to-Repair Onsite (UX164E)	



Technical Specifications

5 Yr 6 hr Call-to-Repair Onsite (UX165E)

Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP MSR 30-40 Router with VCX Connect Primary MIM, 8-port FXO and 4-port FXS Modules (JD026A)

Ports	1 RJ-45 autosensing 10/100 port (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full 4 USB 2.0 8 RJ-11 FXO ports 4 RJ-11 FXS ports 2 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 2 SFP 1 Compact Flash port	
Physical characteristics	Dimensions	16.62(d) x 17.4(w) x 3.47(h) in. (42.21 x 44.2 x 8.81 cm) (2U height)
	Weight	30.29 lb. (13.74 kg) including bundle components
Mounting	VCX Connect Primary module slides into HP A-MSR 30 Series router MIM slot; A-MSR30 router mounts in EIA-standard 19 inch telco rack or equipment cabinet or table top (hardware included)	
Environment	Operating temperature	41°F to 104°F (5°C to 40°C)
	Operating relative humidity	10% to 80%
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
Electrical characteristics	Voltage	100-240 VAC
	Frequency	50/60 Hz
Management	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; HTTPS	
Notes	Integrated IP Messaging Voice Ports; up to 30 simultaneous auto-attendant, music-on-hold, fax, or voicemail ports supported MSR 30-40 integrated voice gateways options: <ul style="list-style-type: none"> • Supports up to a maximum of twenty-four (24) analog voice ports • Supports up to a maximum of sixteen (16) ISDN voice ports • Supports up to a maximum of five (5) E1 or T1 digital voice spans Support for standalone VCX V7111, VCX V7122, MSR 20-xx, and MSR 30 Series analog, ISDN, and digital gateways Bundle includes MSR 30-40 router with VCX Connect Primary MIM, 4-port FXO MIM (qty 2), and 4-port FXS MIM modules	
Services	3-year, parts only, global next-day advance exchange (UX150E) 3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UX157E) 3-year, 24x7 SW phone support, software updates (UX160E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)	



Technical Specifications

- 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)
- 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E)
- 4-year, 24x7 SW phone support, software updates (UX161E)
- 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)
- 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)
- 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)
- 5-year, 24x7 SW phone support, software updates (UX162E)
- 3 Yr 6 hr Call-to-Repair Onsite (UX163E)
- 4 Yr 6 hr Call-to-Repair Onsite (UX164E)
- 5 Yr 6 hr Call-to-Repair Onsite (UX165E)

Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP MSR 30-40 Router with VCX Connect Primary MIM, 8-port BRI-ST and 4-port FXS Modules (JD027A)

Ports	1 RJ-45 autosensing 10/100 port (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full 4 USB 2.0 8 RJ-45 ISDN voice ports 4 RJ-11 FXS ports 2 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 2 SFP 1 Compact Flash port	
Physical characteristics	Dimensions	16.62(d) x 17.4(w) x 3.47(h) in. (42.21 x 44.2 x 8.81 cm) (2U height)
	Weight	30.34 lb. (13.76 kg) including bundle components
Mounting	VCX Connect Primary module slides into HP A-MSR 30 Series router MIM slot; A-MSR30 router mounts in EIA-standard 19 inch telco rack or equipment cabinet or table top (hardware included)	
Environment	Operating temperature	41°F to 104°F (5°C to 40°C)
	Operating relative humidity	10% to 80%
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
Electrical characteristics	Voltage	100-240 VAC
	Frequency	50/60 Hz
Management	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; HTTPS	
Notes	Integrated IP Messaging Voice Ports; up to 30 simultaneous auto-attendant, music-on-hold, fax, or voicemail ports supported MSR 30-40 integrated voice gateway options: <ul style="list-style-type: none"> • Supports up to a maximum of twenty-four (24) analog voice ports • Supports up to a maximum of sixteen (16) ISDN voice ports • Supports up to a maximum of five (5) E1 or T1 digital voice spans 	

Support for standalone VCX V7111, VCX V7122, MSR 20-xx, and MSR 30 Series analog, ISDN, and digital gateways



Technical Specifications

Services

Bundle includes MSR 30-40 router with VCX Connect MIM Primary, 4-port BRI-ST MIM (qty 2), and 4-port FXS MIM modules

- 3-year, parts only, global next-day advance exchange (UX150E)
- 3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)
- 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)
- 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UX157E)
- 3-year, 24x7 SW phone support, software updates (UX160E)
- 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)
- 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)
- 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E)
- 4-year, 24x7 SW phone support, software updates (UX161E)
- 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)
- 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)
- 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)
- 5-year, 24x7 SW phone support, software updates (UX162E)
- 3 Yr 6 hr Call-to-Repair Onsite (UX163E)
- 4 Yr 6 hr Call-to-Repair Onsite (UX164E)
- 5 Yr 6 hr Call-to-Repair Onsite (UX165E)

Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP MSR 30-40 Router with VCX Connect Primary MIM, T1, 4-port FXO and 4-port FXS Modules (JD028A)

Ports	1 RJ-45 autosensing 10/100 port (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full	
	4 USB 2.0	
	1 RJ-45 T1 port	
	4 RJ-11 FXO ports	
	4 RJ-11 FXS ports	
	2 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only	
	2 SFP	
	1 Compact Flash port	
Physical characteristics	Dimensions	16.62(d) x 17.4(w) x 3.47(h) in. (42.21 x 44.2 x 8.81 cm) (2U height)
	Weight	30.23 lb. (13.71 kg) including bundle components
Mounting	VCX Connect Primary module slides into HP A-MSR 30 Series router MIM slot; A-MSR30 router mounts in EIA-standard 19 inch telco rack or equipment cabinet or table top (hardware included)	
Environment	Operating temperature	41°F to 104°F (5°C to 40°C)
	Operating relative humidity	10% to 80%
	Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
Electrical characteristics	Voltage	100-240 VAC
	Frequency	50/60 Hz



Technical Specifications

Management	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; HTTPS	
Notes	<p>Integrated IP Messaging Voice Ports; up to 30 simultaneous auto-attendant, music-on-hold, fax, or voicemail ports supported MSR 30-40 integrated voice gateway options:</p> <ul style="list-style-type: none"> • Supports up to a maximum of twenty-four (24) analog voice ports • Supports up to a maximum of sixteen (16) ISDN voice ports • Supports up to a maximum of five (5) E1 or T1 digital voice spans <p>Support for standalone VCX V7111, VCX V7122, MSR 20-xx, and MSR 30 Series analog, ISDN, and digital gateways</p> <p>Bundle includes MSR 30-40 router with VCX Connect Primary MIM, 1-port T1 MIM, 24-Channel VPM, 4-port FXO MIM, and 4-port FXS MIM modules</p>	
Services	<p>3-year, parts only, global next-day advance exchange (UX150E)</p> <p>3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UX157E)</p> <p>3-year, 24x7 SW phone support, software updates (UX160E)</p> <p>4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E)</p> <p>4-year, 24x7 SW phone support, software updates (UX161E)</p> <p>5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)</p> <p>5-year, 24x7 SW phone support, software updates (UX162E)</p> <p>3 Yr 6 hr Call-to-Repair Onsite (UX163E)</p> <p>4 Yr 6 hr Call-to-Repair Onsite (UX164E)</p> <p>5 Yr 6 hr Call-to-Repair Onsite (UX165E)</p> <p>Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.</p>	
Features	<p>SYSTEM</p> <p>Ad hoc conferencing</p> <p>Centralized management</p> <p>Call detail records</p> <p>Converged application based architecture</p> <p>Emergency services</p> <p>End-to-end SIP signaling</p> <p>Global directory</p> <p>Global voice mail</p> <p>IP telephony</p> <p>IP unified messaging</p> <p>Linux operating system with additional security</p> <p>SIP back-to-back user Agent</p> <p>Standards-based connectivity</p> <p>System redundancy</p> <p>Web services SDK</p> <p>RESILIENCY</p>	<p>Mute</p> <p>Paging (analog external paging system)</p> <p>Paging (group - zone)</p> <p>Paging (phone-to-phone), send beep with calling number</p> <p>Paging (SIP external paging system)</p> <p>Phone lock/unlock</p> <p>Privacy (block select monitor/barge-in)</p> <p>Privacy (calling number suppression)</p> <p>Serial calling (transfer with callback)</p> <p>Silent monitor/barge-in</p> <p>Simultaneous Ringing</p> <p>Speed dial (personal)</p> <p>Speed dial (system)</p> <p>Transfer to voicemail (direct)</p> <p>Voicemail access</p> <p>Warmline (warm ring down circuits)</p>



Technical Specifications

Redundancy, IP telephony
Redundancy, IP messaging
Redundancy, IP phones and media gateways
Redundancy, optional RAID
Redundancy, optional power supply

SYSTEM ADMINISTRATION

Add VCX licenses
Administration access control
Administration secure access
Audit trails and logging enhancements
Command Line Interface
Configuration back-up and restore
CPU, memory, I/O statistics
First-time configuration
First-time data import
Importing data
Installed component versions
Multiple administrators
Multiple language support
Online administrator help
Password support, administrator and system access
Provisioning; bulk moves, adds, changes
Remove previous software versions
Resetting a VCX server
Reset to defaults
Root directory access
Searches
Site configuration data
Software upgrades and rollbacks
Switch software versions
System information
User data LDAP synchronization: Lotus Domino running on IBM; Lotus Domino running on Windows® Server 2003, 2008; Microsoft Active Directory on Windows Server 2003, 2008; OpenLDAP on Linux
VCX service licensing
View VCX licensing data
Virtual numbers

QUALITY OF SERVICE

DSCP tagging
Dynamic jitter buffer
G.711 audio codec
G.729ab audio codec
Packet-loss rate
Pay-load length
QoS: 802.1p tagging (Prioritization)
QoS: 802.1Q tagging (VLAN)
Video codec
Video resolution

IP TELEPHONY ROUTING

Calendar bands
Call admission control
Call blocking
Daytime bands
Dialing prefixes
Direct Inward Dialing (DID)
Direct Outward Dialing (DOD)
DNIS (Dialed Number Identification Service)
E.164 numbering plan
External directory access
Holidays
NANP support
Network abbreviated dialing
Number translations
Outdial patterns
Patterns
Prioritization of trunks/routes
Private line service
Requestors
Routes
Route (plans and plan wizard)
Routing (alternate)
Routing (blacklist)
Routing (call coverage)
Routing (first available)
Routing (global directory)
Routing (IP to PSTN)
Routing (IP to IP)
Routing (least cost)
Routing (PSTN to IP)
Routing (source based)
Routing (VPN numbering plan)
Routing (white list)
Trusted end points
Weekday bands

IP MESSAGING ARCHITECTURAL

G.711
G.729
Global voicemail central server
Redundancy (intelligent mirroring)

IP MESSAGING

Message annotation
Message append
Message auto-delivery
Message auto playback
Message broadcast
Message delete
Message delete retrieval
Message delivery report



Technical Specifications

Wide-band audio codec

SECURITY

Network security policies
Operating system security
Secure access
Security: Locking MAC addresses to switches
User authentication methods

SYSTEM MANAGEMENT

Alarm notification
Audio performance reporting (local)
Auto discovery and management of IP devices
Intelligent Management Center Voice Service Manager: centralized management
Maintenance, graceful shutdown of services
Operating system updates
Quality of service end of call reporting
SNMP MIB access
SNMP traps
SNMP v1, v3
System back-ups

REPORTING

Call detail records (reporting)
Call detail records (structure)

IP TELEPHONY CALLING

Anonymous all
Anonymous next
Anonymous call reject
Automatic call distribution (ACD)
ACD groups (call coverage)
ACD groups (calling groups)
ACD groups (CDR reporting)
ACD groups (circular)
ACD groups (feature interactions)
ACD groups (least-call count)
ACD groups (linear)
ACD groups (login/logout)
ACD groups (malicious call trace)
ACD groups (message-waiting indication)
ACD groups (most idle agent)
ACD groups (multisite)
ACD groups (real-time statistics)
ACD groups (view ACD group status)
Automatic line selection (Multiple system appearance)
Bridged line appearance
Bridge line appearance (MWI)
Bridge line appearance (shared hold)
Busy lamp field

Message delivery to non-subscribers
Message deposit
Message deposit treatment options
Message folders
Message forward
Message notification
Message notification options
Message priority
Message record options
Message reply
Message retrieval
Message review
Message review options
Message review playback controls
Message save
Message schedule delivery
Message send
Message send treatment options
Mailbox login

GREETING

Default system greeting
Personal busy greeting
Personal extended absence greeting
Personal normal greeting
Personal scheduled greetings

DISTRIBUTION LIST

Administrator distribution lists
Personal distribution lists
System distribution lists

DIRECTORY

Directory search
Directory search (dial-by-name)

USER PRODUCTIVITY

Auto attendants
Bulletin board
Call back
Call monitor
Family mailbox
Force password change
Listen and manage voicemail messages from Web user interface
Mailbox alias
Mailbox auto login
Mailbox full alert
Mailboxes for announcements
Mailboxes for forms (Q&A)
Mailboxes for information
Mailboxes for surveys



Technical Specifications

Call conference (drop)
Call conference (six-way calling)
Call conference (three-way calling)
Call coverage
Call drop
Call duration display
Call forward all (universal)
Call forward busy
Call forward no answer
Call forward out-of-coverage
Call forward programmable
Call forward reminder
Call forward remote
Call history (missed/answered/placed logs)
Call history display sort
Call hold
Call hold reminder
Call park/retrieve
Call park (button mapping)
Call park (fallback)
Call pick-up (directed)
Call pick-up (group)
Call restrictions (black list)
Call restrictions (blocking inbound)
Call restrictions (blocking outbound)
Call restrictions (call screening)
Call restrictions (forward to trunk)
Call restrictions (toll screening)
Call restrictions (transfer to trunk)
Call restrictions (white list)
Call return
Call transfer (attended)
Call transfer (fallback on transfer failure)
Call transfer (unattended)
Call transfer (restrictions)
Call waiting
Caller ID (called party)
Caller ID (calling party number)
Caller ID (calling party name)
Caller ID (privacy)
Camp on busy (automatic call back)
Class of service override
Customer account and billing codes
Delayed or no ringing
Directory (local user)
Directory (global user)
Distinctive ringing, ring patterns (different call types)
Distinctive ringing, selective ringing (ident-a-call)
Do not disturb
DTMF dialing
Feature codes
Feature access codes

Mailboxes for system bulletins/broadcasts
Message-waiting indication
Music-on-hold
Outline help
Personal address book
Personal auto-attendant
Privacy
Prompt bypass
Set-up assistant tutorial
Shortcut keys
User password change
User provisioning through TUI
User provisioning through Web
Virtual calling card
Zero out

FIND ME/FOLLOW ME

Find me/follow me
Find me/follow me call intercept

FAX MAIL

Electronic fax sending
Fax auto-delivery to email
Fax auto-delivery to fax machine
Fax delivery to fax machine
Fax message deposit
Fax message retrieval
Never-busy fax

EMAIL INTEGRATION

Client integration
Email auto delivery
Email integration
Email synchronization
Fax attachment in email (.tif or .pdf formats)
Unified inbox for Domino on Windows
Voicemail POP3/IMAP4 client integration

IP MESSAGING ADMINISTRATION

Administration of all parameters through X-terminal interface
Class of service administration
Company/division administration
Export mailbox/COS
Import mailbox/COS
IMAP SSLv3 support
IP messaging Web portal
Mailbox administration
Mailbox on-the-fly
Mailbox un-login
Multiple administration
Multiple language support



Technical Specifications

Forced account codes	Multiple permission levels
Forward to mail	Pager templates
Hands-free support	Send-user groups
Hotline (hot ring down circuits)	Support for multi-language voicemail
Hunt groups	Telephone user interface (native)
Hunt groups (call coverage)	Telephone user interface (traditional)
Hunt groups (calling group)	Time zones
Hunt groups (circular)	Upload audio files via Web interface
Hunt groups (feature interactions)	VPM support
Hunt groups (linear)	
Hunt groups (login/logout)	IP MESSAGING MANAGEMENT
Hunt groups (malicious call trace)	System alarms
Hunt groups (message-waiting indication)	System backup
Hunt groups (multisite)	System restoration
Hunt groups (view hunt group status)	System status
Last number redial	
Malicious call trace	LANGUAGE SUPPORT
Message-waiting indication (MWI), audio	Chinese (Mandarin), Dutch, English (Australian, UK and US), French (Canadian and Parisian), German, Italian, Korean, Portuguese (Brazilian), Russian and Spanish (Castilian and LAT)
Message-waiting indication (MWI), visual	
Missed call indicator	
Mobility (multisite hot desking)	
Mobility (single-region hot desking)	
Music on hold	

HP MSR 30-40 Router with VCX Connect Primary MIM, E1, 4-port BRI-ST and 4-port FXS Modules (JD029A)

Ports	1 RJ-45 autosensing 10/100 port (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Duplex: half or full
	4 USB 2.0
	1 E1 port
	4 RJ-45 ISDN voice ports
	4 RJ-11 FXS ports
	2 RJ-45 autosensing 100/1000 ports (IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Duplex: 100BASE-TX: half or full; 1000BASE-T: full only
	2 SFP
	1 Compact Flash port
Physical characteristics	Dimensions 16.62(d) x 17.4(w) x 3.47(h) in. (42.21 x 44.2 x 8.81 cm) (2U height)
	Weight 30.23 lb. (13.71 kg) including bundle components
Mounting	VCX Connect Primary module slides into HP A-MSR 30 Series router MIM slot; A-MSR30 router mounts in EIA-standard 19 inch telco rack or equipment cabinet or table top (hardware included)
Environment	Operating temperature 41°F to 104°F (5°C to 40°C)
	Operating relative humidity 10% to 80%
	Nonoperating/Storage temperature -40°F to 158°F (-40°C to 70°C)
Electrical characteristics	Voltage 100-240 VAC
	Frequency 50/60 Hz



Technical Specifications

Management	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; HTTPS	
Notes	<p>Integrated IP Messaging Voice Ports; up to 30 simultaneous auto-attendant, music-on-hold, fax, or voicemail ports supported MSR 30-40 integrated voice gateway options:</p> <ul style="list-style-type: none"> • Supports up to a maximum of twenty-four (24) analog voice ports • Supports up to a maximum of sixteen (16) ISDN voice ports • Supports up to a maximum of five (5) E1 or T1 digital voice spans <p>Support for standalone VCX V7111, VCX V7122, MSR 20-xx, and MSR 30 Series analog, ISDN, and digital gateways</p> <p>Bundle includes MSR 30-40 router with VCX Connect Primary MIM, 1-port E1 MIM, 32-Channel VPM, 4-port BRI-ST MIM, and 4-port FXS MIM modules</p>	
Services	<p>3-year, parts only, global next-day advance exchange (UX150E)</p> <p>3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)</p> <p>3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 SW phone support and SW updates (UX157E)</p> <p>3-year, 24x7 SW phone support, software updates (UX160E)</p> <p>4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)</p> <p>4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E)</p> <p>4-year, 24x7 SW phone support, software updates (UX161E)</p> <p>5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)</p> <p>5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)</p> <p>5-year, 24x7 SW phone support, software updates (UX162E)</p> <p>3 Yr 6 hr Call-to-Repair Onsite (UX163E)</p> <p>4 Yr 6 hr Call-to-Repair Onsite (UX164E)</p> <p>5 Yr 6 hr Call-to-Repair Onsite (UX165E)</p> <p>Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.</p>	
Features	<p>SYSTEM</p> <p>Ad hoc conferencing</p> <p>Centralized management</p> <p>Call detail records</p> <p>Converged application based architecture</p> <p>Emergency services</p> <p>End-to-end SIP signaling</p> <p>Global directory</p> <p>Global voice mail</p> <p>IP telephony</p> <p>IP unified messaging</p> <p>Linux operating system with additional security</p> <p>SIP back-to-back user Agent</p> <p>Standards-based connectivity</p> <p>System redundancy</p> <p>Web services SDK</p> <p>Direct SIP integration with Microsoft Lync and Exchange UM</p>	<p>Paging (analog external paging system)</p> <p>Paging (group - zone)</p> <p>Paging (phone-to-phone), send beep with calling number</p> <p>Paging (SIP external paging system)</p> <p>Phone lock/unlock</p> <p>Privacy (block select monitor/barge-in)</p> <p>Privacy (calling number suppression)</p> <p>Serial calling (transfer with callback)</p> <p>Silent monitor/barge-in</p> <p>- Simultaneous ringing allows for user mobility by ringing desk phone and cell phone</p> <p>Speed dial (personal)</p> <p>Speed dial (system)</p> <p>Transfer to voicemail (direct)</p> <p>Voicemail access</p> <p>Warmline (warm ring down circuits)</p> <p>ACD Agent licenses are assigned dynamically</p>



Technical Specifications

RESILIENCY

- Redundancy, IP telephony
- Redundancy, IP messaging
- Redundancy, IP phones and media gateways
- Redundancy, optional RAID
- Redundancy, optional power supply

SYSTEM ADMINISTRATION

- Add VCX licenses
- Administration access control
- Administration secure access
- Audit trails and logging enhancements
- Command Line Interface
- Configuration back-up and restore
- CPU, memory, I/O statistics
- First-time configuration
- First-time data import
- Importing data
- Installed component versions
- Multiple administrators
- Multiple language support
- Online administrator help
- Password support, administrator and system access
- Provisioning; bulk moves, adds, changes
- Remove previous software versions
- Resetting a VCX server
- Reset to defaults
- Root directory access
- Searches
- Site configuration data
- Software upgrades and rollbacks
- Switch software versions
- System information
- User data LDAP synchronization: Lotus Domino running on IBM; Lotus Domino running on Windows® Server 2003, 2008; Microsoft Active Directory on Windows Server 2003, 2008; OpenLDAP on Linux
- VCX service licensing
- View VCX licensing data
- Virtual numbers
- Extensions and mailboxes can start with "0"
- Selectively delete Future Delivery messages
- Scheduled VCX backups
- 350x IP Phone Background/Screen saver Image reset to factory defaults via web

QUALITY OF SERVICE

- DSCP tagging
- Dynamic jitter buffer
- G.711 audio codec

ACD Agents can be automatically logged in

IP TELEPHONY ROUTING

- Calendar bands
- Call admission control
- Call blocking
- Daytime bands
- Dialing prefixes
- Direct Inward Dialing (DID)
- Direct Outward Dialing (DOD)
- DNIS (Dialed Number Identification Service)
- E.164 numbering plan
- External directory access
- Holidays
- NANP support
- Network abbreviated dialing
- Number translations
- Outdial patterns
- Patterns
- Prioritization of trunks/routes
- Private line service
- Routes
- Route (plans and plan wizard)
- Routing (alternate)
- Routing (blacklist)
- Routing (call coverage)
- Routing (first available)
- Routing (global directory)
- Routing (IP to PSTN)
- Routing (IP to IP)
- Routing (least cost)
- Routing (PSTN to IP)
- Routing (source based)
- Routing (VPN numbering plan)
- Routing (white list)
- Trusted end points
- Weekday bands
- Extensions and mailboxes can start with "0"

IP MESSAGING ARCHITECTURAL

- G.711
- G.729
- Global voicemail central server
- Redundancy (intelligent mirroring)

IP MESSAGING

- Message annotation
- Message append
- Message auto-delivery
- Message auto playback
- Message broadcast
- Message delete



Technical Specifications

G.729ab audio codec
Packet-loss rate
Pay-load length
QoS: 802.1p tagging (Prioritization)
QoS: 802.1Q tagging (VLAN)
Video codec
Video resolution
Wide-band audio codec

SECURITY

Network security policies
Operating system security
Secure access
Security: Locking MAC addresses to switches
User authentication methods

SYSTEM MANAGEMENT

Alarm notification
Audio performance reporting (local)
Auto discovery and management of IP devices
Intelligent Management Center Voice Service
Manager: centralized management
Maintenance, graceful shutdown of services
Operating system updates
Quality of service end of call reporting
SNMP MIB access
SNMP traps
SNMP v1, v3
System back-ups
Scheduled VCX backups
QoS MIB and license MIB enhancements for IMC
VSM

REPORTING

Call detail records (reporting)
Call detail records (structure)

IP TELEPHONY CALLING

Anonymous all
Anonymous next
Anonymous call reject
Automatic call distribution (ACD)
ACD groups (call coverage)
ACD groups (calling groups)
ACD groups (CDR reporting)
ACD groups (circular)
ACD groups (feature interactions)
ACD groups (least-call count)
ACD groups (linear)
ACD groups (login/logout)
ACD groups (malicious call trace)
ACD groups (message-waiting indication)

Message delete retrieval
Message delivery report
Message delivery to non-subscribers
Message deposit
Message deposit treatment options
Message folders
Message forward
Message notification
Message notification options
Message priority
Message record options
Message reply
Message retrieval
Message review
Message review options
Message review playback controls
Message save
Message schedule delivery
Message send
Message send treatment options
Mailbox login

GREETING

Default system greeting
Personal busy greeting
Personal extended absence greeting
Personal normal greeting
Personal scheduled greetings

DISTRIBUTION LIST

Administrator distribution lists
Personal distribution lists
System distribution lists

DIRECTORY

Directory search
Directory search (dial-by-name)

USER PRODUCTIVITY

Auto attendants
Bulletin board
Call back
Call monitor
Family mailbox
Force password change
Listen and manage voicemail messages from Web
user interface
Mailbox alias
Mailbox auto login
Mailbox full alert
Mailboxes for announcements
Mailboxes for forms (Q&A)



Technical Specifications

ACD groups (most idle agent)
ACD groups (multisite)
ACD groups (real-time statistics)
ACD groups (view ACD group status)
Automatic line selection (Multiple system appearance)
Bridged line appearance
Bridge line appearance (MWI)
Bridge line appearance (shared hold)
Busy lamp field
Call conference (drop)
Call conference (six-way calling)
Call conference (three-way calling)
Call coverage
Call drop
Call duration display
Call forward all (universal)
Call forward busy
Call forward no answer
Call forward out-of-coverage
Call forward programmable
Call forward reminder
Call forward remote
Call history (missed/answered/placed logs)
Call history display sort
Call hold
Call hold reminder
Call park/retrieve
Call park (button mapping)
Call park (fallback)
Call pick-up (directed)
Call pick-up (group)
Call restrictions (black list)
Call restrictions (blocking inbound)
Call restrictions (blocking outbound)
Call restrictions (call screening)
Call restrictions (forward to trunk)
Call restrictions (toll screening)
Call restrictions (transfer to trunk)
Call restrictions (white list)
Call return
Call transfer (attended)
Call transfer (fallback on transfer failure)
Call transfer (unattended)
Call transfer (restrictions)
Call waiting
Caller ID (called party)
Caller ID (calling party number)
Caller ID (calling party name)
Caller ID (privacy)
Camp on busy (automatic call back)
Class of service override

Mailboxes for information
Mailboxes for surveys
Mailboxes for system bulletins/broadcasts
Message-waiting indication
Music-on-hold
Outline help
Personal address book
Personal auto-attendant
Privacy
Prompt bypass
Set-up assistant tutorial
Shortcut keys
User password change
User provisioning through TUI
User provisioning through Web
Virtual calling card
Zero out

FIND ME/FOLLOW ME

Find me/follow me
Find me/follow me call intercept

FAX MAIL

Electronic fax sending
Fax auto-delivery to email
Fax auto-delivery to fax machine
Fax delivery to fax machine
Fax message deposit
Fax message retrieval
Never-busy fax

EMAIL INTEGRATION

Client integration
Email auto delivery
Email integration
Email synchronization
Fax attachment in email (.tif or .pdf formats)
Unified inbox for Domino on Windows
Voicemail POP3/IMAP4 client integration
Integration with Microsoft Exchange Unified Messaging

IP MESSAGING ADMINISTRATION

Administration of all parameters through X-terminal interface
Class of service administration
Company/division administration
Export mailbox/COS
Import mailbox/COS
IMAP SSLv3 support
IP messaging Web portal
Mailbox administration



Technical Specifications

Customer account and billing codes	Mailbox on-the-fly
Delayed or no ringing	Mailbox un-login
Directory (local user)	Multiple administration
Directory (global user)	Multiple language support
Distinctive ringing, ring patterns (different call types)	Multiple permission levels
Distinctive ringing, selective ringing (ident-a-call)	Pager templates
Do not disturb	Send-user groups
DTMF dialing	Support for multi-language voicemail
Feature codes	Telephone user interface (native)
Feature access codes	Telephone user interface (traditional)
Forced account codes	Time zones
Forward to mail	Upload audio files via Web interface
Hands-free support	VPM support
Hotline (hot ring down circuits)	
Hunt groups	IP MESSAGING MANAGEMENT
Hunt groups (call coverage)	System alarms
Hunt groups (calling group)	System backup
Hunt groups (circular)	System restoration
Hunt groups (feature interactions)	System status
Hunt groups (linear)	Selective deletion of messages via web
Hunt groups (login/logout)	Voice mail full return receipt support
Hunt groups (malicious call trace)	
Hunt groups (message-waiting indication)	LANGUAGE SUPPORT
Hunt groups (multisite)	Chinese (Mandarin), Dutch, English (Australian, UK and US), French (Canadian and Parisian), German, Italian, Korean, Portuguese (Brazilian), Russian and Spanish (Castilian and LAT)
Hunt groups (view hunt group status)	
Last number redial	
Malicious call trace	
Message-waiting indication (MWI), audio	
Message-waiting indication (MWI), visual	
Missed call indicator	
Mobility (multisite hot desking)	
Mobility (single-region hot desking)	
Music on hold	
Mute	



Accessories

HP VCX Connect Unified Cables

Communications MIM on MSR Series accessories

HP X260 E1 BNC 75 ohm 3m Router Cable	JD175A
HP X260 E1 RJ45 3m Router Cable	JD509A
HP X260 E1 RJ45 BNC 75-120 ohm Conversion Router Cable	JD511A
HP X260 E1 BNC 20m Router Cable	JD514A
HP X260 E1 BNC 75 ohm 40m Router Cable	JD516A
HP X260 E1 RJ45 20m Router Cable	JD517A
HP X260 T1 Router Cable	JD518A

Power Supply

HP A-RPS800 Redundant Power System	JD183A
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License

HP VCX Business IP Phone License E-LTU	JE427BAE
HP VCX Basic IP Phone License E-LTU	JE426BAE
HP VCX Third Party IP Phone License E-LTU	JE444BAE
HP VCX Business IP Phone License 50 Bundle E-LTU	JE332BAE
HP VCX Basic IP Phone License 50 Bundle E-LTU	JE329BAE
HP VCX Business IP Phone License 250 Bundle E-LTU	JE331BAE
HP VCX Basic IP Phone License 250 Bundle E-LTU	JE328BAE
HP VCX Entry/Analog Phone License E-LTU	JE425BAE
HP VCX IP Messaging Seat License E-LTU	JE301BAE
HP VCX IP Messaging Seat License 50 Bundle E-LTU	JC515BAE
HP VCX IP Messaging Seat License 250 Bundle E-LTU	JC514BAE
HP VCX Desktop Communicator Standalone Soft Phone License E-LTU	JE435BAE
HP VCX Desktop Communicator Outlook Edition Standalone Soft Phone License E-LTU	JE436BAE
HP VCX Desktop Communicator to Outlook Edition Upgrade Soft Phone License E-LTU	JE437BAE
HP VCX Desktop Communicator Soft Phone License 50 Bundle E-LTU	JE334BAE
HP VCX Desktop Communicator Outlook Edition Soft Phone License 50 Bundle E-LTU	JE336BAE
HP VCX Desktop Communicator Soft Phone License 250 Bundle E-LTU	JE333BAE
HP VCX Desktop Communicator Outlook Edition Soft Phone License 250 Bundle E-LTU	JE335BAE
HP VCX Convergence Center Client Standalone License E-LTU	JE434BAE
HP VCX ACD Agent License E-LTU	JE422BAE
HP VCX ACD 5 Agent License E-LTU	JE424BAE
HP VCX ACD 10 Agent License E-LTU	JE423BAE

Routers

HP A-MSR30-16 Router	JF233A
HP A-MSR30-16 PoE Router	JF234A
HP A-MSR30-20 Router	JF284A
HP A-MSR30-20 PoE Router	JF802A
HP A-MSR30-40 Router	JF229A
HP A-MSR30-40 PoE Router	JF803A
HP A-MSR30-60 Router	JF230A
HP A-MSR30-60 PoE Router	JF804A

Router Modules



Accessories

HP A-MSR 24-Channel Voice Processing Module	JD599A
HP A-MSR 32-Channel Voice Processing Module	JD598A
HP A-MSR Voice Co-processing Module	JD610A
HP A-MSR 1-port FXO SIC Module	JD559A
HP A-MSR 2-port FXO SIC Module	JD558A
HP A-MSR 1-port FXS SIC Module	JD561A
HP A-MSR 2-port FXS SIC Module	JD560A
HP A-MSR 2-port FXS/1-port FXO SIC Module	JD632A
HP A-MSR 2-port ISDN-S/T Voice SIC Module	JF821A
HP A-MSR 1-port E1 Voice SIC Module	JD575A
HP A-MSR 1-port T1 Voice SIC Module	JD576A
HP A-MSR 4-port E/M MIM Module	JD539A
HP A-MSR 2-port FXO MIM Module	JD543A
HP A-MSR 4-port FXO MIM Module	JD542A
HP A-MSR 4-port FXS MIM Module	JD553A
HP A-MSR 16-port FXS MIM Module	JF822A
HP A-MSR 4-port ISDN-S/T Voice MIM Module	JF837A
HP A-MSR 1-port E1 Voice MIM Module	JD565A
A-MSR 1-port T1 Voice MIM Module	JD566A
HP A-MSR 2-port E1 Voice MIM Module	JD567A
HP A-MSR 2-port T1 Voice MIM Module	JD568A
Power cords	
HP X290 1m RPS Cable	JD637A



Accessory Product Details

NOTE: Details are not available for all accessories. The following specifications were available at the time of publication.

HP A-MSR30-16 Multi-Service Router (JF233A)

Ports	4 SIC slots	
	1 MIM module slot	
	2 auto-sensing 10/100 WAN ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX); Duplex: half or full	
Physical characteristics	Dimensions	17.39(d) x 17.4(w) x 1.74(h) in. (44.18 x 44.2 x 4.42 cm) (1U height)
	Weight	13.23 lb. (6 kg)
Memory and processor	Processor	RISC @ 400 MHz, 256 MB DDR SDRAM, 256 MB compact flash
Mounting	Mounts in an EIA standard 19-in. rack	
Performance	Throughput	240 Kpps (64-byte packets)
	Routing table size	30,000 entries
Environment	Operating temperature	32°F to 104°F (0°C to 40°C)
	Operating relative humidity	5% to 90%, non-condensing
	Non-operating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Non-operating/Storage relative humidity	5% to 90%, non-condensing
Electrical characteristics	Maximum heat dissipation	341 BTU/hr (359.76 kJ/hr)
	Voltage	100-120 / 200-240 VAC
	Maximum power rating	100 W
	Frequency	50 / 60 Hz
	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.
Safety	UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J	
Emissions	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001	
Telecom	FCC part 68	
Management	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB	
Services	3-year, parts only, global next-day advance exchange (UX150E)	
	3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)	
	3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)	
	3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UX157E)	
	3-year, 24x7 SW phone support, software updates (UX160E)	



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4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)
4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)
4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E)
4-year, 24x7 SW phone support, software updates (UX161E)
5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)
5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)
5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)
5-year, 24x7 SW phone support, software updates (UX162E)
3 Yr 6 hr Call-to-Repair Onsite (UX163E)
4 Yr 6 hr Call-to-Repair Onsite (UX164E)
5 Yr 6 hr Call-to-Repair Onsite (UX165E)

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RFC 1771 BGPv4
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RFC 1773 Experience with the BGP-4 Protocol
RFC 1774 BGP-4 Protocol Analysis
RFC 1965 BGP4 confederations
RFC 1997 BGP Communities Attribute
RFC 1998 PPP Gandalf FZA Compression Protocol
RFC 2385 BGP Session Protection via TCP MD5
RFC 2439 BGP Route Flap Damping

Device management

RFC 1305 NTPv3
RFC 1945 Hypertext Transfer Protocol -- HTTP/1.0
RFC 2271 FrameWork
RFC 2452 MIB for TCP6
RFC 2454 MIB for UDP6

General protocols

IEEE 802.1D MAC Bridges
IEEE 802.1p Priority
IEEE 802.1Q VLANs
IEEE 802.1s Multiple Spanning Trees
IEEE 802.1w Rapid Reconfiguration of Spanning Tree
RFC 768 UDP
RFC 783 TFTP Protocol (revision 2)
RFC 791 IP
RFC 792 ICMP
RFC 793 TCP
RFC 826 ARP
RFC 854 TELNET

RFC 3032 MPLS Label Stack Encoding
RFC 3036 LDP Specification
RFC 3046 DHCP Relay Agent Information Option
RFC 3063 MPLS Loop Prevention Mechanism
RFC 3065 Support AS confederation
RFC 3137 OSPF Stub Router Advertisement
RFC 3209 RSVP-TE Extensions to RSVP for LSP Tunnels
RFC 3210 Applicability Statement for Extensions to RSVP for LSP-Tunnels
RFC 3212 Constraint-Based LSP setup using LDP (CR-LDP)
RFC 3214 LSP Modification Using CR-LDP
RFC 3215 LDP State Machine
RFC 3246 Expedited Forwarding PHB
RFC 3268 Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS)
RFC 3277 IS-IS Transient Blackhole Avoidance
RFC 3279 Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile
RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile
RFC 3392 Support BGP capabilities advertisement
RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP)
RFC 3564 Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering
RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec
RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers
RFC 3784 ISIS TE support
RFC 3786 Extending the Number of IS-IS LSP



Accessory Product Details

RFC 855 Telnet Option Specification	Fragments Beyond the 256 Limit
RFC 856 TELNET	RFC 3811 Definitions of Textual Conventions (TCs) for Multiprotocol Label Switching (MPLS) Management
RFC 858 Telnet Suppress Go Ahead Option	RFC 3812 Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB)
RFC 894 IP over Ethernet	RFC 3847 Restart signaling for IS-IS
RFC 925 Multi-LAN Address Resolution	
RFC 950 Internet Standard Subnetting Procedure	
RFC 959 File Transfer Protocol (FTP)	
RFC 1006 ISO transport services on top of the TCP: Version 3	
RFC 1027 Proxy ARP	IP multicast
RFC 1034 Domain Concepts and Facilities	RFC 1112 IGMP
RFC 1035 Domain Implementation and Specification	RFC 2236 IGMPv2
RFC 1042 IP Datagrams	RFC 2283 Multiprotocol Extensions for BGP-4
RFC 1058 RIPv1	RFC 2362 PIM Sparse Mode
RFC 1071 Computing the Internet Checksum	RFC 2934 Protocol Independent Multicast MIB for
RFC 1091 Telnet Terminal-Type Option	
RFC 1122 Host Requirements	IPv4
RFC 1141 Incremental updating of the Internet checksum	RFC 3376 IGMPv3
RFC 1142 OSI IS-IS Intra-domain Routing Protocol	IPv6
RFC 1144 Compressing TCP/IP headers for low-speed serial links	RFC 1981 IPv6 Path MTU Discovery
RFC 1195 OSI ISIS for IP and Dual Environments	RFC 2080 RIPvng for IPv6
RFC 1256 ICMP Router Discovery Protocol (IRDP)	RFC 2292 Advanced Sockets API for IPv6
RFC 1293 Inverse Address Resolution Protocol	RFC 2373 IPv6 Addressing Architecture
RFC 1315 Management Information Base for Frame Relay DTEs	RFC 2460 IPv6 Specification
RFC 1332 The PPP Internet Protocol Control Protocol (IPCP)	RFC 2461 IPv6 Neighbor Discovery
RFC 1333 PPP Link Quality Monitoring	RFC 2462 IPv6 Stateless Address Auto-configuration
RFC 1334 PPP Authentication Protocols (PAP)	RFC 2464 Transmission of IPv6 over Ethernet Networks
RFC 1349 Type of Service	RFC 2472 IP Version 6 over PPP
RFC 1350 TFTP Protocol (revision 2)	RFC 2473 Generic Packet Tunneling in IPv6
RFC 1377 The PPP OSI Network Layer Control Protocol (OSINLCP)	RFC 2529 Transmission of IPv6 Packets over IPv4
RFC 1381 SNMP MIB Extension for X.25 LAPB	RFC 2545 Use of MP-BGP-4 for IPv6
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RFC 1519 CIDR	RFC 3056 Connection of IPv6 Domains via IPv4 Clouds
RFC 1534 DHCP/BOOTP Interoperation	RFC 3513 IPv6 Addressing Architecture
RFC 1542 Clarifications and Extensions for the Bootstrap Protocol	RFC 3596 DNS Extension for IPv6
RFC 1552 The PPP Internetworking Packet Exchange	MIBs
	RFC 1213 MIB II
	RFC 1229 Interface MIB Extensions
	RFC 1286 Bridge MIB
	RFC 1493 Bridge MIB
	RFC 1573 SNMP MIB II
	RFC 1724 RIPv2 MIB
	RFC 1757 Remote Network Monitoring MIB
	RFC 1850 OSPFv2 MIB



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Control Protocol (IPXCP)	RFC 2011 SNMPv2 MIB for IP
RFC 1577 Classical IP and ARP over ATM	RFC 2012 SNMPv2 MIB for TCP
RFC 1613 Cisco Systems X.25 over TCP (XOT)	RFC 2013 SNMPv2 MIB for UDP
RFC 1624 Incremental Internet Checksum	RFC 2233 Interfaces MIB
RFC 1631 NAT	RFC 2454 IPV6-UDP-MIB
RFC 1638 PPP Bridging Control Protocol (BCP)	RFC 2465 IPv6 MIB
RFC 1661 The Point-to-Point Protocol (PPP)	RFC 2466 ICMPv6 MIB
RFC 1662 PPP in HDLC-like Framing	RFC 2618 RADIUS Client MIB
RFC 1695 Definitions of Managed Objects for ATM Management Version 8.0 using SMIv2	RFC 2620 RADIUS Accounting MIB
RFC 1701 Generic Routing Encapsulation	RFC 2674 802.1p and IEEE 802.1Q Bridge MIB
RFC 1702 Generic Routing Encapsulation over IPv4 networks	RFC 2737 Entity MIB (Version 2)
RFC 1721 RIP-2 Analysis	RFC 2863 The Interfaces Group MIB
RFC 1722 RIP-2 Applicability	RFC 2933 IGMP MIB
RFC 1723 RIP v2	RFC 3813 MPLS LSR MIB
RFC 1795 Data Link Switching: Switch-to-Switch Protocol AIW DLSw RIG: DLSw Closed Pages, DLSw Standard Version 1	Network management
RFC 1812 IPv4 Routing	IEEE 802.1D (STP)
RFC 1829 The ESP DES-CBC Transform	RFC 1155 Structure of Management Information
RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses	RFC 1157 SNMPv1
RFC 1944 Benchmarking Methodology for Network Interconnect Devices	RFC 1905 SNMPv2 Protocol Operations
RFC 1973 PPP in Frame Relay	RFC 2272 SNMPv3 Management Protocol
RFC 1974 PPP Stac LZS Compression Protocol	RFC 2273 SNMPv3 Applications
RFC 1990 The PPP Multilink Protocol (MP)	RFC 2274 USM for SNMPv3
RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)	RFC 2275 VACM for SNMPv3
RFC 2091 Trigger RIP	RFC 2575 SNMPv3 View-based Access Control Model (VACM)
RFC 2131 DHCP	RFC 3164 BSD syslog Protocol
RFC 2132 DHCP Options and BOOTP Vendor Extensions	OSPF
RFC 2166 APPN Implementer's Workshop Closed Pages Document DLSw v2.0 Enhancements	RFC 1245 OSPF protocol analysis
RFC 2205 Resource ReSerVation Protocol (RSVP) - Version 1 Functional Specification	RFC 1246 Experience with OSPF
RFC 2280 Routing Policy Specification Language (RPSL)	RFC 1587 OSPF NSSA
RFC 2284 EAP over LAN	RFC 1765 OSPF Database Overflow
RFC 2338 VRRP	RFC 1850 OSPFv2 Management Information Base (MIB), traps
RFC 2364 PPP Over AAL5	RFC 2328 OSPFv2
RFC 2374 An Aggregatable Global Unicast Address Format	RFC 2370 OSPF Opaque LSA Option
RFC 2451 The ESP CBC-Mode Cipher Algorithms	RFC 3101 OSPF NSSA
RFC 2453 RIPv2	QoS/CoS
RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols	IEEE 802.1P (CoS)
RFC 2511 Internet X.509 Certificate Request	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 3168 The Addition of Explicit Congestion Notification (ECN) to IP
	Security
	IEEE 802.1X Port Based Network Access Control
	RFC 1321 The MD5 Message-Digest Algorithm
	RFC 2082 RIP-2 MD5 Authentication



Accessory Product Details

Message Format	RFC 2104 Keyed-Hashing for Message Authentication
RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE)	RFC 2138 RADIUS Authentication
RFC 2644 Directed Broadcast Control	RFC 2209 RSVP-Message Processing
RFC 2661 L2TP	RFC 2246 Transport Layer Security (TLS)
RFC 2663 NAT Terminology and Considerations	RFC 2716 PPP EAP TLS Authentication Protocol
RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5	RFC 2865 RADIUS Authentication
RFC 2694 DNS extensions to Network Address Translators (DNS_ALG)	RFC 2866 RADIUS Accounting
RFC 2702 Requirements for Traffic Engineering Over MPLS	RFC 3567 Intermediate System (IS) to IS Cryptographic Authentication
RFC 2747 RSVP Cryptographic Authentication	VPN
RFC 2763 Dynamic Name-to-System ID mapping support	RFC 2403 - HMAC-MD5-96
RFC 2765 Stateless IP/ICMP Translation Algorithm (SIIT)	RFC 2404 - HMAC-SHA1-96
RFC 2766 Network Address Translation - Protocol Translation (NAT-PT)	RFC 2405 - DES-CBC Cipher algorithm
RFC 2784 Generic Routing Encapsulation (GRE)	RFC 2547 BGP/MPLS VPNs
RFC 2787 Definitions of Managed Objects for VRRP	RFC 2796 BGP Route Reflection - An Alternative to Full Mesh IBGP
RFC 2961 RSVP Refresh Overhead Reduction Extensions	RFC 2842 Capabilities Advertisement with BGP-4
RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS	RFC 2858 Multiprotocol Extensions for BGP-4
RFC 2973 IS-IS Mesh Groups	RFC 2918 Route Refresh Capability for BGP-4
RFC 2993 Architectural Implications of NAT	RFC 3107 Carrying Label Information in BGP-4
RFC 3022 Traditional IP Network Address Translator (Traditional NAT)	IPsec
RFC 3027 Protocol Complications with the IP Network Address Translator	RFC 1828 IP Authentication using Keyed MD5
RFC 3031 Multiprotocol Label Switching Architecture	RFC 2401 IP Security Architecture
	RFC 2402 IP Authentication Header
	RFC 2406 IP Encapsulating Security Payload
	RFC 2407 - Domain of interpretation
	RFC 2410 - The NULL Encryption Algorithm and its use with IPsec
	RFC 2411 IP Security Document Roadmap
	RFC 2412 - OAKLEY
	RFC 2865 - Remote Authentication Dial In User Service (RADIUS)

HP A-MSR30-16 PoE Multi-Service Router (JF234A)

Ports	4 SIC slots	
	1 MIM module slot	
	2 auto-sensing 10/100 WAN ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX); Duplex: half or full	
Physical characteristics	Dimensions	17.39(d) x 17.4(w) x 1.74(h) in. (44.18 x 44.2 x 4.42 cm) (1U height)
	Weight	13.23 lb. (6 kg)
Memory and processor	Processor	RISC @ 400 MHz, 256 MB DDR SDRAM, 256 MB compact flash
Mounting	Mounts in an EIA standard 19-in. rack	
Performance	Throughput	240 Kpps (64-byte packets)
	Routing table size	30,000 entries
Environment	Operating temperature	32°F to 104°F (0°C to 40°C)



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	Operating relative humidity	5% to 90%, non-condensing
	Non-operating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Non-operating/Storage relative humidity	5% to 90%
Electrical characteristics	Maximum heat dissipation	341 BTU/hr (359.76 kJ/hr)
	Voltage	100-120 / 200-240 VAC
	Maximum power rating	100 W
	PoE power	150 W
	Frequency	50 / 60 Hz
	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).
Safety	UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J	
Emissions	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001	
Telecom	FCC part 68	
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	3 Yr 6 hr Call-to-Repair Onsite (UX163E)	
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RFC 826 ARP
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RFC 855 Telnet Option Specification
RFC 856 TELNET
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RFC 3847 Restart signaling for IS-IS

IP multicast

RFC 1112 IGMP
RFC 2236 IGMPv2
RFC 2283 Multiprotocol Extensions for BGP-4
RFC 2362 PIM Sparse Mode
RFC 2934 Protocol Independent Multicast MIB for



Accessory Product Details

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RFC 1122 Host Requirements	RFC 3376 IGMPv3
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	RFC 2737 Entity MIB (Version 2)
	RFC 2863 The Interfaces Group MIB
	RFC 2933 IGMP MIB
	RFC 3813 MPLS LSR MIB
	Network management



Accessory Product Details

RFC 1723 RIP v2	IEEE 802.1D (STP)
RFC 1795 Data Link Switching: Switch-to-Switch Protocol AIW DLSw RIG: DLSw Closed Pages, DLSw Standard Version 1	RFC 1155 Structure of Management Information
RFC 1812 IPv4 Routing	RFC 1157 SNMPv1
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RFC 2453 RIPv2	RFC 2474 DS Field in the IPv4 and IPv6 Headers
RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols	RFC 2475 DiffServ Architecture
RFC 2511 Internet X.509 Certificate Request Message Format	RFC 2597 DiffServ Assured Forwarding (AF)
RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE)	RFC 2598 DiffServ Expedited Forwarding (EF)
RFC 2644 Directed Broadcast Control	RFC 3168 The Addition of Explicit Congestion Notification (ECN) to IP
RFC 2661 L2TP	Security
RFC 2663 NAT Terminology and Considerations	IEEE 802.1X Port Based Network Access Control
RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5	RFC 1321 The MD5 Message-Digest Algorithm
RFC 2694 DNS extensions to Network Address Translators (DNS_ALG)	RFC 2082 RIP-2 MD5 Authentication
RFC 2702 Requirements for Traffic Engineering Over MPLS	RFC 2104 Keyed-Hashing for Message Authentication
RFC 2747 RSVP Cryptographic Authentication	RFC 2138 RADIUS Authentication
RFC 2763 Dynamic Name-to-System ID mapping support	RFC 2209 RSVP-Message Processing
RFC 2765 Stateless IP/ICMP Translation Algorithm	RFC 2246 Transport Layer Security (TLS)
	RFC 2716 PPP EAP TLS Authentication Protocol
	RFC 2865 RADIUS Authentication
	RFC 2866 RADIUS Accounting
	RFC 3567 Intermediate System (IS) to IS Cryptographic Authentication
	VPN
	RFC 2403 - HMAC-MD5-96
	RFC 2404 - HMAC-SHA1-96
	RFC 2405 - DES-CBC Cipher algorithm
	RFC 2547 BGP/MPLS VPNs



Accessory Product Details

(SIIT)	RFC 2796 BGP Route Reflection - An Alternative to Full Mesh IBGP
RFC 2766 Network Address Translation - Protocol Translation (NAT-PT)	RFC 2842 Capabilities Advertisement with BGP-4
RFC 2784 Generic Routing Encapsulation (GRE)	RFC 2858 Multiprotocol Extensions for BGP-4
RFC 2787 Definitions of Managed Objects for VRRP	RFC 2918 Route Refresh Capability for BGP-4
RFC 2961 RSVP Refresh Overhead Reduction Extensions	RFC 3107 Carrying Label Information in BGP-4
RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS	IPsec
RFC 2973 IS-IS Mesh Groups	RFC 1828 IP Authentication using Keyed MD5
RFC 2993 Architectural Implications of NAT	RFC 2401 IP Security Architecture
RFC 3022 Traditional IP Network Address Translator (Traditional NAT)	RFC 2402 IP Authentication Header
RFC 3027 Protocol Complications with the IP Network Address Translator	RFC 2406 IP Encapsulating Security Payload
RFC 3031 Multiprotocol Label Switching Architecture	RFC 2407 - Domain of interpretation
	RFC 2410 - The NULL Encryption Algorithm and its use with IPsec
	RFC 2411 IP Security Document Roadmap
	RFC 2412 – OAKLEY
	RFC 2865 - Remote Authentication Dial In User Service (RADIUS)

HP A-MSR30-20 Multi-Service Router (JF284A)

Ports	4 SIC slots	
	2 MIM module slots	
Physical characteristics	2 auto-sensing 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T); Duplex: 10Base-T/100Base-TX: half or full; 1000Base-T: full only	
	Dimensions	17.39(d) x 17.4(w) x 1.74(h) in. (44.18 x 44.2 x 4.42 cm) (1U height)
	Weight	15.21 lb. (6.9 kg)
Memory and processor	Processor	RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash
Mounting	Mounts in an EIA standard 19-in. rack	
Performance	Throughput	300 Kpps (64-byte packets)
	Routing table size	30,000 entries
Environment	Operating temperature	32°F to 104°F (0°C to 40°C)
	Operating relative humidity	5% to 90%, non-condensing
	Non-operating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Non-operating/Storage relative humidity	5% to 90%, non-condensing
Electrical characteristics	Maximum heat dissipation	426 BTU/hr (449.43 kJ/hr)
	Voltage	100-120 / 200-240 VAC
	Maximum power rating	125 W
	Frequency	50 / 60 Hz
	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.



Accessory Product Details

Safety	UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J
Emissions	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001+A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001
Telecom	FCC part 68
Management	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB
Services	3-year, parts only, global next-day advance exchange (UX150E) 3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UX157E) 3-year, 24x7 SW phone support, software updates (UX160E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E) 4-year, 24x7 SW phone support, software updates (UX161E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E) 5-year, 24x7 SW phone support, software updates (UX162E) 3 Yr 6 hr Call-to-Repair Onsite (UX163E) 4 Yr 6 hr Call-to-Repair Onsite (UX164E) 5 Yr 6 hr Call-to-Repair Onsite (UX165E)

Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

Standards and protocols (applies to all products in series)

BGP	RFC 3032 MPLS Label Stack Encoding
RFC 1163 Border Gateway Protocol (BGP)	RFC 3036 LDP Specification
RFC 1267 Border Gateway Protocol 3 (BGP-3)	RFC 3046 DHCP Relay Agent Information Option
RFC 1657 Definitions of Managed Objects for BGPv4	RFC 3063 MPLS Loop Prevention Mechanism
RFC 1771 BGPv4	RFC 3065 Support AS confederation
RFC 1772 Application of the BGP	RFC 3137 OSPF Stub Router Advertisement
RFC 1773 Experience with the BGP-4 Protocol	RFC 3209 RSVP-TE Extensions to RSVP for LSP Tunnels
RFC 1774 BGP-4 Protocol Analysis	RFC 3210 Applicability Statement for Extensions to RSVP for LSP-Tunnels
RFC 1965 BGP4 confederations	RFC 3212 Constraint-Based LSP setup using LDP (CR-LDP)
RFC 1997 BGP Communities Attribute	RFC 3214 LSP Modification Using CR-LDP
RFC 1998 PPP Gandalf FZA Compression Protocol	RFC 3215 LDP State Machine
RFC 2385 BGP Session Protection via TCP MD5	RFC 3246 Expedited Forwarding PHB
RFC 2439 BGP Route Flap Damping	RFC 3268 Advanced Encryption Standard (AES)
Device management	Ciphersuites for Transport Layer Security (TLS)
RFC 1305 NTPv3	RFC 3277 IS-IS Transient Blackhole Avoidance
RFC 1945 Hypertext Transfer Protocol -- HTTP/1.0	RFC 3279 Algorithms and Identifiers for the Internet
RFC 2271 FrameWork	



Accessory Product Details

RFC 2452 MIB for TCP6
RFC 2454 MIB for UDP6

General protocols

IEEE 802.1D MAC Bridges
IEEE 802.1p Priority
IEEE 802.1Q VLANs
IEEE 802.1s Multiple Spanning Trees
IEEE 802.1w Rapid Reconfiguration of Spanning Tree
RFC 768 UDP
RFC 783 TFTP Protocol (revision 2)
RFC 791 IP
RFC 792 ICMP
RFC 793 TCP
RFC 826 ARP
RFC 854 TELNET
RFC 855 Telnet Option Specification
RFC 856 TELNET
RFC 858 Telnet Suppress Go Ahead Option
RFC 894 IP over Ethernet
RFC 925 Multi-LAN Address Resolution
RFC 950 Internet Standard Subnetting Procedure
RFC 959 File Transfer Protocol (FTP)
RFC 1006 ISO transport services on top of the TCP: Version 3
RFC 1027 Proxy ARP
RFC 1034 Domain Concepts and Facilities
RFC 1035 Domain Implementation and Specification
RFC 1042 IP Datagrams
RFC 1058 RIPv1
RFC 1071 Computing the Internet Checksum
RFC 1091 Telnet Terminal-Type Option
RFC 1122 Host Requirements
RFC 1141 Incremental updating of the Internet checksum
RFC 1142 OSI IS-IS Intra-domain Routing Protocol
RFC 1144 Compressing TCP/IP headers for low-speed serial links
RFC 1195 OSI ISIS for IP and Dual Environments
RFC 1256 ICMP Router Discovery Protocol (IRDP)
RFC 1293 Inverse Address Resolution Protocol
RFC 1315 Management Information Base for Frame Relay DTEs
RFC 1332 The PPP Internet Protocol Control Protocol (IPCP)
RFC 1333 PPP Link Quality Monitoring
RFC 1334 PPP Authentication Protocols (PAP)
RFC 1349 Type of Service

X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile
RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile
RFC 3392 Support BGP capabilities advertisement
RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP)
RFC 3564 Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering
RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec
RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers
RFC 3784 ISIS TE support
RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit
RFC 3811 Definitions of Textual Conventions (TCs) for Multiprotocol Label Switching (MPLS) Management
RFC 3812 Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB)
RFC 3847 Restart signaling for IS-IS

IP multicast

RFC 1112 IGMP
RFC 2236 IGMPv2
RFC 2283 Multiprotocol Extensions for BGP-4
RFC 2362 PIM Sparse Mode
RFC 2934 Protocol Independent Multicast MIB for IPv4
RFC 3376 IGMPv3

IPv6

RFC 1981 IPv6 Path MTU Discovery
RFC 2080 RIPv6 for IPv6
RFC 2292 Advanced Sockets API for IPv6
RFC 2373 IPv6 Addressing Architecture
RFC 2460 IPv6 Specification
RFC 2461 IPv6 Neighbor Discovery
RFC 2462 IPv6 Stateless Address Auto-configuration
RFC 2464 Transmission of IPv6 over Ethernet Networks
RFC 2472 IP Version 6 over PPP
RFC 2473 Generic Packet Tunneling in IPv6
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



Accessory Product Details

RFC 1350 TFTP Protocol (revision 2)	RFC 2740 OSPFv3 for IPv6
RFC 1377 The PPP OSI Network Layer Control Protocol (OSINLCP)	RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers
RFC 1381 SNMP MIB Extension for X.25 LAPB	RFC 3056 Connection of IPv6 Domains via IPv4 Clouds
RFC 1471 The Definitions of Managed Objects for the Link Control Protocol of the Point-to-Point Protocol	RFC 3513 IPv6 Addressing Architecture
RFC 1472 The Definitions of Managed Objects for the Security Protocols of the Point-to-Point Protocol	RFC 3596 DNS Extension for IPv6
RFC 1490 Multiprotocol Interconnect over Frame Relay	MIBs
RFC 1519 CIDR	RFC 1213 MIB II
RFC 1534 DHCP/BOOTP Interoperation	RFC 1229 Interface MIB Extensions
RFC 1542 Clarifications and Extensions for the Bootstrap Protocol	RFC 1286 Bridge MIB
RFC 1552 The PPP Internetworking Packet Exchange Control Protocol (IPXCP)	RFC 1493 Bridge MIB
RFC 1577 Classical IP and ARP over ATM	RFC 1573 SNMP MIB II
RFC 1613 Cisco Systems X.25 over TCP (XOT)	RFC 1724 RIPv2 MIB
RFC 1624 Incremental Internet Checksum	RFC 1757 Remote Network Monitoring MIB
RFC 1631 NAT	RFC 1850 OSPFv2 MIB
RFC 1638 PPP Bridging Control Protocol (BCP)	RFC 2011 SNMPv2 MIB for IP
RFC 1661 The Point-to-Point Protocol (PPP)	RFC 2012 SNMPv2 MIB for TCP
RFC 1662 PPP in HDLC-like Framing	RFC 2013 SNMPv2 MIB for UDP
RFC 1695 Definitions of Managed Objects for ATM Management Version 8.0 using SMIv2	RFC 2233 Interfaces MIB
RFC 1701 Generic Routing Encapsulation	RFC 2454 IPV6-UDP-MIB
RFC 1702 Generic Routing Encapsulation over IPv4 networks	RFC 2465 IPv6 MIB
RFC 1721 RIP-2 Analysis	RFC 2466 ICMPv6 MIB
RFC 1722 RIP-2 Applicability	RFC 2618 RADIUS Client MIB
RFC 1723 RIP v2	RFC 2620 RADIUS Accounting MIB
RFC 1795 Data Link Switching: Switch-to-Switch Protocol AIW DLSw RIG: DLSw Closed Pages, DLSw Standard Version 1	RFC 2674 802.1p and IEEE 802.1Q Bridge MIB
RFC 1812 IPv4 Routing	RFC 2737 Entity MIB (Version 2)
RFC 1829 The ESP DES-CBC Transform	RFC 2863 The Interfaces Group MIB
RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses	RFC 2933 IGMP MIB
RFC 1944 Benchmarking Methodology for Network Interconnect Devices	RFC 3813 MPLS LSR MIB
RFC 1973 PPP in Frame Relay	Network management
RFC 1974 PPP Stac LZS Compression Protocol	IEEE 802.1D (STP)
RFC 1990 The PPP Multilink Protocol (MP)	RFC 1155 Structure of Management Information
RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)	RFC 1157 SNMPv1
RFC 2091 Trigger RIP	RFC 1905 SNMPv2 Protocol Operations
RFC 2131 DHCP	RFC 2272 SNMPv3 Management Protocol
RFC 2132 DHCP Options and BOOTP Vendor	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
	OSPF
	RFC 1245 OSPF protocol analysis
	RFC 1246 Experience with OSPF
	RFC 1587 OSPF NSSA
	RFC 1765 OSPF Database Overflow
	RFC 1850 OSPFv2 Management Information Base (MIB), traps



Accessory Product Details

Extensions
RFC 2166 APPN Implementer's Workshop Closed Pages Document DLSw v2.0 Enhancements
RFC 2205 Resource ReSerVation Protocol (RSVP) - Version 1 Functional Specification
RFC 2280 Routing Policy Specification Language (RPSL)
RFC 2284 EAP over LAN
RFC 2338 VRRP
RFC 2364 PPP Over AAL5
RFC 2374 An Aggregatable Global Unicast Address Format
RFC 2451 The ESP CBC-Mode Cipher Algorithms
RFC 2453 RIPv2
RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols
RFC 2511 Internet X.509 Certificate Request Message Format
RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE)
RFC 2644 Directed Broadcast Control
RFC 2661 L2TP
RFC 2663 NAT Terminology and Considerations
RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5
RFC 2694 DNS extensions to Network Address Translators (DNS_ALG)
RFC 2702 Requirements for Traffic Engineering Over MPLS
RFC 2747 RSVP Cryptographic Authentication
RFC 2763 Dynamic Name-to-System ID mapping support
RFC 2765 Stateless IP/ICMP Translation Algorithm (SIIT)
RFC 2766 Network Address Translation - Protocol Translation (NAT-PT)
RFC 2784 Generic Routing Encapsulation (GRE)
RFC 2787 Definitions of Managed Objects for VRRP
RFC 2961 RSVP Refresh Overhead Reduction Extensions
RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS
RFC 2973 IS-IS Mesh Groups
RFC 2993 Architectural Implications of NAT
RFC 3022 Traditional IP Network Address Translator (Traditional NAT)
RFC 3027 Protocol Complications with the IP Network Address Translator
RFC 3031 Multiprotocol Label Switching Architecture

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 3168 The Addition of Explicit Congestion Notification (ECN) to IP

Security

IEEE 802.1X Port Based Network Access Control
RFC 1321 The MD5 Message-Digest Algorithm
RFC 2082 RIP-2 MD5 Authentication
RFC 2104 Keyed-Hashing for Message Authentication
RFC 2138 RADIUS Authentication
RFC 2209 RSVP-Message Processing
RFC 2246 Transport Layer Security (TLS)
RFC 2716 PPP EAP TLS Authentication Protocol
RFC 2865 RADIUS Authentication
RFC 2866 RADIUS Accounting
RFC 3567 Intermediate System (IS) to IS Cryptographic Authentication

VPN

RFC 2403 - HMAC-MD5-96
RFC 2404 - HMAC-SHA1-96
RFC 2405 - DES-CBC Cipher algorithm
RFC 2547 BGP/MPLS VPNs
RFC 2796 BGP Route Reflection - An Alternative to Full Mesh IBGP
RFC 2842 Capabilities Advertisement with BGP-4
RFC 2858 Multiprotocol Extensions for BGP-4
RFC 2918 Route Refresh Capability for BGP-4
RFC 3107 Carrying Label Information in BGP-4

IPsec

RFC 1828 IP Authentication using Keyed MD5
RFC 2401 IP Security Architecture
RFC 2402 IP Authentication Header
RFC 2406 IP Encapsulating Security Payload
RFC 2407 - Domain of interpretation
RFC 2410 - The NULL Encryption Algorithm and its use with IPsec
RFC 2411 IP Security Document Roadmap
RFC 2412 - OAKLEY
RFC 2865 - Remote Authentication Dial In User Service (RADIUS)



Accessory Product Details

HP A-MSR30-20 PoE Multi-Service Router (JF802A)

Ports	4 SIC slots	
	2 MIM module slots	
	2 auto-sensing 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T); Duplex: 10Base-T/100Base-TX: half or full; 1000Base-T: full only	
Physical characteristics	Dimensions	17.39(d) x 17.4(w) x 1.74(h) in. (44.18 x 44.2 x 4.42 cm) (1U height)
	Weight	15.21 lb. (6.9 kg)
Memory and processor	Processor	RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash
Mounting	Mounts in an EIA standard 19-in. rack	
Performance	Throughput	300 Kpps (64-byte packets)
	Routing table size	30,000 entries
Environment	Operating temperature	32°F to 104°F (0°C to 40°C)
	Operating relative humidity	5% to 90%, non-condensing
	Non-operating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Non-operating/Storage relative humidity	5% to 90%, non-condensing
Electrical characteristics	Maximum heat dissipation	426 BTU/hr (449.43 kJ/hr)
	Voltage	100-120 / 200-240 VAC
	Maximum power rating	125 W
	PoE power	150 W
	Frequency	50 / 60 Hz
	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).
Safety	UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J	
Emissions	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001 +A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001	
Telecom	FCC part 68	
Management	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB	
Services	3-year, parts only, global next-day advance exchange (UX150E)	
	3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)	
	3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)	
	3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UX157E)	



Accessory Product Details

3-year, 24x7 SW phone support, software updates (UX160E)
 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)
 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)
 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E)
 4-year, 24x7 SW phone support, software updates (UX161E)
 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)
 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)
 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)
 5-year, 24x7 SW phone support, software updates (UX162E)
 3 Yr 6 hr Call-to-Repair Onsite (UX163E)
 4 Yr 6 hr Call-to-Repair Onsite (UX164E)
 5 Yr 6 hr Call-to-Repair Onsite (UX165E)

Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

Standards and protocols (applies to all products in series)

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 BGP4 confederations
 RFC 1997 BGP Communities Attribute
 RFC 1998 PPP Gandalf FZA Compression Protocol
 RFC 2385 BGP Session Protection via TCP MD5
 RFC 2439 BGP Route Flap Damping

Device management

RFC 1305 NTPv3
 RFC 1945 Hypertext Transfer Protocol -- HTTP/1.0
 RFC 2271 FrameWork
 RFC 2452 MIB for TCP6
 RFC 2454 MIB for UDP6

General protocols

IEEE 802.1D MAC Bridges
 IEEE 802.1p Priority
 IEEE 802.1Q VLANs
 IEEE 802.1s Multiple Spanning Trees
 IEEE 802.1w Rapid Reconfiguration of Spanning Tree
 RFC 768 UDP
 RFC 783 TFTP Protocol (revision 2)
 RFC 791 IP
 RFC 792 ICMP
 RFC 793 TCP
 RFC 826 ARP

RFC 3032 MPLS Label Stack Encoding
 RFC 3036 LDP Specification
 RFC 3046 DHCP Relay Agent Information Option
 RFC 3063 MPLS Loop Prevention Mechanism
 RFC 3065 Support AS confederation
 RFC 3137 OSPF Stub Router Advertisement
 RFC 3209 RSVP-TE Extensions to RSVP for LSP Tunnels
 RFC 3210 Applicability Statement for Extensions to RSVP for LSP-Tunnels
 RFC 3212 Constraint-Based LSP setup using LDP (CR-LDP)
 RFC 3214 LSP Modification Using CR-LDP
 RFC 3215 LDP State Machine
 RFC 3246 Expedited Forwarding PHB
 RFC 3268 Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS)
 RFC 3277 IS-IS Transient Blackhole Avoidance
 RFC 3279 Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile
 RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile
 RFC 3392 Support BGP capabilities advertisement
 RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP)
 RFC 3564 Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering
 RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec
 RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers
 RFC 3784 ISIS TE support



Accessory Product Details

RFC 854 TELNET	RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit
RFC 855 Telnet Option Specification	RFC 3811 Definitions of Textual Conventions (TCs) for Multiprotocol Label Switching (MPLS) Management
RFC 856 TELNET	RFC 3812 Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB)
RFC 858 Telnet Suppress Go Ahead Option	RFC 3847 Restart signaling for IS-IS
RFC 894 IP over Ethernet	
RFC 925 Multi-LAN Address Resolution	
RFC 950 Internet Standard Subnetting Procedure	
RFC 959 File Transfer Protocol (FTP)	
RFC 1006 ISO transport services on top of the TCP: Version 3	
RFC 1027 Proxy ARP	IP multicast
RFC 1034 Domain Concepts and Facilities	RFC 1112 IGMP
RFC 1035 Domain Implementation and Specification	RFC 2236 IGMPv2
RFC 1042 IP Datagrams	RFC 2283 Multiprotocol Extensions for BGP-4
RFC 1058 RIPv1	RFC 2362 PIM Sparse Mode
RFC 1071 Computing the Internet Checksum	RFC 2934 Protocol Independent Multicast MIB for IPv4
RFC 1091 Telnet Terminal-Type Option	RFC 3376 IGMPv3
RFC 1122 Host Requirements	
RFC 1141 Incremental updating of the Internet checksum	IPv6
RFC 1142 OSI IS-IS Intra-domain Routing Protocol	RFC 1981 IPv6 Path MTU Discovery
RFC 1144 Compressing TCP/IP headers for low-speed serial links	RFC 2080 RIPng for IPv6
RFC 1195 OSI ISIS for IP and Dual Environments	RFC 2292 Advanced Sockets API for IPv6
RFC 1256 ICMP Router Discovery Protocol (IRDP)	RFC 2373 IPv6 Addressing Architecture
RFC 1293 Inverse Address Resolution Protocol	RFC 2460 IPv6 Specification
RFC 1315 Management Information Base for Frame Relay DTEs	RFC 2461 IPv6 Neighbor Discovery
RFC 1332 The PPP Internet Protocol Control Protocol (IPCP)	RFC 2462 IPv6 Stateless Address Auto-configuration
RFC 1333 PPP Link Quality Monitoring	RFC 2464 Transmission of IPv6 over Ethernet Networks
RFC 1334 PPP Authentication Protocols (PAP)	RFC 2472 IP Version 6 over PPP
RFC 1349 Type of Service	RFC 2473 Generic Packet Tunneling in IPv6
RFC 1350 TFTP Protocol (revision 2)	RFC 2529 Transmission of IPv6 Packets over IPv4
RFC 1377 The PPP OSI Network Layer Control Protocol (OSINLCP)	RFC 2545 Use of MP-BGP-4 for IPv6
RFC 1381 SNMP MIB Extension for X.25 LAPB	RFC 2553 Basic Socket Interface Extensions for IPv6
RFC 1471 The Definitions of Managed Objects for the Link Control Protocol of the Point-to-Point Protocol	RFC 2740 OSPFv3 for IPv6
RFC 1472 The Definitions of Managed Objects for the Security Protocols of the Point-to-Point Protocol	RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers
RFC 1490 Multiprotocol Interconnect over Frame Relay	RFC 3056 Connection of IPv6 Domains via IPv4 Clouds
RFC 1519 CIDR	RFC 3513 IPv6 Addressing Architecture
RFC 1534 DHCP/BOOTP Interoperation	RFC 3596 DNS Extension for IPv6
RFC 1542 Clarifications and Extensions for the Bootstrap Protocol	
RFC 1552 The PPP Internetworking Packet	MIBs
	RFC 1213 MIB II
	RFC 1229 Interface MIB Extensions
	RFC 1286 Bridge MIB
	RFC 1493 Bridge MIB
	RFC 1573 SNMP MIB II
	RFC 1724 RIPv2 MIB
	RFC 1757 Remote Network Monitoring MIB



Accessory Product Details

Exchange	RFC 1850 OSPFv2 MIB
Control Protocol (IPXCP)	RFC 2011 SNMPv2 MIB for IP
RFC 1577 Classical IP and ARP over ATM	RFC 2012 SNMPv2 MIB for TCP
RFC 1613 Cisco Systems X.25 over TCP (XOT)	RFC 2013 SNMPv2 MIB for UDP
RFC 1624 Incremental Internet Checksum	RFC 2233 Interfaces MIB
RFC 1631 NAT	RFC 2454 IPV6-UDP-MIB
RFC 1638 PPP Bridging Control Protocol (BCP)	RFC 2465 IPv6 MIB
RFC 1661 The Point-to-Point Protocol (PPP)	RFC 2466 ICMPv6 MIB
RFC 1662 PPP in HDLC-like Framing	RFC 2618 RADIUS Client MIB
RFC 1695 Definitions of Managed Objects for ATM	RFC 2620 RADIUS Accounting MIB
Management Version 8.0 using SMIv2	RFC 2674 802.1p and IEEE 802.1Q Bridge MIB
RFC 1701 Generic Routing Encapsulation	RFC 2737 Entity MIB (Version 2)
RFC 1702 Generic Routing Encapsulation over IPv4	RFC 2863 The Interfaces Group MIB
networks	RFC 2933 IGMP MIB
RFC 1721 RIP-2 Analysis	RFC 3813 MPLS LSR MIB
RFC 1722 RIP-2 Applicability	
RFC 1723 RIP v2	Network management
RFC 1795 Data Link Switching: Switch-to-Switch	IEEE 802.1D (STP)
Protocol AIW DLSw RIG: DLSw Closed Pages, DLSw	RFC 1155 Structure of Management Information
Standard Version 1	RFC 1157 SNMPv1
RFC 1812 IPv4 Routing	RFC 1905 SNMPv2 Protocol Operations
RFC 1829 The ESP DES-CBC Transform	RFC 2272 SNMPv3 Management Protocol
RFC 1877 PPP Internet Protocol Control Protocol	RFC 2273 SNMPv3 Applications
Extensions for Name Server Addresses	RFC 2274 USM for SNMPv3
RFC 1944 Benchmarking Methodology for Network	RFC 2275 VACM for SNMPv3
Interconnect Devices	RFC 2575 SNMPv3 View-based Access Control
RFC 1973 PPP in Frame Relay	Model (VACM)
RFC 1974 PPP Stac LZS Compression Protocol	RFC 3164 BSD syslog Protocol
RFC 1990 The PPP Multilink Protocol (MP)	
RFC 1994 PPP Challenge Handshake	OSPF
Authentication	RFC 1245 OSPF protocol analysis
Protocol (CHAP)	RFC 1246 Experience with OSPF
RFC 2091 Trigger RIP	RFC 1587 OSPF NSSA
RFC 2131 DHCP	RFC 1765 OSPF Database Overflow
RFC 2132 DHCP Options and BOOTP Vendor	RFC 1850 OSPFv2 Management Information Base
Extensions	(MIB), traps
RFC 2166 APPN Implementer's Workshop Closed	RFC 2328 OSPFv2
Pages Document DLSw v2.0 Enhancements	RFC 2370 OSPF Opaque LSA Option
RFC 2205 Resource ReSerVation Protocol (RSVP) -	RFC 3101 OSPF NSSA
Version 1 Functional Specification	
RFC 2280 Routing Policy Specification Language	QoS/CoS
(RPSL)	IEEE 802.1P (CoS)
RFC 2284 EAP over LAN	RFC 2474 DS Field in the IPv4 and IPv6 Headers
RFC 2338 VRRP	RFC 2475 DiffServ Architecture
RFC 2364 PPP Over AAL5	RFC 2597 DiffServ Assured Forwarding (AF)
RFC 2374 An Aggregatable Global Unicast	RFC 2598 DiffServ Expedited Forwarding (EF)
Address Format	RFC 3168 The Addition of Explicit Congestion
RFC 2451 The ESP CBC-Mode Cipher Algorithms	Notification (ECN) to IP
RFC 2453 RIPv2	
RFC 2510 Internet X.509 Public Key Infrastructure	Security
Certificate Management Protocols	IEEE 802.1X Port Based Network Access Control
	RFC 1321 The MD5 Message-Digest Algorithm



Accessory Product Details

RFC 2511 Internet X.509 Certificate Request Message Format	RFC 2082 RIP-2 MD5 Authentication
RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE)	RFC 2104 Keyed-Hashing for Message Authentication
RFC 2644 Directed Broadcast Control	RFC 2138 RADIUS Authentication
RFC 2661 L2TP	RFC 2209 RSVP-Message Processing
RFC 2663 NAT Terminology and Considerations	RFC 2246 Transport Layer Security (TLS)
RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5	RFC 2716 PPP EAP TLS Authentication Protocol
RFC 2694 DNS extensions to Network Address Translators (DNS_ALG)	RFC 2865 RADIUS Authentication
RFC 2702 Requirements for Traffic Engineering Over MPLS	RFC 2866 RADIUS Accounting
RFC 2747 RSVP Cryptographic Authentication	RFC 3567 Intermediate System (IS) to IS Cryptographic Authentication
RFC 2763 Dynamic Name-to-System ID mapping support	
RFC 2765 Stateless IP/ICMP Translation Algorithm (SIIT)	VPN
RFC 2766 Network Address Translation - Protocol Translation (NAT-PT)	RFC 2403 - HMAC-MD5-96
RFC 2784 Generic Routing Encapsulation (GRE)	RFC 2404 - HMAC-SHA1-96
RFC 2787 Definitions of Managed Objects for VRRP	RFC 2405 - DES-CBC Cipher algorithm
RFC 2961 RSVP Refresh Overhead Reduction Extensions	RFC 2547 BGP/MPLS VPNs
RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS	RFC 2796 BGP Route Reflection - An Alternative to Full Mesh IBGP
RFC 2973 IS-IS Mesh Groups	RFC 2842 Capabilities Advertisement with BGP-4
RFC 2993 Architectural Implications of NAT	RFC 2858 Multiprotocol Extensions for BGP-4
RFC 3022 Traditional IP Network Address Translator (Traditional NAT)	RFC 2918 Route Refresh Capability for BGP-4
RFC 3027 Protocol Complications with the IP Network Address Translator	RFC 3107 Carrying Label Information in BGP-4
RFC 3031 Multiprotocol Label Switching Architecture	
	IPsec
	RFC 1828 IP Authentication using Keyed MD5
	RFC 2401 IP Security Architecture
	RFC 2402 IP Authentication Header
	RFC 2406 IP Encapsulating Security Payload
	RFC 2407 - Domain of interpretation
	RFC 2410 - The NULL Encryption Algorithm and its use with IPsec
	RFC 2411 IP Security Document Roadmap
	RFC 2412 - OAKLEY
	RFC 2865 - Remote Authentication Dial In User Service (RADIUS)

HP A-MSR30-40 Multi-Service Router (JF229A)

Ports	4 SIC slots	
	4 MIM module slots	
	2 1000Base-T ports (IEEE 802.3ab Type 1000Base-T)	
	2 fixed Gigabit Ethernet SFP ports	
Physical characteristics	Dimensions	16.63(d) x 17.4(w) x 3.47(h) in. (42.23 x 44.2 x 8.82 cm) (2U height)
	Weight	26.23 lb. (11.9 kg)
Memory and processor	Processor	RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash
Mounting	Mounts in an EIA standard 19-in. rack	
Performance	Throughput	360 Kpps (64-byte packets)
	Routing table size	30,000 entries



Accessory Product Details

Environment	Operating temperature	32°F to 104°F (0°C to 40°C)
	Operating relative humidity	5% to 90%, non-condensing
	Non-operating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Non-operating/Storage relative humidity	5% to 90%, non-condensing
Electrical characteristics	Maximum heat dissipation	717 BTU/hr (756.44 kJ/hr)
	Voltage	100-120 / 200-240 VAC
	Maximum power rating	210 W
	Frequency	50 / 60 Hz
	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.
Safety	UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J	
Emissions	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 + A1:2001 + A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001	
Telecom	FCC part 68	
Management	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB	
Services	3-year, parts only, global next-day advance exchange (UX150E)	
	3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)	
	3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)	
	3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UX157E)	
	3-year, 24x7 SW phone support, software updates (UX160E)	
	4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)	
	4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)	
	4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E)	
	4-year, 24x7 SW phone support, software updates (UX161E)	
	5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)	
	5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)	
	5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)	
	5-year, 24x7 SW phone support, software updates (UX162E)	
	3 Yr 6 hr Call-to-Repair Onsite (UX163E)	
	4 Yr 6 hr Call-to-Repair Onsite (UX164E)	
	5 Yr 6 hr Call-to-Repair Onsite (UX165E)	

Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

Standards and protocols
(applies to all products in

BGP
RFC 1163 Border Gateway Protocol (BGP)

RFC 3032 MPLS Label Stack Encoding
RFC 3036 LDP Specification



Accessory Product Details

series)	<p> 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 BGP4 confederations RFC 1997 BGP Communities Attribute RFC 1998 PPP Gandalf FZA Compression Protocol RFC 2385 BGP Session Protection via TCP MD5 RFC 2439 BGP Route Flap Damping </p> <p> Device management RFC 1305 NTPv3 RFC 1945 Hypertext Transfer Protocol -- HTTP/1.0 RFC 2271 FrameWork RFC 2452 MIB for TCP6 RFC 2454 MIB for UDP6 </p> <p> General protocols IEEE 802.1D MAC Bridges IEEE 802.1p Priority IEEE 802.1Q VLANs IEEE 802.1s Multiple Spanning Trees IEEE 802.1w Rapid Reconfiguration of Spanning Tree RFC 768 UDP RFC 783 TFTP Protocol (revision 2) RFC 791 IP RFC 792 ICMP RFC 793 TCP RFC 826 ARP RFC 854 TELNET RFC 855 Telnet Option Specification RFC 856 TELNET RFC 858 Telnet Suppress Go Ahead Option RFC 894 IP over Ethernet RFC 925 Multi-LAN Address Resolution RFC 950 Internet Standard Subnetting Procedure RFC 959 File Transfer Protocol (FTP) RFC 1006 ISO transport services on top of the TCP: Version 3 RFC 1027 Proxy ARP RFC 1034 Domain Concepts and Facilities RFC 1035 Domain Implementation and Specification RFC 1042 IP Datagrams RFC 1058 RIPv1 RFC 1071 Computing the Internet Checksum RFC 1091 Telnet Terminal-Type Option RFC 1122 Host Requirements </p>	<p> RFC 3046 DHCP Relay Agent Information Option RFC 3063 MPLS Loop Prevention Mechanism RFC 3065 Support AS confederation RFC 3137 OSPF Stub Router Advertisement RFC 3209 RSVP-TE Extensions to RSVP for LSP Tunnels RFC 3210 Applicability Statement for Extensions to RSVP for LSP-Tunnels RFC 3212 Constraint-Based LSP setup using LDP (CR-LDP) RFC 3214 LSP Modification Using CR-LDP RFC 3215 LDP State Machine RFC 3246 Expedited Forwarding PHB RFC 3268 Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS) RFC 3277 IS-IS Transient Blackhole Avoidance RFC 3279 Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile RFC 3392 Support BGP capabilities advertisement RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP) RFC 3564 Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers RFC 3784 ISIS TE support RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit RFC 3811 Definitions of Textual Conventions (TCs) for Multiprotocol Label Switching (MPLS) Management RFC 3812 Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB) RFC 3847 Restart signaling for IS-IS </p> <p> IP multicast RFC 1112 IGMP RFC 2236 IGMPv2 RFC 2283 Multiprotocol Extensions for BGP-4 RFC 2362 PIM Sparse Mode RFC 2934 Protocol Independent Multicast MIB for IPv4 RFC 3376 IGMPv3 </p>
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Accessory Product Details

RFC 1141 Incremental updating of the Internet checksum	IPv6
RFC 1142 OSI IS-IS Intra-domain Routing Protocol	RFC 1981 IPv6 Path MTU Discovery
RFC 1144 Compressing TCP/IP headers for low-speed serial links	RFC 2080 RIPng for IPv6
RFC 1195 OSI ISIS for IP and Dual Environments	RFC 2292 Advanced Sockets API for IPv6
RFC 1256 ICMP Router Discovery Protocol (IRDP)	RFC 2373 IPv6 Addressing Architecture
RFC 1293 Inverse Address Resolution Protocol	RFC 2460 IPv6 Specification
RFC 1315 Management Information Base for Frame Relay DTEs	RFC 2461 IPv6 Neighbor Discovery
RFC 1332 The PPP Internet Protocol Control Protocol (IPCP)	RFC 2462 IPv6 Stateless Address Auto-configuration
RFC 1333 PPP Link Quality Monitoring	RFC 2464 Transmission of IPv6 over Ethernet Networks
RFC 1334 PPP Authentication Protocols (PAP)	RFC 2472 IP Version 6 over PPP
RFC 1349 Type of Service	RFC 2473 Generic Packet Tunneling in IPv6
RFC 1350 TFTP Protocol (revision 2)	RFC 2529 Transmission of IPv6 Packets over IPv4
RFC 1377 The PPP OSI Network Layer Control Protocol (OSINLCP)	RFC 2545 Use of MP-BGP-4 for IPv6
RFC 1381 SNMP MIB Extension for X.25 LAPB	RFC 2553 Basic Socket Interface Extensions for IPv6
RFC 1471 The Definitions of Managed Objects for the Link Control Protocol of the Point-to-Point Protocol	RFC 2740 OSPFv3 for IPv6
RFC 1472 The Definitions of Managed Objects for the Security Protocols of the Point-to-Point Protocol	RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers
RFC 1490 Multiprotocol Interconnect over Frame Relay	RFC 3056 Connection of IPv6 Domains via IPv4 Clouds
RFC 1519 CIDR	RFC 3513 IPv6 Addressing Architecture
RFC 1534 DHCP/BOOTP Interoperation	RFC 3596 DNS Extension for IPv6
RFC 1542 Clarifications and Extensions for the Bootstrap Protocol	MIBs
RFC 1552 The PPP Internetworking Packet Exchange Control Protocol (IPXCP)	RFC 1213 MIB II
RFC 1577 Classical IP and ARP over ATM	RFC 1229 Interface MIB Extensions
RFC 1613 Cisco Systems X.25 over TCP (XOT)	RFC 1286 Bridge MIB
RFC 1624 Incremental Internet Checksum	RFC 1493 Bridge MIB
RFC 1631 NAT	RFC 1573 SNMP MIB II
RFC 1638 PPP Bridging Control Protocol (BCP)	RFC 1724 RIPv2 MIB
RFC 1661 The Point-to-Point Protocol (PPP)	RFC 1757 Remote Network Monitoring MIB
RFC 1662 PPP in HDLC-like Framing	RFC 1850 OSPFv2 MIB
RFC 1695 Definitions of Managed Objects for ATM Management Version 8.0 using SMIv2	RFC 2011 SNMPv2 MIB for IP
RFC 1701 Generic Routing Encapsulation	RFC 2012 SNMPv2 MIB for TCP
RFC 1702 Generic Routing Encapsulation over IPv4 networks	RFC 2013 SNMPv2 MIB for UDP
RFC 1721 RIP-2 Analysis	RFC 2233 Interfaces MIB
RFC 1722 RIP-2 Applicability	RFC 2454 IPV6-UDP-MIB
RFC 1723 RIP v2	RFC 2465 IPv6 MIB
RFC 1795 Data Link Switching: Switch-to-Switch	RFC 2466 ICMPv6 MIB
	RFC 2618 RADIUS Client MIB
	RFC 2620 RADIUS Accounting MIB
	RFC 2674 802.1p and IEEE 802.1Q Bridge MIB
	RFC 2737 Entity MIB (Version 2)
	RFC 2863 The Interfaces Group MIB
	RFC 2933 IGMP MIB
	RFC 3813 MPLS LSR MIB
	Network management
	IEEE 802.1D (STP)
	RFC 1155 Structure of Management Information



Accessory Product Details

Protocol AIW DLSw RIG: DLSw Closed Pages, DLSw Standard Version 1	RFC 1157 SNMPv1
RFC 1812 IPv4 Routing	RFC 1905 SNMPv2 Protocol Operations
RFC 1829 The ESP DES-CBC Transform	RFC 2272 SNMPv3 Management Protocol
RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses	RFC 2273 SNMPv3 Applications
RFC 1944 Benchmarking Methodology for Network Interconnect Devices	RFC 2274 USM for SNMPv3
RFC 1973 PPP in Frame Relay	RFC 2275 VACM for SNMPv3
RFC 1974 PPP Stac LZS Compression Protocol	RFC 2575 SNMPv3 View-based Access Control Model (VACM)
RFC 1990 The PPP Multilink Protocol (MP)	RFC 3164 BSD syslog Protocol
RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)	OSPF
RFC 2091 Trigger RIP	RFC 1245 OSPF protocol analysis
RFC 2131 DHCP	RFC 1246 Experience with OSPF
RFC 2132 DHCP Options and BOOTP Vendor Extensions	RFC 1587 OSPF NSSA
RFC 2166 APPN Implementer's Workshop Closed Pages Document DLSw v2.0 Enhancements	RFC 1765 OSPF Database Overflow
RFC 2205 Resource ReSerVation Protocol (RSVP) - Version 1 Functional Specification	RFC 1850 OSPFv2 Management Information Base (MIB), traps
RFC 2280 Routing Policy Specification Language (RPSL)	RFC 2328 OSPFv2
RFC 2284 EAP over LAN	RFC 2370 OSPF Opaque LSA Option
RFC 2338 VRRP	RFC 3101 OSPF NSSA
RFC 2364 PPP Over AAL5	QoS/CoS
RFC 2374 An Aggregatable Global Unicast Address Format	IEEE 802.1P (CoS)
RFC 2451 The ESP CBC-Mode Cipher Algorithms	RFC 2474 DS Field in the IPv4 and IPv6 Headers
RFC 2453 RIPv2	RFC 2475 DiffServ Architecture
RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols	RFC 2597 DiffServ Assured Forwarding (AF)
RFC 2511 Internet X.509 Certificate Request Message Format	RFC 2598 DiffServ Expedited Forwarding (EF)
RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE)	RFC 3168 The Addition of Explicit Congestion Notification (ECN) to IP
RFC 2644 Directed Broadcast Control	Security
RFC 2661 L2TP	IEEE 802.1X Port Based Network Access Control
RFC 2663 NAT Terminology and Considerations	RFC 1321 The MD5 Message-Digest Algorithm
RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5	RFC 2082 RIP-2 MD5 Authentication
RFC 2694 DNS extensions to Network Address Translators (DNS_ALG)	RFC 2104 Keyed-Hashing for Message Authentication
RFC 2702 Requirements for Traffic Engineering Over MPLS	RFC 2138 RADIUS Authentication
RFC 2747 RSVP Cryptographic Authentication	RFC 2209 RSVP-Message Processing
RFC 2763 Dynamic Name-to-System ID mapping support	RFC 2246 Transport Layer Security (TLS)
RFC 2765 Stateless IP/ICMP Translation Algorithm (SIIT)	RFC 2716 PPP EAP TLS Authentication Protocol
RFC 2766 Network Address Translation - Protocol	RFC 2865 RADIUS Authentication
	RFC 2866 RADIUS Accounting
	RFC 3567 Intermediate System (IS) to IS Cryptographic Authentication
	VPN
	RFC 2403 - HMAC-MD5-96
	RFC 2404 - HMAC-SHA1-96
	RFC 2405 - DES-CBC Cipher algorithm
	RFC 2547 BGP/MPLS VPNs
	RFC 2796 BGP Route Reflection - An Alternative to Full Mesh IBGP



Accessory Product Details

Translation (NAT-PT)	RFC 2842 Capabilities Advertisement with BGP-4
RFC 2784 Generic Routing Encapsulation (GRE)	RFC 2858 Multiprotocol Extensions for BGP-4
RFC 2787 Definitions of Managed Objects for VRRP	RFC 2918 Route Refresh Capability for BGP-4
RFC 2961 RSVP Refresh Overhead Reduction Extensions	RFC 3107 Carrying Label Information in BGP-4
RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS	IPsec
RFC 2973 IS-IS Mesh Groups	RFC 1828 IP Authentication using Keyed MD5
RFC 2993 Architectural Implications of NAT	RFC 2401 IP Security Architecture
RFC 3022 Traditional IP Network Address Translator (Traditional NAT)	RFC 2402 IP Authentication Header
RFC 3027 Protocol Complications with the IP Network Address Translator	RFC 2406 IP Encapsulating Security Payload
RFC 3031 Multiprotocol Label Switching Architecture	RFC 2407 - Domain of interpretation
	RFC 2410 - The NULL Encryption Algorithm and its use with IPsec
	RFC 2411 IP Security Document Roadmap
	RFC 2412 – OAKLEY
	RFC 2865 - Remote Authentication Dial In User Service (RADIUS)

HP A-MSR30-40 PoE Multi-Service Router (JF803A)

Ports	4 SIC slots	
	4 MIM module slots	
	2 1000Base-T ports (IEEE 802.3ab Type 1000Base-T)	
	2 fixed Gigabit Ethernet SFP ports	
Physical characteristics	Dimensions	16.63(d) x 17.4(w) x 3.47(h) in. (42.23 x 44.2 x 8.82 cm) (2U height)
	Weight	26.23 lb. (11.9 kg)
Memory and processor	Processor	RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash
Mounting	Mounts in an EIA standard 19-in. rack	
Performance	Throughput	360 Kpps (64-byte packets)
	Routing table size	30,000 entries
Environment	Operating temperature	32°F to 104°F (0°C to 40°C)
	Operating relative humidity	5% to 90%, non-condensing
	Non-operating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Non-operating/Storage relative humidity	5% to 90%, non-condensing
Electrical characteristics	Maximum heat dissipation	717 BTU/hr (756.44 kJ/hr)
	Voltage	100-120 / 200-240 VAC
	Maximum power rating	210 W
	PoE power	375 W
	Frequency	50 / 60 Hz



Accessory Product Details

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).

Safety	UL 60950-1; AS/NZS 60950; 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. 60950-1-03; FDA 21 CFR Subchapter J
Emissions	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001 +A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001
Telecom Management	FCC part 68 IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB
Services	3-year, parts only, global next-day advance exchange (UX150E) 3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E) 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E) 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UX157E) 3-year, 24x7 SW phone support, software updates (UX160E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E) 4-year, 24x7 SW phone support, software updates (UX161E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E) 5-year, 24x7 SW phone support, software updates (UX162E) 3 Yr 6 hr Call-to-Repair Onsite (UX163E) 4 Yr 6 hr Call-to-Repair Onsite (UX164E) 5 Yr 6 hr Call-to-Repair Onsite (UX165E)

Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

Standards and protocols (applies to all products in series)

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 BGP4 confederations
RFC 1997 BGP Communities Attribute
RFC 1998 PPP Gandalf FZA Compression Protocol
RFC 2385 BGP Session Protection via TCP MD5

RFC 3032 MPLS Label Stack Encoding
RFC 3036 LDP Specification
RFC 3046 DHCP Relay Agent Information Option
RFC 3063 MPLS Loop Prevention Mechanism
RFC 3065 Support AS confederation
RFC 3137 OSPF Stub Router Advertisement
RFC 3209 RSVP-TE Extensions to RSVP for LSP
Tunnels
RFC 3210 Applicability Statement for Extensions to RSVP for LSP-Tunnels
RFC 3212 Constraint-Based LSP setup using LDP (CR-LDP)
RFC 3214 LSP Modification Using CR-LDP



Accessory Product Details

RFC 2439 BGP Route Flap Damping

Device management

RFC 1305 NTPv3

RFC 1945 Hypertext Transfer Protocol -- HTTP/1.0

RFC 2271 FrameWork

RFC 2452 MIB for TCP6

RFC 2454 MIB for UDP6

General protocols

IEEE 802.1D MAC Bridges

IEEE 802.1p Priority

IEEE 802.1Q VLANs

IEEE 802.1s Multiple Spanning Trees

IEEE 802.1w Rapid Reconfiguration of Spanning Tree

RFC 768 UDP

RFC 783 TFTP Protocol (revision 2)

RFC 791 IP

RFC 792 ICMP

RFC 793 TCP

RFC 826 ARP

RFC 854 TELNET

RFC 855 Telnet Option Specification

RFC 856 TELNET

RFC 858 Telnet Suppress Go Ahead Option

RFC 894 IP over Ethernet

RFC 925 Multi-LAN Address Resolution

RFC 950 Internet Standard Subnetting Procedure

RFC 959 File Transfer Protocol (FTP)

RFC 1006 ISO transport services on top of the TCP: Version 3

RFC 1027 Proxy ARP

RFC 1034 Domain Concepts and Facilities

RFC 1035 Domain Implementation and Specification

RFC 1042 IP Datagrams

RFC 1058 RIPv1

RFC 1071 Computing the Internet Checksum

RFC 1091 Telnet Terminal-Type Option

RFC 1122 Host Requirements

RFC 1141 Incremental updating of the Internet checksum

RFC 1142 OSI IS-IS Intra-domain Routing Protocol

RFC 1144 Compressing TCP/IP headers for low-speed serial links

RFC 1195 OSI ISIS for IP and Dual Environments

RFC 1256 ICMP Router Discovery Protocol (IRDP)

RFC 1293 Inverse Address Resolution Protocol

RFC 1315 Management Information Base for Frame

Relay DTEs

RFC 3215 LDP State Machine

RFC 3246 Expedited Forwarding PHB

RFC 3268 Advanced Encryption Standard (AES)

Ciphersuites for Transport Layer Security (TLS)

RFC 3277 IS-IS Transient Blackhole Avoidance

RFC 3279 Algorithms and Identifiers for the Internet

X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile

RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile

RFC 3392 Support BGP capabilities advertisement

RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP)

RFC 3564 Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering

RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec

RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers

RFC 3784 ISIS TE support

RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit

RFC 3811 Definitions of Textual Conventions (TCs) for Multiprotocol Label Switching (MPLS) Management

RFC 3812 Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB)

RFC 3847 Restart signaling for IS-IS

IP multicast

RFC 1112 IGMP

RFC 2236 IGMPv2

RFC 2283 Multiprotocol Extensions for BGP-4

RFC 2362 PIM Sparse Mode

RFC 2934 Protocol Independent Multicast MIB for IPv4

RFC 3376 IGMPv3

IPv6

RFC 1981 IPv6 Path MTU Discovery

RFC 2080 RIPng for IPv6

RFC 2292 Advanced Sockets API for IPv6

RFC 2373 IPv6 Addressing Architecture

RFC 2460 IPv6 Specification

RFC 2461 IPv6 Neighbor Discovery

RFC 2462 IPv6 Stateless Address Auto-configuration

RFC 2464 Transmission of IPv6 over Ethernet Networks



Accessory Product Details

RFC 1332 The PPP Internet Protocol Control Protocol (IPCP)	RFC 2472 IP Version 6 over PPP
RFC 1333 PPP Link Quality Monitoring	RFC 2473 Generic Packet Tunneling in IPv6
RFC 1334 PPP Authentication Protocols (PAP)	RFC 2529 Transmission of IPv6 Packets over IPv4
RFC 1349 Type of Service	RFC 2545 Use of MP-BGP-4 for IPv6
RFC 1350 TFTP Protocol (revision 2)	RFC 2553 Basic Socket Interface Extensions for IPv6
RFC 1377 The PPP OSI Network Layer Control Protocol (OSINLCP)	RFC 2740 OSPFv3 for IPv6
RFC 1381 SNMP MIB Extension for X.25 LAPB	RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers
RFC 1471 The Definitions of Managed Objects for the Link Control Protocol of the Point-to-Point Protocol	RFC 3056 Connection of IPv6 Domains via IPv4 Clouds
RFC 1472 The Definitions of Managed Objects for the Security Protocols of the Point-to-Point Protocol	RFC 3513 IPv6 Addressing Architecture
RFC 1490 Multiprotocol Interconnect over Frame Relay	RFC 3596 DNS Extension for IPv6
RFC 1519 CIDR	MIBs
RFC 1534 DHCP/BOOTP Interoperation	RFC 1213 MIB II
RFC 1542 Clarifications and Extensions for the Bootstrap Protocol	RFC 1229 Interface MIB Extensions
RFC 1552 The PPP Internetworking Packet Exchange Control Protocol (IPXCP)	RFC 1286 Bridge MIB
RFC 1577 Classical IP and ARP over ATM	RFC 1493 Bridge MIB
RFC 1613 Cisco Systems X.25 over TCP (XOT)	RFC 1573 SNMP MIB II
RFC 1624 Incremental Internet Checksum	RFC 1724 RIPv2 MIB
RFC 1631 NAT	RFC 1757 Remote Network Monitoring MIB
RFC 1638 PPP Bridging Control Protocol (BCP)	RFC 1850 OSPFv2 MIB
RFC 1661 The Point-to-Point Protocol (PPP)	RFC 2011 SNMPv2 MIB for IP
RFC 1662 PPP in HDLC-like Framing	RFC 2012 SNMPv2 MIB for TCP
RFC 1695 Definitions of Managed Objects for ATM Management Version 8.0 using SMIv2	RFC 2013 SNMPv2 MIB for UDP
RFC 1701 Generic Routing Encapsulation	RFC 2233 Interfaces MIB
RFC 1702 Generic Routing Encapsulation over IPv4 networks	RFC 2454 IPV6-UDP-MIB
RFC 1721 RIP-2 Analysis	RFC 2465 IPv6 MIB
RFC 1722 RIP-2 Applicability	RFC 2466 ICMPv6 MIB
RFC 1723 RIP v2	RFC 2618 RADIUS Client MIB
RFC 1795 Data Link Switching: Switch-to-Switch Protocol AIW DLSw RIG: DLSw Closed Pages, DLSw Standard Version 1	RFC 2620 RADIUS Accounting MIB
RFC 1812 IPv4 Routing	RFC 2674 802.1p and IEEE 802.1Q Bridge MIB
RFC 1829 The ESP DES-CBC Transform	RFC 2737 Entity MIB (Version 2)
RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses	RFC 2863 The Interfaces Group MIB
RFC 1944 Benchmarking Methodology for Network Interconnect Devices	RFC 2933 IGMP MIB
RFC 1973 PPP in Frame Relay	RFC 3813 MPLS LSR MIB
RFC 1974 PPP Stac LZS Compression Protocol	Network management
RFC 1990 The PPP Multilink Protocol (MP)	IEEE 802.1D (STP)
	RFC 1155 Structure of Management Information
	RFC 1157 SNMPv1
	RFC 1905 SNMPv2 Protocol Operations
	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
	OSPF



Accessory Product Details

RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)
RFC 2091 Trigger RIP
RFC 2131 DHCP
RFC 2132 DHCP Options and BOOTP Vendor Extensions
RFC 2166 APPN Implementer's Workshop Closed Pages Document DLSw v2.0 Enhancements
RFC 2205 Resource ReSerVation Protocol (RSVP) - Version 1 Functional Specification
RFC 2280 Routing Policy Specification Language (RPSL)
RFC 2284 EAP over LAN
RFC 2338 VRRP
RFC 2364 PPP Over AAL5
RFC 2374 An Aggregatable Global Unicast Address Format
RFC 2451 The ESP CBC-Mode Cipher Algorithms
RFC 2453 RIPv2
RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols
RFC 2511 Internet X.509 Certificate Request Message Format
RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE)
RFC 2644 Directed Broadcast Control
RFC 2661 L2TP
RFC 2663 NAT Terminology and Considerations
RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5
RFC 2694 DNS extensions to Network Address Translators (DNS_ALG)
RFC 2702 Requirements for Traffic Engineering Over MPLS
RFC 2747 RSVP Cryptographic Authentication
RFC 2763 Dynamic Name-to-System ID mapping support
RFC 2765 Stateless IP/ICMP Translation Algorithm (SIIT)
RFC 2766 Network Address Translation - Protocol Translation (NAT-PT)
RFC 2784 Generic Routing Encapsulation (GRE)
RFC 2787 Definitions of Managed Objects for VRRP
RFC 2961 RSVP Refresh Overhead Reduction Extensions
RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS
RFC 2973 IS-IS Mesh Groups
RFC 2993 Architectural Implications of NAT
RFC 3022 Traditional IP Network Address

RFC 1245 OSPF protocol analysis
RFC 1246 Experience with OSPF
RFC 1587 OSPF NSSA
RFC 1765 OSPF Database Overflow
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 3168 The Addition of Explicit Congestion Notification (ECN) to IP

Security

IEEE 802.1X Port Based Network Access Control
RFC 1321 The MD5 Message-Digest Algorithm
RFC 2082 RIP-2 MD5 Authentication
RFC 2104 Keyed-Hashing for Message Authentication
RFC 2138 RADIUS Authentication
RFC 2209 RSVP-Message Processing
RFC 2246 Transport Layer Security (TLS)
RFC 2716 PPP EAP TLS Authentication Protocol
RFC 2865 RADIUS Authentication
RFC 2866 RADIUS Accounting
RFC 3567 Intermediate System (IS) to IS Cryptographic Authentication

VPN

RFC 2403 - HMAC-MD5-96
RFC 2404 - HMAC-SHA1-96
RFC 2405 - DES-CBC Cipher algorithm
RFC 2547 BGP/MPLS VPNs
RFC 2796 BGP Route Reflection - An Alternative to Full Mesh IBGP
RFC 2842 Capabilities Advertisement with BGP-4
RFC 2858 Multiprotocol Extensions for BGP-4
RFC 2918 Route Refresh Capability for BGP-4
RFC 3107 Carrying Label Information in BGP-4

IPsec

RFC 1828 IP Authentication using Keyed MD5
RFC 2401 IP Security Architecture
RFC 2402 IP Authentication Header
RFC 2406 IP Encapsulating Security Payload
RFC 2407 - Domain of interpretation



Accessory Product Details

Translator (Traditional NAT)
RFC 3027 Protocol Complications with the IP
Network Address Translator
RFC 3031 Multiprotocol Label Switching
Architecture

RFC 2410 - The NULL Encryption Algorithm and its
use with IPsec
RFC 2411 IP Security Document Roadmap
RFC 2412 – OAKLEY
RFC 2865 - Remote Authentication Dial In User
Service (RADIUS)

HP A-MSR30-60 Multi-Service Router (JF230A)

Ports	4 SIC slots 6 MIM module slots 2 1000Base-T ports (IEEE 802.3ab Type 1000Base-T) 2 fixed Gigabit Ethernet SFP ports	
Physical characteristics	Dimensions	16.61(d) x 17.4(w) x 5.2(h) in. (42.18 x 44.2 x 13.2 cm) (3U height)
	Weight	29.98 lb. (13.6 kg)
Memory and processor	Processor	RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash
Mounting	Mounts in an EIA standard 19-in. rack	
Performance	Throughput	360 Kpps (64-byte packets)
	Routing table size	30,000 entries
Environment	Operating temperature	32°F to 104°F (0°C to 40°C)
	Operating relative humidity	5% to 90%, non-condensing
	Non-operating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Non-operating/Storage relative humidity	5% to 90%, non-condensing
Electrical characteristics	Maximum heat dissipation	717 BTU/hr (756.44 kJ/hr)
	Voltage	100-120 / 200-240 VAC
	Maximum power rating	210 W
	Frequency	50 / 60 Hz
	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.
Safety	UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J	
Emissions	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001 +A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001	
Telecom	FCC part 68	
Management	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB	
Services	3-year, parts only, global next-day advance exchange (UX150E)	



Accessory Product Details

3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)
 3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)
 3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UX157E)
 3-year, 24x7 SW phone support, software updates (UX160E)
 4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)
 4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)
 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E)
 4-year, 24x7 SW phone support, software updates (UX161E)
 5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)
 5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)
 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)
 5-year, 24x7 SW phone support, software updates (UX162E)
 3 Yr 6 hr Call-to-Repair Onsite (UX163E)
 4 Yr 6 hr Call-to-Repair Onsite (UX164E)
 5 Yr 6 hr Call-to-Repair Onsite (UX165E)

Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

Standards and protocols (applies to all products in series)

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 BGP4 confederations
 RFC 1997 BGP Communities Attribute
 RFC 1998 PPP Gandalf FZA Compression Protocol
 RFC 2385 BGP Session Protection via TCP MD5
 RFC 2439 BGP Route Flap Damping

Device management

RFC 1305 NTPv3
 RFC 1945 Hypertext Transfer Protocol -- HTTP/1.0
 RFC 2271 FrameWork
 RFC 2452 MIB for TCP6
 RFC 2454 MIB for UDP6

General protocols

IEEE 802.1D MAC Bridges
 IEEE 802.1p Priority
 IEEE 802.1Q VLANs
 IEEE 802.1s Multiple Spanning Trees
 IEEE 802.1w Rapid Reconfiguration of Spanning Tree
 RFC 768 UDP
 RFC 783 TFTP Protocol (revision 2)
 RFC 791 IP

RFC 3032 MPLS Label Stack Encoding
 RFC 3036 LDP Specification
 RFC 3046 DHCP Relay Agent Information Option
 RFC 3063 MPLS Loop Prevention Mechanism
 RFC 3065 Support AS confederation
 RFC 3137 OSPF Stub Router Advertisement
 RFC 3209 RSVP-TE Extensions to RSVP for LSP Tunnels
 RFC 3212 Constraint-Based LSP setup using LDP (CR-LDP)
 RFC 3214 LSP Modification Using CR-LDP
 RFC 3215 LDP State Machine
 RFC 3246 Expedited Forwarding PHB
 RFC 3268 Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS)
 RFC 3277 IS-IS Transient Blackhole Avoidance
 RFC 3279 Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile
 RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile
 RFC 3392 Support BGP capabilities advertisement
 RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP)
 RFC 3564 Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering
 RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec



Accessory Product Details

RFC 792 ICMP	RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers
RFC 793 TCP	RFC 3784 ISIS TE support
RFC 826 ARP	RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit
RFC 854 TELNET	RFC 3811 Definitions of Textual Conventions (TCs) for Multiprotocol Label Switching (MPLS) Management
RFC 855 Telnet Option Specification	RFC 3812 Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB)
RFC 856 TELNET	RFC 3847 Restart signaling for IS-IS
RFC 858 Telnet Suppress Go Ahead Option	
RFC 894 IP over Ethernet	
RFC 925 Multi-LAN Address Resolution	
RFC 950 Internet Standard Subnetting Procedure	
RFC 959 File Transfer Protocol (FTP)	
RFC 1006 ISO transport services on top of the TCP: Version 3	
RFC 1027 Proxy ARP	IP multicast
RFC 1034 Domain Concepts and Facilities	RFC 1112 IGMP
RFC 1035 Domain Implementation and Specification	RFC 2236 IGMPv2
RFC 1042 IP Datagrams	RFC 2283 Multiprotocol Extensions for BGP-4
RFC 1058 RIPv1	RFC 2362 PIM Sparse Mode
RFC 1071 Computing the Internet Checksum	RFC 2934 Protocol Independent Multicast MIB for IPv4
RFC 1091 Telnet Terminal-Type Option	RFC 3376 IGMPv3
RFC 1122 Host Requirements	
RFC 1141 Incremental updating of the Internet checksum	IPv6
RFC 1142 OSI IS-IS Intra-domain Routing Protocol	RFC 1981 IPv6 Path MTU Discovery
RFC 1144 Compressing TCP/IP headers for low-speed serial links	RFC 2080 RIPng for IPv6
RFC 1195 OSI ISIS for IP and Dual Environments	RFC 2292 Advanced Sockets API for IPv6
RFC 1256 ICMP Router Discovery Protocol (IRDP)	RFC 2373 IPv6 Addressing Architecture
RFC 1293 Inverse Address Resolution Protocol	RFC 2460 IPv6 Specification
RFC 1315 Management Information Base for Frame Relay DTEs	RFC 2461 IPv6 Neighbor Discovery
RFC 1332 The PPP Internet Protocol Control Protocol (IPCP)	RFC 2462 IPv6 Stateless Address Auto-configuration
RFC 1333 PPP Link Quality Monitoring	RFC 2464 Transmission of IPv6 over Ethernet Networks
RFC 1334 PPP Authentication Protocols (PAP)	RFC 2472 IP Version 6 over PPP
RFC 1349 Type of Service	RFC 2473 Generic Packet Tunneling in IPv6
RFC 1350 TFTP Protocol (revision 2)	RFC 2529 Transmission of IPv6 Packets over IPv4
RFC 1377 The PPP OSI Network Layer Control Protocol (OSINLCP)	RFC 2545 Use of MP-BGP-4 for IPv6
RFC 1381 SNMP MIB Extension for X.25 LAPB	RFC 2553 Basic Socket Interface Extensions for IPv6
RFC 1471 The Definitions of Managed Objects for the Link Control Protocol of the Point-to-Point Protocol	RFC 2740 OSPFv3 for IPv6
RFC 1472 The Definitions of Managed Objects for the Security Protocols of the Point-to-Point Protocol	RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers
RFC 1490 Multiprotocol Interconnect over Frame Relay	RFC 3056 Connection of IPv6 Domains via IPv4 Clouds
RFC 1519 CIDR	RFC 3513 IPv6 Addressing Architecture
RFC 1534 DHCP/BOOTP Interoperation	RFC 3596 DNS Extension for IPv6
	MIBs
	RFC 1213 MIB II
	RFC 1229 Interface MIB Extensions
	RFC 1286 Bridge MIB
	RFC 1493 Bridge MIB



Accessory Product Details

RFC 1542 Clarifications and Extensions for the Bootstrap Protocol	RFC 1573 SNMP MIB II
RFC 1552 The PPP Internetworking Packet Exchange Control Protocol (IPXCP)	RFC 1724 RIPv2 MIB
RFC 1577 Classical IP and ARP over ATM	RFC 1757 Remote Network Monitoring MIB
RFC 1613 Cisco Systems X.25 over TCP (XOT)	RFC 1850 OSPFv2 MIB
RFC 1624 Incremental Internet Checksum	RFC 2011 SNMPv2 MIB for IP
RFC 1631 NAT	RFC 2012 SNMPv2 MIB for TCP
RFC 1638 PPP Bridging Control Protocol (BCP)	RFC 2013 SNMPv2 MIB for UDP
RFC 1661 The Point-to-Point Protocol (PPP)	RFC 2233 Interfaces MIB
RFC 1662 PPP in HDLC-like Framing	RFC 2454 IPV6-UDP-MIB
RFC 1695 Definitions of Managed Objects for ATM Management Version 8.0 using SMIv2	RFC 2465 IPv6 MIB
RFC 1701 Generic Routing Encapsulation	RFC 2466 ICMPv6 MIB
RFC 1702 Generic Routing Encapsulation over IPv4 networks	RFC 2618 RADIUS Client MIB
RFC 1721 RIP-2 Analysis	RFC 2620 RADIUS Accounting MIB
RFC 1722 RIP-2 Applicability	RFC 2674 802.1p and IEEE 802.1Q Bridge MIB
RFC 1723 RIP v2	RFC 2737 Entity MIB (Version 2)
RFC 1795 Data Link Switching: Switch-to-Switch Protocol AIW DLSw RIG: DLSw Closed Pages, DLSw Standard Version 1	RFC 2863 The Interfaces Group MIB
RFC 1812 IPv4 Routing	RFC 2933 IGMP MIB
RFC 1829 The ESP DES-CBC Transform	RFC 3813 MPLS LSR MIB
RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses	
RFC 1944 Benchmarking Methodology for Network Interconnect Devices	Network management
RFC 1973 PPP in Frame Relay	IEEE 802.1D (STP)
RFC 1974 PPP Stac LZS Compression Protocol	RFC 1155 Structure of Management Information
RFC 1990 The PPP Multilink Protocol (MP)	RFC 1157 SNMPv1
RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)	RFC 1905 SNMPv2 Protocol Operations
RFC 2091 Trigger RIP	RFC 2272 SNMPv3 Management Protocol
RFC 2131 DHCP	RFC 2273 SNMPv3 Applications
RFC 2132 DHCP Options and BOOTP Vendor Extensions	RFC 2274 USM for SNMPv3
RFC 2166 APPN Implementer's Workshop Closed Pages Document DLSw v2.0 Enhancements	RFC 2275 VACM for SNMPv3
RFC 2205 Resource ReSerVation Protocol (RSVP) - Version 1 Functional Specification	RFC 2575 SNMPv3 View-based Access Control Model (VACM)
RFC 2280 Routing Policy Specification Language (RPSL)	RFC 3164 BSD syslog Protocol
RFC 2284 EAP over LAN	
RFC 2338 VRRP	OSPF
RFC 2364 PPP Over AAL5	RFC 1245 OSPF protocol analysis
RFC 2374 An Aggregatable Global Unicast Address Format	RFC 1246 Experience with OSPF
RFC 2451 The ESP CBC-Mode Cipher Algorithms	RFC 1587 OSPF NSSA
	RFC 1765 OSPF Database Overflow
	RFC 1850 OSPFv2 Management Information Base (MIB), traps
	RFC 2328 OSPFv2
	RFC 2370 OSPF Opaque LSA Option
	RFC 3101 OSPF NSSA
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	IEEE 802.1P (CoS)
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	RFC 2475 DiffServ Architecture
	RFC 2597 DiffServ Assured Forwarding (AF)
	RFC 2598 DiffServ Expedited Forwarding (EF)
	RFC 3168 The Addition of Explicit Congestion Notification (ECN) to IP



Accessory Product Details

RFC 2453 IPv2
 RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols
 RFC 2511 Internet X.509 Certificate Request Message Format
 RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE)
 RFC 2644 Directed Broadcast Control
 RFC 2661 L2TP
 RFC 2663 NAT Terminology and Considerations
 RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5
 RFC 2694 DNS extensions to Network Address Translators (DNS_ALG)
 RFC 2702 Requirements for Traffic Engineering Over MPLS
 RFC 2747 RSVP Cryptographic Authentication
 RFC 2763 Dynamic Name-to-System ID mapping support
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 RFC 2973 IS-IS Mesh Groups
 RFC 2993 Architectural Implications of NAT
 RFC 3022 Traditional IP Network Address Translator (Traditional NAT)
 RFC 3027 Protocol Complications with the IP Network Address Translator
 RFC 3031 Multiprotocol Label Switching Architecture

Security

IEEE 802.1X Port Based Network Access Control
 RFC 1321 The MD5 Message-Digest Algorithm
 RFC 2082 RIP-2 MD5 Authentication
 RFC 2104 Keyed-Hashing for Message Authentication
 RFC 2138 RADIUS Authentication
 RFC 2209 RSVP-Message Processing
 RFC 2246 Transport Layer Security (TLS)
 RFC 2716 PPP EAP TLS Authentication Protocol
 RFC 2865 RADIUS Authentication
 RFC 2866 RADIUS Accounting
 RFC 3567 Intermediate System (IS) to IS Cryptographic Authentication

VPN

RFC 2403 - HMAC-MD5-96
 RFC 2404 - HMAC-SHA1-96
 RFC 2405 - DES-CBC Cipher algorithm
 RFC 2547 BGP/MPLS VPNs
 RFC 2796 BGP Route Reflection - An Alternative to Full Mesh IBGP
 RFC 2842 Capabilities Advertisement with BGP-4
 RFC 2858 Multiprotocol Extensions for BGP-4
 RFC 2918 Route Refresh Capability for BGP-4
 RFC 3107 Carrying Label Information in BGP-4

IPsec

RFC 1828 IP Authentication using Keyed MD5
 RFC 2401 IP Security Architecture
 RFC 2402 IP Authentication Header
 RFC 2406 IP Encapsulating Security Payload
 RFC 2407 - Domain of interpretation
 RFC 2410 - The NULL Encryption Algorithm and its use with IPsec
 RFC 2411 IP Security Document Roadmap
 RFC 2412 - OAKLEY
 RFC 2865 - Remote Authentication Dial In User Service (RADIUS)

HP A-MSR30-60 PoE Multi-Service Router (JF804A)

Ports	4 SIC slots	
	6 MIM module slots	
	2 1000Base-T ports (IEEE 802.3ab Type 1000Base-T)	
	2 fixed Gigabit Ethernet SFP ports	
Physical characteristics	Dimensions	16.61(d) x 17.4(w) x 5.2(h) in. (42.18 x 44.2 x 13.2 cm) (3U height)
	Weight	29.98 lb. (13.6 kg)
Memory and processor	Processor	RISC @ 533 MHz, 256 MB DDR SDRAM, 256 MB compact flash
Mounting	Mounts in an EIA standard 19-in. rack	



Accessory Product Details

Performance	Throughput	360 Kpps (64-byte packets)
	Routing table size	30,000 entries
Environment	Operating temperature	32°F to 104°F (0°C to 40°C)
	Operating relative humidity	5% to 90%, non-condensing
	Non-operating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Non-operating/Storage relative humidity	5% to 90%, non-condensing
Electrical characteristics	Maximum heat dissipation	717 BTU/hr (756.44 kJ/hr)
	Voltage	100-120 / 200-240 VAC
	Maximum power rating	210 W
	PoE power	375 W
	Frequency	50 / 60 Hz
	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).
Safety	UL 60950-1; AS/NZS 60950; EN 60825-1 Safety of Laser Products-Part 1; EN 60825-2 Safety of Laser Products-Part 2; IEC 60950-1; CAN/CSA-C22.2 No. 60950-1-03; EN 60950-1/A11; FDA 21 CFR Subchapter J	
Emissions	EN 55022 Class A; ICES-003 Class A; ANSI C63.4 2003; ETSI EN 300 386 V1.3.3; AS/NZS CISPR22 Class A; EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-3-2:2006; EN 61000-3-3:1995 +A1:2001 +A2:2005; EMC Directive 2004/108/EC; FCC (CFR 47, Part 15) Class A; EN 55024:1998+ A1:2001 + A2:2003; EN 61000-4-11:2004; EN 61000-4-8:2001	
Telecom	FCC part 68	
Management	IMC - Intelligent Management Center; command-line interface; Web browser; SNMP Manager; Telnet; RMON1; FTP; IEEE 802.3 Ethernet MIB	
Services	3-year, parts only, global next-day advance exchange (UX150E)	
	3-year, 4-hour onsite, 13x5 coverage for hardware (UX151E)	
	3-year, 4-hour onsite, 24x7 coverage for hardware (UX154E)	
	3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (UX157E)	
	3-year, 24x7 SW phone support, software updates (UX160E)	
	4-year, 4-hour onsite, 13x5 coverage for hardware (UX152E)	
	4-year, 4-hour onsite, 24x7 coverage for hardware (UX155E)	
	4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX158E)	
	4-year, 24x7 SW phone support, software updates (UX161E)	
	5-year, 4-hour onsite, 13x5 coverage for hardware (UX153E)	
	5-year, 4-hour onsite, 24x7 coverage for hardware (UX156E)	
	5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UX159E)	
	5-year, 24x7 SW phone support, software updates (UX162E)	
	3 Yr 6 hr Call-to-Repair Onsite (UX163E)	
	4 Yr 6 hr Call-to-Repair Onsite (UX164E)	



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5 Yr 6 hr Call-to-Repair Onsite (UX165E)

Refer to the HP website at: www.hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

Standards and protocols (applies to all products in series)

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 BGP4 confederations
RFC 1997 BGP Communities Attribute
RFC 1998 PPP Gandalf FZA Compression Protocol
RFC 2385 BGP Session Protection via TCP MD5
RFC 2439 BGP Route Flap Damping

Device management

RFC 1305 NTPv3
RFC 1945 Hypertext Transfer Protocol -- HTTP/1.0
RFC 2271 FrameWork
RFC 2452 MIB for TCP6
RFC 2454 MIB for UDP6

General protocols

IEEE 802.1D MAC Bridges
IEEE 802.1p Priority
IEEE 802.1Q VLANs
IEEE 802.1s Multiple Spanning Trees
IEEE 802.1w Rapid Reconfiguration of Spanning Tree
RFC 768 UDP
RFC 783 TFTP Protocol (revision 2)
RFC 791 IP
RFC 792 ICMP
RFC 793 TCP
RFC 826 ARP
RFC 854 TELNET
RFC 855 Telnet Option Specification
RFC 856 TELNET
RFC 858 Telnet Suppress Go Ahead Option
RFC 894 IP over Ethernet
RFC 925 Multi-LAN Address Resolution
RFC 950 Internet Standard Subnetting Procedure
RFC 959 File Transfer Protocol (FTP)
RFC 1006 ISO transport services on top of the TCP: Version 3
RFC 1027 Proxy ARP

RFC 3032 MPLS Label Stack Encoding
RFC 3036 LDP Specification
RFC 3046 DHCP Relay Agent Information Option
RFC 3063 MPLS Loop Prevention Mechanism
RFC 3065 Support AS confederation
RFC 3137 OSPF Stub Router Advertisement
RFC 3209 RSVP-TE Extensions to RSVP for LSP Tunnels
RFC 3210 Applicability Statement for Extensions to RSVP for LSP-Tunnels
RFC 3212 Constraint-Based LSP setup using LDP (CR-LDP)
RFC 3214 LSP Modification Using CR-LDP
RFC 3215 LDP State Machine
RFC 3246 Expedited Forwarding PHB
RFC 3268 Advanced Encryption Standard (AES) Ciphersuites for Transport Layer Security (TLS)
RFC 3277 IS-IS Transient Blackhole Avoidance
RFC 3279 Algorithms and Identifiers for the Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile
RFC 3280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile
RFC 3392 Support BGP capabilities advertisement
RFC 3479 Fault Tolerance for the Label Distribution Protocol (LDP)
RFC 3564 Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering
RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec
RFC 3706 A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers
RFC 3784 ISIS TE support
RFC 3786 Extending the Number of IS-IS LSP Fragments Beyond the 256 Limit
RFC 3811 Definitions of Textual Conventions (TCs) for Multiprotocol Label Switching (MPLS) Management
RFC 3812 Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB)
RFC 3847 Restart signaling for IS-IS

IP multicast



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RFC 1034 Domain Concepts and Facilities	RFC 1112 IGMP
RFC 1035 Domain Implementation and Specification	RFC 2236 IGMPv2
RFC 1042 IP Datagrams	RFC 2283 Multiprotocol Extensions for BGP-4
RFC 1058 RIPv1	RFC 2362 PIM Sparse Mode
RFC 1071 Computing the Internet Checksum	RFC 2934 Protocol Independent Multicast MIB for IPv4
RFC 1091 Telnet Terminal-Type Option	RFC 3376 IGMPv3
RFC 1122 Host Requirements	
RFC 1141 Incremental updating of the Internet checksum	IPv6
RFC 1142 OSI IS-IS Intra-domain Routing Protocol	RFC 1981 IPv6 Path MTU Discovery
RFC 1144 Compressing TCP/IP headers for low-speed serial links	RFC 2080 RIPng for IPv6
RFC 1195 OSI ISIS for IP and Dual Environments	RFC 2292 Advanced Sockets API for IPv6
RFC 1256 ICMP Router Discovery Protocol (IRDP)	RFC 2373 IPv6 Addressing Architecture
RFC 1293 Inverse Address Resolution Protocol	RFC 2460 IPv6 Specification
RFC 1315 Management Information Base for Frame Relay DTEs	RFC 2461 IPv6 Neighbor Discovery
RFC 1332 The PPP Internet Protocol Control Protocol (IPCP)	RFC 2462 IPv6 Stateless Address Auto-configuration
RFC 1333 PPP Link Quality Monitoring	RFC 2464 Transmission of IPv6 over Ethernet Networks
RFC 1334 PPP Authentication Protocols (PAP)	RFC 2472 IP Version 6 over PPP
RFC 1349 Type of Service	RFC 2473 Generic Packet Tunneling in IPv6
RFC 1350 TFTP Protocol (revision 2)	RFC 2529 Transmission of IPv6 Packets over IPv4
RFC 1377 The PPP OSI Network Layer Control Protocol (OSINLCP)	RFC 2545 Use of MP-BGP-4 for IPv6
RFC 1381 SNMP MIB Extension for X.25 LAPB	RFC 2553 Basic Socket Interface Extensions for IPv6
RFC 1471 The Definitions of Managed Objects for the Link Control Protocol of the Point-to-Point Protocol	RFC 2740 OSPFv3 for IPv6
RFC 1472 The Definitions of Managed Objects for the Security Protocols of the Point-to-Point Protocol	RFC 2893 Transition Mechanisms for IPv6 Hosts and Routers
RFC 1490 Multiprotocol Interconnect over Frame Relay	RFC 3056 Connection of IPv6 Domains via IPv4 Clouds
RFC 1519 CIDR	RFC 3513 IPv6 Addressing Architecture
RFC 1534 DHCP/BOOTP Interoperation	RFC 3596 DNS Extension for IPv6
RFC 1542 Clarifications and Extensions for the Bootstrap Protocol	
RFC 1552 The PPP Internetworking Packet Exchange Control Protocol (IPXCP)	MIBs
RFC 1577 Classical IP and ARP over ATM	RFC 1213 MIB II
RFC 1613 Cisco Systems X.25 over TCP (XOT)	RFC 1229 Interface MIB Extensions
RFC 1624 Incremental Internet Checksum	RFC 1286 Bridge MIB
RFC 1631 NAT	RFC 1493 Bridge MIB
RFC 1638 PPP Bridging Control Protocol (BCP)	RFC 1573 SNMP MIB II
RFC 1661 The Point-to-Point Protocol (PPP)	RFC 1724 RIPv2 MIB
RFC 1662 PPP in HDLC-like Framing	RFC 1757 Remote Network Monitoring MIB
RFC 1695 Definitions of Managed Objects for ATM Management Version 8.0 using SMIv2	RFC 1850 OSPFv2 MIB
	RFC 2011 SNMPv2 MIB for IP
	RFC 2012 SNMPv2 MIB for TCP
	RFC 2013 SNMPv2 MIB for UDP
	RFC 2233 Interfaces MIB
	RFC 2454 IPV6-UDP-MIB
	RFC 2465 IPv6 MIB
	RFC 2466 ICMPv6 MIB
	RFC 2618 RADIUS Client MIB
	RFC 2620 RADIUS Accounting MIB
	RFC 2674 802.1p and IEEE 802.1Q Bridge MIB



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RFC 1701 Generic Routing Encapsulation	RFC 2737 Entity MIB (Version 2)
RFC 1702 Generic Routing Encapsulation over IPv4 networks	RFC 2863 The Interfaces Group MIB
RFC 1721 RIP-2 Analysis	RFC 2933 IGMP MIB
RFC 1722 RIP-2 Applicability	RFC 3813 MPLS LSR MIB
RFC 1723 RIP v2	
RFC 1795 Data Link Switching: Switch-to-Switch Protocol AIW DLSw RIG: DLSw Closed Pages, DLSw Standard Version 1	Network management
RFC 1812 IPv4 Routing	IEEE 802.1D (STP)
RFC 1829 The ESP DES-CBC Transform	RFC 1155 Structure of Management Information
RFC 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses	RFC 1157 SNMPv1
RFC 1944 Benchmarking Methodology for Network Interconnect Devices	RFC 1905 SNMPv2 Protocol Operations
RFC 1973 PPP in Frame Relay	RFC 2272 SNMPv3 Management Protocol
RFC 1974 PPP Stac LZS Compression Protocol	RFC 2273 SNMPv3 Applications
RFC 1990 The PPP Multilink Protocol (MP)	RFC 2274 USM for SNMPv3
RFC 1994 PPP Challenge Handshake Authentication Protocol (CHAP)	RFC 2275 VACM for SNMPv3
RFC 2091 Trigger RIP	RFC 2575 SNMPv3 View-based Access Control Model (VACM)
RFC 2131 DHCP	RFC 3164 BSD syslog Protocol
RFC 2132 DHCP Options and BOOTP Vendor Extensions	
RFC 2166 APPN Implementer's Workshop Closed Pages Document DLSw v2.0 Enhancements	OSPF
RFC 2205 Resource ReSerVation Protocol (RSVP) - Version 1 Functional Specification	RFC 1245 OSPF protocol analysis
RFC 2280 Routing Policy Specification Language (RPSL)	RFC 1246 Experience with OSPF
RFC 2284 EAP over LAN	RFC 1587 OSPF NSSA
RFC 2338 VRRP	RFC 1765 OSPF Database Overflow
RFC 2364 PPP Over AAL5	RFC 1850 OSPFv2 Management Information Base (MIB), traps
RFC 2374 An Aggregatable Global Unicast Address Format	RFC 2328 OSPFv2
RFC 2451 The ESP CBC-Mode Cipher Algorithms	RFC 2370 OSPF Opaque LSA Option
RFC 2453 RIPv2	RFC 3101 OSPF NSSA
RFC 2510 Internet X.509 Public Key Infrastructure Certificate Management Protocols	
RFC 2511 Internet X.509 Certificate Request Message Format	QoS/CoS
RFC 2516 A Method for Transmitting PPP Over Ethernet (PPPoE)	IEEE 802.1P (CoS)
RFC 2644 Directed Broadcast Control	RFC 2474 DS Field in the IPv4 and IPv6 Headers
RFC 2661 L2TP	RFC 2475 DiffServ Architecture
RFC 2663 NAT Terminology and Considerations	RFC 2597 DiffServ Assured Forwarding (AF)
RFC 2684 Multiprotocol Encapsulation over ATM Adaptation Layer 5	RFC 2598 DiffServ Expedited Forwarding (EF)
RFC 2694 DNS extensions to Network Address Translators (DNS ALG)	RFC 3168 The Addition of Explicit Congestion Notification (ECN) to IP
	Security
	IEEE 802.1X Port Based Network Access Control
	RFC 1321 The MD5 Message-Digest Algorithm
	RFC 2082 RIP-2 MD5 Authentication
	RFC 2104 Keyed-Hashing for Message Authentication
	RFC 2138 RADIUS Authentication
	RFC 2209 RSVP-Message Processing
	RFC 2246 Transport Layer Security (TLS)
	RFC 2716 PPP EAP TLS Authentication Protocol
	RFC 2865 RADIUS Authentication
	RFC 2866 RADIUS Accounting
	RFC 3567 Intermediate System (IS) to IS Cryptographic Authentication



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RFC 2702 Requirements for Traffic Engineering Over MPLS
RFC 2747 RSVP Cryptographic Authentication
RFC 2763 Dynamic Name-to-System ID mapping support
RFC 2765 Stateless IP/ICMP Translation Algorithm (SIIT)
RFC 2766 Network Address Translation - Protocol Translation (NAT-PT)
RFC 2784 Generic Routing Encapsulation (GRE)
RFC 2787 Definitions of Managed Objects for VRRP
RFC 2961 RSVP Refresh Overhead Reduction Extensions
RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS
RFC 2973 IS-IS Mesh Groups
RFC 2993 Architectural Implications of NAT
RFC 3022 Traditional IP Network Address Translator (Traditional NAT)
RFC 3027 Protocol Complications with the IP Network Address Translator
RFC 3031 Multiprotocol Label Switching Architecture

VPN

RFC 2403 - HMAC-MD5-96
RFC 2404 - HMAC-SHA1-96
RFC 2405 - DES-CBC Cipher algorithm
RFC 2547 BGP/MPLS VPNs
RFC 2796 BGP Route Reflection - An Alternative to Full Mesh IBGP
RFC 2842 Capabilities Advertisement with BGP-4
RFC 2858 Multiprotocol Extensions for BGP-4
RFC 2918 Route Refresh Capability for BGP-4
RFC 3107 Carrying Label Information in BGP-4

IPsec

RFC 1828 IP Authentication using Keyed MD5
RFC 2401 IP Security Architecture
RFC 2402 IP Authentication Header
RFC 2406 IP Encapsulating Security Payload
RFC 2407 - Domain of interpretation
RFC 2410 - The NULL Encryption Algorithm and its use with IPsec
RFC 2411 IP Security Document Roadmap
RFC 2412 - OAKLEY
RFC 2865 - Remote Authentication Dial In User Service (RADIUS)

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