HP ProCurve 2615-8-PoE Switch

Product overview

The HP ProCurve 2615-8-PoE Switch is a fully managed 8-port 10/100 switch with an additional 2 dual-personality Gigabit ports for copper or SFP connectivity. Together with static and RIP IPv4 routing, robust security and management, enterprise-class features, a free lifetime warranty, and free software updates, the ProCurve 2615-8-PoE Switch is a cost-effective solution. The ProCurve 2615-8-PoE Switch is fanless, providing quiet operation and making it ideal for deployments in open spaces. In addition, the compact form factor allows for flexible deployments, including wall, surface, or rack mounting. These switches can be deployed at enterprise edge and remote branch offices, as well as converged networks.

Key features

- Scalable 10/100 connectivity
- Layer 2/3 switching capabilities
- sFlow, ACLs, and rate limiting
- Energy-efficient design and quiet operation
- Rack-mountable, compact form factor

Features and benefits

Management

- **Choice of management interfaces:**
  - **Web graphical user interface (GUI):** easy-to-use graphical interface allows configuration of the switch from any Web browser
  - **Command-line interface (CLI):** robust command-line interface provides advanced configuration and diagnostics
  - **Simple Network Management Protocol (SNMPv2c/SNMPv3):** allows switch to be managed with a variety of third-party network management applications
- **Multiple configuration files:** configuration file management tools allow up to three configuration files to be managed and stored on the switch
- **Dual flash images:** provide independent primary and secondary operating system files for backup while upgrading
- **Command authorization:** leverages RADIUS to link a custom list of CLI commands to individual network administrator's login; also provides an audit trail
- **Front-panel LEDs:**
  - **Locator LED:** allows users to set the locator LED on a specific switch to either turn on, blink, or turn off; simplifies troubleshooting by making it easy to locate a particular switch within a rack of similar switches
  - **Per-port LEDs:** provides an at-a-glance view of status, activity, speed, and full-duplex operation
  - **Power and fault LEDs:** power LED and fault LEDs display any issues
- **Integration with HP ProCurve Manager:** enables discovery, mapping, logging, and configuration via ProCurve Manager, which is available as a free download from the Web

Connectivity

- **Dual-personality functionality:** two 10/100/1000 ports or SFP slots provide optional fiber connectivity such as Gigabit-SX, -LX, -LH, 100-FX, 100-BX, and 1000-BX
- **IEEE 802.3af Power over Ethernet:** provides up to 15.4 W per port to IEEE 802.3af-compliant PoE-powered devices such as IP phones, wireless access points, and security cameras (see product specifications for total PoE power available)
- **Auto-MDIX:** automatically adjusts for straight-through or crossover cables on all 10/100 ports
- **RJ-45 serial console port:** provides easy accessibility on front of the unit to the switch CLI
- **IPv6:**
  - **IPv6 host:** the switches can be managed and deployed at the edge of IPv6 networks
  - **Dual stack (IPv4/IPv6):** provides transition mechanism from IPv4 to IPv6; supports connectivity for both protocols
- **Stacking capability:** single IP address management for a virtual stack of up to 16 switches, including the HP ProCurve Switch 2500 Series, 2510 Series, 2520 Series, 2600 Series, 2610 Series, 2800 Series, 2810 Series, 2900 Series, 2910al Series, 3400cl Series, 3500 Series, 4200vl Series, and 6400cl Series, as well as the HP ProCurve Switch 6108 and 6200yl-24G-mGBIC

Resiliency and high availability

- **IEEE 802.1s Multiple Spanning Tree:** provides high link availability in multiple VLAN environments by allowing multiple spanning trees; provides legacy support for IEEE 802.1d and IEEE 802.1w
- **Port trunking and link aggregation:**
  - **Trunking:** supports up to eight links per trunk to increase bandwidth and create redundant connections
  - **IEEE 802.3ad Link Aggregation Protocol (LACP):** eases configuration of trunks through automatic configuration

Layer 2 switching

- **GARP VLAN Registration Protocol:** allows automatic learning and dynamic assignment of VLANs
- **VLAN support and tagging:** supports the IEEE 802.1Q (4,094 VLAN IDs) and 256 VLANs simultaneously

Layer 3 routing

- **Static IP routing:** provides manually configured routing; includes ECMP capability
- **RIP:** provides RIPv1 and RIPv2 routing

Security

- **Access control lists (ACLs):** provide IP Layer 3 filtering based on source/destination IP address/subnet and source/destination TCP/UDP port number
- **Identity-driven ACL:** enables implementation of a highly granular and flexible access security policy and VLAN assignment specific to each authenticated network user

- **Source-port filtering:** allows only specified ports to communicate with each other
- **RADIUS/TACACS+:** eases switch management security administration by using a password authentication server
- **Secure protocols for encryption of management traffic:**
  - **Secure Shell (SSHv2):** encrypts all transmitted data for secure, remote CLI access over IP networks
  - **Secure Sockets Layer (SSL):** encrypts all HTTP traffic, allowing secure access to the browser-based management GUI in the switch
  - **Secure FTP (SFTP):** encrypts uploads and downloads of configuration file
- **Port security:** allows access only to specified MAC addresses, which can be learned or specified by the administrator
- **Dynamic IP lockdown:** works with DHCP protection to block traffic from unauthorized hosts, preventing IP source address spoofing
- **DHCP protection:** blocks DHCP packets from unauthorized DHCP servers, preventing denial-of-service attacks
- **Dynamic ARP protection:** blocks ARP broadcasts from unauthorized hosts, preventing eavesdropping or theft of network data
- **MAC address lockout:** prevents configured particular MAC addresses from connecting to the network
- **MAC address lockdown:** allows only specified MAC addresses access to the network on a specified port
- **Multiple user authentication methods:**
  - **IEEE 802.1X:** industry-standard method of user authentication using an IEEE 802.1X supplicant on the client in conjunction with a RADIUS server
  - **Web-based authentication:** similar to IEEE 802.1X, it provides a browser-based environment to authenticate clients that do not support the IEEE 802.1X supplicant
  - **MAC-based authentication:** client is authenticated with the RADIUS server based on the client's MAC address
- **Authentication flexibility - 2 IEEE 802.1X:** provides authentication of multiple IEEE 802.1X users per port; prevents user "piggybacking" on another user's IEEE 802.1X authentication
- **Protected ports:** prevents designated ports from communicating with each other while allowing access to unprotected ports
- **Per-port broadcast throttling:** selectively configures broadcast control on heavy traffic port uplinks
- **Physical security:**
  - **Front-panel buttons:** provides the ability to disable reset and clear buttons on front panel for added security
  - **Kensington Lock Slot:** includes a Kensington Lock slot for securing the switches in open-space deployments
- **Spanning Tree Protocol Root Guard:** when running the spanning tree protocol, protects root bridge from malicious attack or configuration mistakes
- **STP BPDU port protection:** blocks Bridge Protocol Data Units (BPDUs) on ports that do not require BPDUs, preventing forged BPDU attacks

Convergence

- **IP multicast snooping and data-driven IGMP:** automatically prevents flooding of IP multicast traffic
- **LLDP-MED (Media Endpoint Discovery):** a standard extension of LLDP that stores values for parameters such as QoS and VLAN to automatically configure network devices such as IP phones
- **IEEE 802.1AB Link Layer Discovery Protocol (LLDP):** automated device discovery protocol for easy mapping by network management applications
- **PoE allocations:** supports multiple methods (automatic, IEEE 802.3af class, LLDP-MED, or user specified) to allocate PoE power for more efficient energy savings

Quality of Service (QoS)

- **Selectable queue configuration:** performance and/or traffic reliability can be increased by selecting the number of queues that best meet the requirements of network applications; switch will map 8 priorities to either 2 or 4 queues
- **Class of Service (CoS):** sets the IEEE 802.1p priority tag based on IP address, IP Type of Service (ToS), L3 protocol, TCP/UDP port number, source port, and DiffServ
- **Layer 4 prioritization:** enables prioritization based on TCP/UDP port numbers
- **Traffic prioritization (IEEE 802.1p):** allows real-time traffic classification into eight priority levels mapped to four queues
- **Rate limiting:** per-port ingress enforced maximums

- **Flow control:** helps ensure reliable communications during full-duplex operation
- **Type of service:**
  - **IP Precedence:** honors IP Precedence bits and allows mapping to a priority queue
  - **Differentiated Services Code Point values:** honors Differentiated Services Code Point (DSCP) bits and allows mapping to a priority queue

Monitor and diagnostics

- **Port mirroring:** enables traffic on a port to be simultaneously sent to a network analyzer for monitoring
- **Network tools:** command-line interface includes telnet client, ping, traceroute, and Layer 2 link test tools for diagnostics
- **Logging:** local and remote logging of events via SNMP (v2c and v3) and syslog
- **Troubleshooting:** ingress and egress port monitoring enable network problem solving
- **Uni-Directional Link Detection (UDLD):** monitors a link between two switches and blocks the ports on both ends of the link if the link goes down at any point between the two devices
- **Find-Fix-Inform:** finds and fixes common network problems automatically, then informs administrator
- **RMON, XRMON, sFlow, and SMON:** provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events
- **Port monitoring for network threats:** Provides sampled port traffic using sFlow technology to the HP ProCurve Network Immunity Manager application for Network Behavior Anomaly Detection (NBAD) analysis to detect threats and mitigate threats at the port where the threat originated

Flexibility

- **Flexible mounting:**
  - **Rackable:** can be mounted in a standard 19-inch rack with included hardware
  - **Wall mountable:** allows the switch to be mounted to a wall using included hardware
  - **Surface mountable:** allows the product to be mounted above or below a surface (such as a desk or table) with included hardware
- **Compact size:** product is designed to reduce space requirements (see product specifications for exact dimensions)
- **NEW Power Supply Clip:** provides the ability to attach or detach the power supply to the device, allowing for either an integrated solution or a separate one, depending on deployment requirements

Product Architecture

- **Energy-efficient design:**
  - **Fans:** fanless design helps reduce power consumption
  - **Port LEDs:** port link and activity LEDs can be turned off in order to conserve energy
  - **Port low-power mode option:** when no link is detected on a port, the port will automatically go into low-power mode to conserve energy

Warranty and support

- **Industry-leading HP ProCurve Lifetime Warranty:** features next-business-day advance replacement (available in most countries) and includes coverage for fans and power supplies for the entire warranty period; HP ProCurve products have legendary HP quality, and our warranty is one way of demonstrating it; The HP Hardware Limited Warranty Statement containing the terms and conditions for the warranty on HP ProCurve products can be viewed at www.procurve.com/warranty
- **Software:**
  - **Maintenance releases:** free of charge for as long as you own the product
  - **Enhancements:** when and if available, free of charge for as long as you own the product
- **Technical support:** free phone and email support during business hours is available for as long as you own the product; support upgrades are available through the purchase of HP Care Pack Services; see www.procurve.com/services for more details
- **Services:** HP offers a variety of services to meet your organization's needs; please see www.procurve.com/services for more details

HP ProCurve 2615-8-PoE Switch

Specifications

HP ProCurve 2615-8-PoE Switch (J9565A)

Ports	8 RJ-45 auto-sensing 10/100 PoE ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3af PoE); Media Type: Auto-MDIX; Duplex: half or full
	2 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; an IEEE 802.3u Type 100Base-TX; an IEEE 802.3ab 1000Base-T Gigabit Ethernet); or an SFP slot (for use with SFP transceivers)
	1 RJ-45 serial console port
Physical characteristics	
Dimensions	6.28(d) x 10(w) x 1.75(h) in. (15.95 x 9 x 4.45 cm) (1U height)
Weight	3.66 lb. (1.66 kg) including power adapter and power cord
Memory and processor	
Processor	Freescale PowerPC 8313 @ 333 MHz, 32 MB flash, 128 MB DDR2 SDRAM; packet buffer size: 512 KB dynamically allocated
Mounting	Mounts in an EIA-standard 19-inch telco rack or equipment cabinet; horizontal surface mounting; wall mounting
Performance	
100 Mb Latency	< 5.3 µs (LIFO 64-byte packets)
1000 Mb Latency	< 2.7 µs (LIFO 64-byte packets)
Throughput	4.1 million pps
Switching capacity	5.6 Gbps
MAC address table size	8,000 entries
Environment	
Operating temperature	32°F to 113°F (0°C to 45°C)
Operating relative humidity	15% to 95% @ 104°F (40°C), non-condensing
Non-operating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
Non-operating/Storage relative humidity	15% to 95% @ 149°F (65°C), non-condensing
Altitude	up to 10,000 ft. (3 km)
Acoustic	Power: 0 dB, Pressure: 0 dB
Electrical characteristics	
Description	Use only the external power adapter module (5070-6082, PA1 AC adapter) supplied with this product
Maximum heat dissipation	87 BTU/hr (91.79 kJ/hr)
Voltage	100-240 VAC
Current	1.5 A
Idle power	11 W
Maximum power rating	86 W
PoE power	67 W
Frequency	50 / 60 Hz
Notes	Idle power is the actual power consumption of the device with no ports connected. 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 total power budget available to all PoE ports.
Safety	cUL (CSA 22.2 No. 60950); CE Labeled; UL 60950-1; UL Listed; CAN/CSA 22.2 No. 60950; EN 60825; AS/NZS 60950; IEC 60950-1; EN 60950-1
Emissions	FCC part 15 Class A; VCCI Class A; EN 55022 Class A; CISPR 22 Class A; ICES-003 (Canada); AS/NZS CISPR 22; IEC/EN 61000-3-2; IEC/EN 61000-3-3; IEC 61000:4-2, 4-3, 4-4, 4-5, 4-6, 4-8, 4-11
Immunity	
Generic	EN 55024, CISPR 24
EN	EN 55024, CISPR 24
ESD	IEC 61000-4-2
Radiated	IEC 61000-4-3
EFT/Burst	IEC 61000-4-4
Surge	IEC 61000-4-5
Conducted	IEC 61000-4-6
Power frequency magnetic field	IEC 61000-4-8
Voltage dips and interruptions	IEC 61000-4-11
Harmonics	EN 61000-3-2, IEC 61000-3-2
Flicker	EN 61000-3-3, IEC 61000-3-3
Management	HP ProCurve Manager Plus; HP ProCurve Manager (included); command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C); IEEE 802.3 Ethernet MIB; Repeater MIB; Ethernet Interface MIB
Notes	When using mini-GBICs with this product, mini-GBICs with revision "B" or later (product number ends with the letter "B" or later, e.g., J4858B, J4859C) are required.
	This product comes with a power supply clip adapter. The adapter dimensions are 1.7(d) x 10.7(w) x 3.8(h) in. (4.35 x 27.25 x 9.6 cm). The weight of the power supply clip adapter is .31 lb (.14 kg).
Services	3-year, 4-hour onsite, 13x5 coverage for hardware (U4683E)
	3-year, 4-hour onsite, 24x7 coverage for hardware (U4835E)

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Specifications (continued)

	HP ProCurve 2615-8-PoE Switch (J9565A)
	3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support (U6321E) 3-year, 24x7 SW phone support, software updates (UF792E) 4-year, 4-hour onsite, 13x5 coverage for hardware (UR948E) 4-year, 4-hour onsite, 24x7 coverage for hardware (UR949E) 4-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR950E) 4-year, 24x7 SW phone support, software updates (UR951E) 5-year, 4-hour onsite, 13x5 coverage for hardware (UR952E) 5-year, 4-hour onsite, 24x7 coverage for hardware (UR953E) 5-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone (UR954E) 5-year, 24x7 SW phone support, software updates (UR955E) Refer to the HP website at www.procurve.com/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	**Denial of service protection** Automatic Filtering of well known Denial of Service Packets **Device management** RFC 1591 DNS (client) Multiple Configuration Files Multiple Software Images SSHv1/SSHv2 Secure Shell TACACS/TACACS+ Web UI **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 IEEE 802.3 Type 10BASE-T IEEE 802.3ab 1000BASE-T IEEE 802.3ad Link Aggregation Control Protocol (LACP) IEEE 802.3af Power over Ethernet IEEE 802.3u 100BASE-X IEEE 802.3x Flow Control RFC 768 UDP RFC 783 TFTP Protocol (revision 2) RFC 792 ICMP RFC 793 TCP RFC 826 ARP RFC 854 TELNET RFC 868 Time Protocol RFC 951 BOOTP RFC 1058 RIPv1 RFC 1350 TFTP Protocol (revision 2) RFC 1723 RIP v2 RFC 1812 IPv4 Routing RFC 2030 Simple Network Time Protocol (SNTP) v4 RFC 2131 DHCP RFC 2453 RIPv2 UDLD (Uni-directional Link Detection) **IP multicast** RFC 3376 IGMPv3 (host joins only) **IPv6** RFC 1981 IPv6 Path MTU Discovery RFC 2460 IPv6 Specification RFC 2925 Remote Operations MIB (Ping only) RFC 3315 DHCPv6 (client only) RFC 3513 IPv6 Addressing Architecture RFC 3596 DNS Extension for IPv6 RFC 4022 MIB for TCP RFC 4113 MIB for UDP RFC 4251 SSHv6 Architecture RFC 4252 SSHv6 Authentication RFC 4253 SSHv6 Transport Layer RFC 4293 MIB for IP RFC 4419 Key Exchange for SSH RFC 4443 ICMPv6 RFC 4861 IPv6 Neighbor Discovery RFC 4862 IPv6 Stateless Address Auto-configuration **MIBs** RFC 1213 MIB II RFC 1493 Bridge MIB RFC 2021 RMONv2 MIB RFC 2613 SMON MIB RFC 2618 RADIUS Client MIB RFC 2620 RADIUS Accounting MIB RFC 2665 Ethernet-Like-MIB RFC 2668 802.3 MAU MIB RFC 2674 802.1p and IEEE 802.1Q Bridge MIB RFC 2737 Entity MIB (Version 2) RFC 2863 The Interfaces Group MIB **Network management** IEEE 802.1AB Link Layer Discovery Protocol (LLDP) RFC 1098 A Simple Network Management Protocol (SNMP) RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events) RFC 3176 sFlow SNMPv1/v2c/v3 **QoS/Cos** RFC 2474 Diffserv precedence, with 4 queues per port RFC 2475 DiffServ Architecture RFC 2597 DiffServ Assured Forwarding (AF) RFC 2598 DiffServ Expedited Forwarding (EF) Ingress Rate Limiting **Security** IEEE 802.1X Port Based Network Access Control RFC 1492 TACACS+ RFC 2138 RADIUS Authentication RFC 2866 RADIUS Accounting Access Control Lists (ACLs) MAC Authentication MAC Lockdown MAC Lockout Port Security Secure Sockets Layer (SSL) Web Authentication

HP ProCurve 2615-8-PoE Switch accessories

Transceivers

HP ProCurve Gigabit-SX-LC Mini-GBIC (J4858C)
HP ProCurve Gigabit-LX-LC Mini-GBIC (J4859C)
HP ProCurve Gigabit-LH-LC Mini-GBIC (J4860C)
HP ProCurve 100-FX SFP-LC Transceiver (J9054B)
HP ProCurve 100-BX-D SFP-LC Transceiver (J9099B)
HP ProCurve 100-BX-U SFP-LC Transceiver (J9100B)
HP ProCurve 1000-BX-D SFP-LC Mini-GBIC (J9142B)
HP ProCurve 1000-BX-U SFP-LC Mini-GBIC (J9143B)

Software

HP ProCurve Manager 3.10 (-)
HP ProCurve Network Immunity Manager 2.0 software--50-device license (J9161A)
HP ProCurve Network Immunity Manager 2.0 software--unlimited-device license (J9163A)
HP ProCurve Manager Plus 3.10 software with 50-device license (J9174A)
HP ProCurve Manager Plus 3.10 software with unlimited-device license (J9177A)
HP ProCurve Identity Driven Manager 3.0 software--500-user license (J9438A)
HP ProCurve Identity Driven Manager 3.0 software--unlimited-user license (J9439A)

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ProCurve Networking