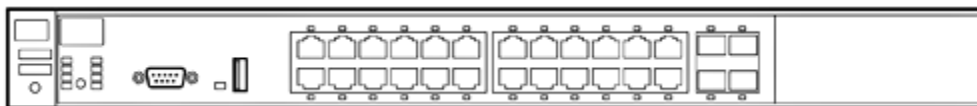
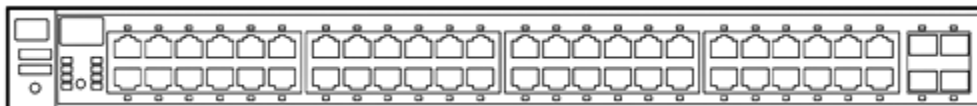


Overview

HP ProCurve Switch 2900-24G



HP ProCurve Switch 2900-48G



Models

HP ProCurve Switch 2900-24G
HP ProCurve Switch 2900-48G

J9049A
J9050A

Key features

- Access layer switch
- Enterprise-class features
- Layer 2 and Layer 3 lite feature set
- Scalable 10/100/1000 connectivity
- Integrated 10-GbE uplinks

Introduction

The HP ProCurve Switch 2900 Series consists of two switches: the HP ProCurve Switch 2900-24G with 24 10/100/1000 ports and the HP ProCurve Switch 2900-48G with 48 10/100/1000 ports. Both have four dual-personality ports for 10/100/1000 or mini-GBIC connectivity. In addition, by including four integrated 10-Gigabit Ethernet ports (two CX4 and two X2), the 2900 series offers the most flexible and easy-to-deploy stacking and uplinks in its class. Together with static routing, robust security and management features, free lifetime warranty, and free software updates, the 2900 series is a cost-effective, future-proof solution for customers who are building high-performance networks.

Features and Benefits

Management

- **Port mirroring:** enables traffic on a port to be simultaneously sent to a network analyzer for monitoring
- **sFlow (RFC 3176):** provides scalable, ASIC-based, wire-speed network monitoring and accounting with no impact on network performance; this allows network operators to gather a variety of sophisticated network statistics and information for capacity planning and real-time network monitoring purposes
- **IEEE 802.1AB Link Layer Discovery Protocol (LLDP):** automated device discovery protocol for easy mapping by network management applications
- **RMON and XRMON:** provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events
- **Command authorization:** leverages RADIUS to link a custom list of CLI commands to individual network administrator's login; also provides an audit trail
- **Friendly port names:** allow assignment of descriptive names to ports
- **Dual flash images:** provides independent primary and secondary OS files for backup while upgrading
- **Find-Fix-and-Inform:** finds and fixes common network problems automatically, then informs administrator
- **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

Connectivity

- **NEW IPv6:**



Overview

- **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
- **MLD snooping:** forwards IPv6 multicast traffic to the appropriate interface; prevents IPv6 multicast traffic from flooding the network
- **Plug-and-Play 10 Gbps Ethernet for stacking and uplink:** four integrated 10-GbE ports (two CX4 and two X2) built in on the switch
- **Dual-personality functionality:** four 10/100/1000 ports or SFP slots for optional fiber connectivity such as Gigabit-SX, -LX, -LH, or 100-FX
- **Stacking capability:** single IP address management for a virtual stack of up to 16 switches, including the HP ProCurve Switch 2500 Series, 2510 Series, 2600 Series, 2800 Series, 2810 Series, 2900 Series, 3400cl Series, 3500yl Series, 4200vl Series, 6108, 6200yl-24G-mGBIC, and 6400cl Series
- **Auto-MDIX:** automatically adjusts for straight-through or crossover cables on all 10/100/1000 ports

Performance

- **High-performance architecture:** 115 Gbps switching fabric with up to 74 million pps (Switch 2900-24G) and 173 Gbps switching fabric with up to 110 million pps (Switch 2900-48G)
- **Selectable queue configurations:** increase performance by selecting the number of queues and associated memory buffering that best meet the requirements of your network applications

Resiliency and high availability

- **IEEE 802.3ad Link Aggregation Protocol (LACP) and ProCurve trunking:** support up to 24 trunks, each with up to 8 links (ports) per trunk
- **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

Layer 2 switching

- **VLAN support and tagging:** supports the IEEE 802.1Q (4,096 VLAN IDs) and 256 VLANs simultaneously
- **GARP VLAN Registration Protocol:** allows automatic learning and dynamic assignment of VLANs
- **Jumbo frames:** on Gigabit and 10-Gigabit ports, allow high-performance remote backup and disaster-recovery services

Layer 3 routing

- **Layer 3 IP routing:**
 - **Static IP routing:** provides manually configured routing; includes ECMP capability
 - **RIP:** provides RIPv1 and RIPv2 routing at media speed

Security

- **NEW USB Secure Autorun** (requires HP ProCurve Manager Plus): deploys, diagnoses, and updates switch using USB flash drive; works with secure credential to prevent tampering
- **Port security:** allows access only to specified MAC addresses, which can be learned or specified by the administrator
- **MAC address lockout:** prevents configured particular MAC addresses from connecting to the network
- **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:** authenticates from Web browser for clients that do not support IEEE 802.1X supplicant; customized remediation can be processed on an external Web server
 - **MAC-based authentication:** client is authenticated with the RADIUS server based on client's MAC address
- **Authentication flexibility:**
 - **Multiple IEEE 802.1X users per port:** provides authentication of up to eight IEEE 802.1X users per port; prevents user "piggybacking" on another user's IEEE 802.1X authentication
 - **Concurrent IEEE 802.1X and Web or MAC authentication schemes per port:** switch port will accept any of IEEE 802.1X and either Web or MAC authentications

Overview

- **STP BPDU port protection:** blocks Bridge Protocol Data Units (BPDUs) on ports that do not require BPDUs, preventing forged BPDU attacks
- **Source-port filtering:** allows only specified ports to communicate with each other
- **Secure FTP:** allows secure file transfer to/from the switch; protects against unwanted file downloads or unauthorized copying of switch configuration file
- **RADIUS/TACACS+:** eases switch management security administration by using a password authentication server
- **Secure Shell (SSHv2):** encrypts all transmitted data for secure, remote command-line interface (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
- **Switch management logon security:** can require either RADIUS or TACACS+ authentication for secure switch CLI logon
- **Custom banner:** displays security policy when users log in to the switch

Convergence

- **IP multicast snooping (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
- **Software updates:** free downloads from the Web

Quality of Service (QoS)

- **Traffic prioritization (IEEE 802.1p):** allows real-time traffic classification into eight priority levels mapped to eight 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

Warranty and support

- **ProCurve Lifetime Warranty:** for as long as you own the product, with next-business-day advance replacement (available in most countries).
- **Electronic and telephone support:** limited electronic and telephone support is available from HP. Refer to the HP Web site at www.procurve.com/support for details on the support provided and the period during which support is available.
- **Software releases:** refer to the HP Web site at www.procurve.com/support for details on the software releases provided and the period during which software releases are available.

Overview

Services

HP ProCurve Switch 2900-24G	3-year, 4-hour onsite, 13x5 coverage for hardware	U2855E
	3-year, 4-hour onsite, 24x7 coverage for hardware	U2856E
	3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support	U6304E
	3-year, 24x7 SW phone support, software updates	UE262E
	Installation with minimum configuration, system-based pricing	U4826E
	Installation with HP-provided configuration, system-based pricing	U4830E
	Refer to the HP Web site 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.	

HP ProCurve Switch 2900-48G	3-year, 4-hour onsite, 13x5 coverage for hardware	H4496E
	3-year, 4-hour onsite, 24x7 coverage for hardware	H2893E
	3-year, 4-hour onsite, 24x7 coverage for hardware, 24x7 software phone support	U6319E
	3-year, 24x7 SW phone support, software updates	UE264E
	Installation with minimum configuration, system-based pricing	U4826E
	Refer to the HP Web site 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.	

Accessories

HP ProCurve 620 Redundant/External Power Supply	J8696A
HP ProCurve 100-FX SFP-LC Transceiver	J9054B
NEW HP ProCurve 100-BX-D SFP-LC Transceiver	J9099B
NEW HP ProCurve 100-BX-U SFP-LC Transceiver	J9100B
HP ProCurve Gigabit-SX-LC Mini-GBIC	J4858C
HP ProCurve Gigabit-LX-LC Mini-GBIC	J4859C
HP ProCurve Gigabit-LH-LC Mini-GBIC	J4860C
NEW HP ProCurve 1000-BX-D SFP-LC Mini-GBIC	J9142B
NEW HP ProCurve 1000-BX-U SFP-LC Mini-GBIC	J9143B
HP ProCurve 10-GbE X2-SC SR Optic	J8436A
NEW HP ProCurve 10-GbE X2-SC LRM Optic	J9144A
HP ProCurve 10-GbE X2-SC LR Optic	J8437A
HP ProCurve 10-GbE X2-SC ER Optic	J8438A
HP ProCurve 10-GbE X2-CX4 Transceiver	J8440B
HP ProCurve 10-GbE CX4 Media Converter	J8439A
HP ProCurve Manager 2.3	-

Technical Specifications

HP ProCurve Switch 2900-24G_PL (J9049A_PL)	Ports	20 auto-sensing 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T); Media Type: Auto-MDIX; Duplex: 10Base-T/100Base-TX: half or full; 1000Base-T: full only 2 CX4 10-GbE ports (IEEE 802.3ak Type 10Gbase-CX4); Duplex: full only 2 CX4 10-GbE ports (IEEE 802.3ak Type 10Gbase-CX4); Duplex: full only 1 RS-232C DB-9 console port 4 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; IEEE 802.3u Type 100Base-TX; IEEE 802.3ab 1000Base-T Gigabit Ethernet) or an open mini-GBIC slot (for use with mini-GBIC transceivers)														
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Technical Specifications

	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	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	
Emissions	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A	
Immunity	EN	EN 55024, CISPR 24
	ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD
	Radiated	IEC 61000-4-3; 3 V/m
	EFT/Burst	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
	Surge	IEC 61000-4-5; 1 kV/2 kV AC
	Conducted	IEC 61000-4-6; 3 V
	Power frequency magnetic field	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
	Voltage dips and interruptions	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
	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)	
Notes	One 0.5 m 10-GbE CX4 cable is included. 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. HP ProCurve 10-GbE CX4 Media Converter (J8439A) can be used only with the two fixed CX4 ports.	
Standards and Protocols	Device Management	RFC 1591 DNS (client) HTML and telnet management
	General Protocols	IEEE 802.1D MAC Bridges IEEE 802.1p Priority IEEE 802.1Q VLANs IEEE 802.1s Multiple Spanning Trees IEEE 802.1v VLAN classification by Protocol and Port IEEE 802.1w Rapid Reconfiguration of Spanning Tree IEEE 802.3ad Link Aggregation Control Protocol (LACP) 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 2030 Simple Network Time Protocol (SNTP) v4

IP Multicast

IPv6

RFC 2131 DHCP
RFC 2453 RIPv2
RFC 3046 DHCP Relay Agent Information Option
RFC 3376 IGMPv3
RFC 1981 IPv6 Path MTU Discovery
RFC 2460 IPv6 Specification
RFC 2710 Multicast Listener Discovery (MLD) for IPv6
RFC 2925 Remote Operations MIB (Ping only)
RFC 3019 MLDv1 MIB
RFC 3315 DHCPv6 (client only)
RFC 3513 IPv6 Addressing Architecture
RFC 3596 DNS Extension for IPv6
RFC 3810 MLDv2 (host joins only)
RFC 4022 MIB for TCP
RFC 4113 MIB for UDP
RFC 4251 SSHv6 Architecture
RFC 4252 SSHv6 Authentication
RFC 4253 SSHv6 Transport Layer
RFC 4254 SSHv6 Connection
RFC 4293 MIB for IP
RFC 4419 Key Exchange for SSH
RFC 4443 ICMPv6
RFC 4541 IGMP & MLD Snooping Switch
RFC 4861 IPv6 Neighbor Discovery
RFC 4862 IPv6 Stateless Address Auto-configuration

MIBs

RFC 1213 MIB II
RFC 1493 Bridge MIB
RFC 1724 RIPv2 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 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events)
RFC 3176 sFlow
ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)
SNMPv1/v2c/v3
XRMON

Technical Specifications

	QoS/Cos	RFC 2474 DiffServ Precedence, including 8 queues/port RFC 2597 DiffServ Assured Forwarding (AF) RFC 2598 DiffServ Expedited Forwarding (EF)
	Security	IEEE 802.1X Port Based Network Access Control RFC 1492 TACACS+ RFC 2138 RADIUS Authentication RFC 2866 RADIUS Accounting Secure Sockets Layer (SSL) SSHv1/SSHv2 Secure Shell

HP ProCurve Switch 2900-48G_PL (J9050A_PL)	Ports	44 auto-sensing 10/100/1000 ports (IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T); Media Type: Auto-MDIX; Duplex: 10Base-T/100Base-TX: half or full; 1000Base-T: full only 2 CX4 10-GbE ports (IEEE 802.3ak Type 10Gbase-CX4); Duplex: full only 2 open 10-GbE X2 transceiver slots 1 RS-232C DB-9 console port 4 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10Base-T; IEEE 802.3u Type 100Base-TX; IEEE 802.3ab 1000Base-T Gigabit Ethernet) or an open mini-GBIC slot (for use with mini-GBIC transceivers)
	Physical characteristics	Dimensions 16.93(d) x 17.44(w) x 1.73(h) in. (43.0 x 44.3 x 4.4 cm) (1U height) Weight 15.43 lb. (7 kg)
	Memory and processor	Processor Freescale PowerPC 8540 @ 667 MHz, 4 MB flash; packet buffer size: 22.5 MB
	Mounting	Mounts in an EIA-standard 19 in. telco rack or equipment cabinet (hardware included); horizontal surface mounting only.
	Performance	1000 Mb Latency < 3.7 is (FIFO 64-byte packets) 10 Gbps Latency < 2.1 is (FIFO 64-byte packets) Throughput up to 110 million pps Routing/switching capacity 148 Gbps Switching capacity 173 Gbps Routing table size 2000 entries MAC address table size 64,000 entries
	Environment	Operating temperature 32°F to 131°F (0°C to 55°C); 32°F to 104°F (0° to 40°C) when using any X2 optic or transceiver 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 90% @ 149°F (65°C), non-condensing Altitude up to 15,000 ft. (4.6 km)

Technical Specifications

Electrical characteristics	Acoustic Description	Power: 52 dB; DIN 45635T.19 per ISO 7779 The switch automatically adjusts to any voltage between 100-127 and 200-240 volts and either 50 or 60 Hz	
	Maximum heat dissipation	683 BTU/hr (721 kJ/hr)	
	Voltage	100-127 / 200-240 VAC	
	Current	4.0 / 2.0 A	
	Power consumption	200 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 Emissions Immunity		CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950
			FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A
		EN	EN 55024, CISPR 24
ESD		IEC 61000-4-2; 4 kV CD, 8 kV AD	
Radiated EFT/Burst		IEC 61000-4-3; 3 V/m IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)	
Surge Conducted		IEC 61000-4-5; 1 kV/2 kV AC IEC 61000-4-6; 3 V	
Power frequency magnetic field		IEC 61000-4-8; 1 A/m, 50 or 60 Hz	
Voltage dips and interruptions		IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods	
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)	
Notes		One 0.5 m 10-GbE CX4 cable is included. 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. HP ProCurve 10-GbE CX4 Media Converter (J8439A) can be used only with the two fixed CX4 ports.	
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	General Protocols	IEEE 802.1D MAC Bridges IEEE 802.1p Priority IEEE 802.1Q VLANs IEEE 802.1s Multiple Spanning Trees IEEE 802.1v VLAN classification by Protocol and Port IEEE 802.1w Rapid Reconfiguration of Spanning Tree IEEE 802.3ad Link Aggregation Control	

Technical Specifications

	Protocol (LACP)
	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 2030 Simple Network Time Protocol (SNTP) v4
	RFC 2131 DHCP
	RFC 2453 RIPv2
	RFC 3046 DHCP Relay Agent Information Option
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IP Multicast	
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	RFC 3513 IPv6 Addressing Architecture
	RFC 3596 DNS Extension for IPv6
	RFC 3810 MLDv2 (host joins only)
	RFC 4022 MIB for TCP
	RFC 4113 MIB for UDP
	RFC 4251 SSHv6 Architecture
	RFC 4252 SSHv6 Authentication
	RFC 4253 SSHv6 Transport Layer
	RFC 4254 SSHv6 Connection
	RFC 4293 MIB for IP
	RFC 4419 Key Exchange for SSH
	RFC 4443 ICMPv6
	RFC 4541 IGMP & MLD Snooping Switch
	RFC 4861 IPv6 Neighbor Discovery
	RFC 4862 IPv6 Stateless Address Auto-configuration
MIBs	RFC 1213 MIB II
	RFC 1493 Bridge MIB
	RFC 1724 RIPv2 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)

Technical Specifications

	RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm) and 9 (events)
	RFC 3176 sFlow
	ANSI/TIA-1057 LLDP Media
	Endpoint Discovery (LLDP-MED)
	SNMPv1/v2c/v3
	XRMON
QoS/Cos	RFC 2474 DiffServ Precedence, including 8 queues/port
	RFC 2597 DiffServ Assured Forwarding (AF)
	RFC 2598 DiffServ Expedited Forwarding (EF)
Security	IEEE 802.1X Port Based Network Access Control
	RFC 1492 TACACS+
	RFC 2138 RADIUS Authentication
	RFC 2866 RADIUS Accounting
	Secure Sockets Layer (SSL)
	SSHv1/SSHv2 Secure Shell

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