

## EX-series Switch Software Features Overview

---

Table 1 lists the EX-series switch software features and the JUNOS release in which they were introduced.

**Table 1: Summary of Software Features Available on EX-series Switches**

Feature Category	Feature	First Release
<b>Activity Logging and Monitoring</b>	J-Web event view for system log messages	JUNOS 9.0R2
	Real-time performance monitoring (RPM)	JUNOS 9.3R2
	System log (syslog)	JUNOS 9.0R2
	Traceroute tool in J-Web interface	JUNOS 9.0R2
<b>Administration</b>	Configuration rollback	JUNOS 9.0R2
	Confirmation of configuration changes	JUNOS 9.0R2
	Software upgrades	JUNOS 9.0R2
	Support for RADIUS external administrator databases	JUNOS 9.0R2
	Supports the following features for automating network operations and troubleshooting: <ul style="list-style-type: none"><li>■ Commit scripts</li><li>■ Operation scripts</li><li>■ Event policies</li></ul>	JUNOS 9.0R2
<b>Encapsulation</b>	802.1Q filtering and forwarding	JUNOS 9.0R2
	Ethernet:	JUNOS 9.0R2
	<ul style="list-style-type: none"><li>■ Media access control (MAC) encapsulation</li><li>■ 802.1p tagging</li></ul>	

**Table 1: Summary of Software Features Available on EX-series Switches** (continued)

Feature Category	Feature	First Release
<b>High Availability and Resiliency</b>	Graceful protocol restart for OSPF and BGP	JUNOS 9.0R2
	Graceful protocol restart for IS-IS	JUNOS 9.3R2
	Graceful Routing Engine switchover (GRES) for EX 4200 Virtual Chassis configurations	JUNOS 9.1R1
	Link aggregation	JUNOS 9.0R2
	Redundant trunk groups	JUNOS 9.0R2
	Virtual Chassis atomic software upgrade	JUNOS 9.3R2
	Virtual Chassis fast failover	JUNOS 9.3R2
	Virtual Chassis split and merge	JUNOS 9.3R2
	Virtual Chassis support for SFP uplink module ports	JUNOS 9.2R1
	Virtual Router Redundancy Protocol (VRRP)	JUNOS 9.0R2
<b>IP Address Management</b>	Dynamic Host Configuration Protocol (DHCP)	JUNOS 9.0R2
	Local DHCP server	JUNOS 9.3R2
	Static addresses	JUNOS 9.0R2
	DHCPv6 and IPv6 DNS	JUNOS 9.3R2
	DHCP server and relay with option 82 for Layer 2 VLAN	JUNOS 9.3R2
<b>Internet Protocols</b>	IPv4	JUNOS 9.0R2
	IPv6 (except multicast protocols)	JUNOS 9.3R2

**Table 1: Summary of Software Features Available on EX-series Switches** *(continued)*

<b>Feature Category</b>	<b>Feature</b>	<b>First Release</b>
<b>Layer 2 Network Protocols</b>	BPDU protection for spanning-tree protocols	JUNOS 9.1R1
	GARP VLAN Registration Protocol (GVRP)	JUNOS 9.1R1
	Link Layer Discovery Protocol (LLDP)	JUNOS 9.0R2
	Link Layer Discovery Protocol Media—Endpoint Discovery (LLDP-MED) with voice over IP (VoIP) integration	JUNOS 9.0R2
	Loop protection for spanning-tree protocols	JUNOS 9.1R1
	Private VLANs	JUNOS 9.3R2
	Q-in-Q tunneling	JUNOS 9.3R2
	Root protection for spanning-tree protocols	JUNOS 9.1R1
	Storm control	JUNOS 9.1R1
	Routed VLAN interfaces (RVIs)	JUNOS 9.0R2
	Spanning tree: <ul style="list-style-type: none"><li>■ Spanning Tree Protocol (STP)</li><li>■ Rapid Spanning Tree Protocol (RSTP)</li><li>■ Multiple Spanning Tree Protocol (MSTP)</li></ul>	JUNOS 9.0R2
	Unknown unicast forwarding	JUNOS 9.3R2
	VLAN range	JUNOS 9.2R1
	VLAN-tagged Layer 3 subinterface	JUNOS 9.2R1

**Table 1: Summary of Software Features Available on EX-series Switches (continued)**

Feature Category	Feature	First Release
<b>Layer 3 Protocols</b>	Bidirectional Forwarding Detection (BFD)	JUNOS 9.0R2
	Border Gateway Protocol (BGP)	JUNOS 9.0R2
	A separate software license is required for BGP and MBGP. See Software Licenses for the EX-series Switch Overview.	
	Intermediate System-to-Intermediate System (IS-IS)	JUNOS 9.0R2
	A separate software license is required for IS-IS. See Software Licenses for the EX-series Switch Overview.	
	IGMP snooping	JUNOS 9.1R1
	IGMP snooping with routed VLAN interfaces (RVIs)	JUNOS 9.2R1
	Internet Group Management Protocol (IGMP)	JUNOS 9.0R2
	Open Shortest Path First (OSPF)	JUNOS 9.0R2
	Protocol Independent Multicast Sparse Mode (PIM SM)	JUNOS 9.0R2
	See the <i>JUNOS Software Multicast Configuration Guide</i> at <a href="http://www.juniper.net/techpubs/software/junos/">http://www.juniper.net/techpubs/software/junos/</a> .	
	Protocol Independent Multicast Dense Mode (PIM DM)	JUNOS 9.3R2
	See the <i>JUNOS Software Multicast Configuration Guide</i> at <a href="http://www.juniper.net/techpubs/software/junos/">http://www.juniper.net/techpubs/software/junos/</a> .	
Protocol Independent Multicast Source Specific Multicast (PIM SSM)	JUNOS 9.3R2	
See the <i>JUNOS Software Multicast Configuration Guide</i> at <a href="http://www.juniper.net/techpubs/software/junos/">http://www.juniper.net/techpubs/software/junos/</a> .		
Routing Information Protocol version 1 (RIPv1) and RIPv2	JUNOS 9.0R2	
Single-source multicast	JUNOS 9.0R2	
Static routes	JUNOS 9.0R2	
Virtual routing and forwarding (VRF)—virtual routing instances	JUNOS 9.3R2	

**Table 1: Summary of Software Features Available on EX-series Switches** *(continued)*

Feature Category	Feature	First Release
	IPv6 protocols: OSPFv3, RIPng, IS-IS for IPv6, IPv6 BGP	JUNOS 9.3R2
<b>Security</b>	802.1X authentication	JUNOS 9.0R2
	Denial-of-service (DoS) and distributed DoS (DDoS) protection	JUNOS 9.0R2
	Firewall filters and rate limiting	JUNOS 9.0R2
	Dynamic firewall filters for 802.1X authentication	JUNOS 9.0R2
	Firewall filter processing points, additional	JUNOS 9.3R2
	Port security: <ul style="list-style-type: none"><li>■ Dynamic ARP inspection (DAI)</li><li>■ MAC limiting</li><li>■ MAC move limiting</li><li>■ Static ARP support</li></ul>	JUNOS 9.0R2
	Port security: <ul style="list-style-type: none"><li>■ IP source guard</li></ul>	JUNOS 9.2R1
	Port security: <ul style="list-style-type: none"><li>■ DHCP option 82</li></ul>	JUNOS 9.3R2
	MAC-based VLAN	JUNOS 9.2R1
	MAC RADIUS authentication	JUNOS 9.3R2
	Server fail fallback	JUNOS 9.3R2
	Unicast reverse-path forwarding (RPF)	JUNOS 9.3R2

**Table 1: Summary of Software Features Available on EX-series Switches** (continued)

Feature Category	Feature	First Release
<b>System Management</b>	JUNOS command-line interface (CLI)—For switch configuration and management through the console, Telnet, SSH, or J-Web CLI editor	JUNOS 9.0R2
	J-Web interface—For switch configuration and management	JUNOS 9.0R2
	J-Web license-management tool	JUNOS 9.1R1
	J-Web Port Troubleshooting tool	JUNOS 9.2R1
	Power over Ethernet (PoE) power management mode	JUNOS 9.3R2
	Simple Network Management Protocol version 1 (SNMPv1) and SNMPv2	JUNOS 9.0R2
	System logging (syslog) over IPv6	JUNOS 9.3R2
<b>Traffic Management</b>	Class of service (CoS)—Class-based queuing with prioritization	JUNOS 9.0R2
	Class-of-service (CoS) support on LAG interfaces	JUNOS 9.2R1
	JUNOS EZQoS for CoS	JUNOS 9.3R2
	Policing	JUNOS 9.0R2
	Port shaping and queue shaping	JUNOS 9.3R2
	Port mirroring	JUNOS 9.0R1
	sFlow monitoring technology	JUNOS 9.3R2
	Transparent bridging	JUNOS 9.0R2

- Related Topics**
- High Availability Features for EX-series Switches Overview
  - Layer 3 Protocols Supported on EX-series Switches
  - Layer 3 Protocols Not Supported on EX-series Switches
  - EX3200 and EX4200 Switches Hardware Overview

---

Published: 2009-11-23