



DANOS-Vyatta edition Supported Features

Release 1912

- March 2020

Release 2005a

- August 2020

Release 2009a

- October 2020

Feature Name	Standard	Cell-Site Router (CSR)	Virtual SD Edge (VSDE)	Branch SD Edge (BSDE)	Universal SD Edge (USDE)	Limitations/Comments
Interfaces						
Layer 3 Interface support		Yes	Yes	Yes	Yes	
Interface Traffic Statistics and traffic speed rate		Yes	Yes	Yes	Yes	
Support for Sub-interface (logical interface and encapsulations - single/double tag vlans.)		Yes	Yes	Yes	Yes	
Layer 2						
Virtual Local Area Network (VLAN)						
Virtual LANs with Port-based VLANs	IEEE 802.1Q (2005)	Yes	Yes	Yes	Yes	
Routed VLAN interface		Yes	Yes	Yes	Yes	
Port based VLAN interface		Yes	Yes	Yes	Yes	
802.1q		Yes	Yes	Yes	Yes	
QinQ		Yes	Yes	Yes	Yes	
Port Mirroring		Yes	No	No	No	
STP						
STP		Yes	Yes	Yes	Yes	
MSTP		Yes	Yes	Yes	Yes	
RSTP		Yes	Yes	Yes	Yes	
Link Aggregation						
Link Aggregation Control Protocol (LACP)		Yes	Yes	Yes	Yes	
LAG load balancing		Yes	Yes	Yes	Yes	
Static link aggregation group		Yes	Yes	Yes	Yes	
Tunneling						
GRE (L2 bridging)		No	Yes	Yes	Yes	
IPIP (IPIP, IPIP6, IPIP, SIT)		No	Yes	Yes	Yes	
L2TPv3		No	Yes	Yes	Yes	
VXLAN/VTEP		No	Yes	Yes	Yes	
Point-to-Point Protocol over Ethernet (PPPoE)		No	Yes	Yes	Yes	
Link Aggregaton						
Bonding/LACP		Yes	Yes	Yes	Yes	
Layer 3						
Address Resolution Protocol (ARP)/Neighbor Discovery (ND)						
Ethernet ARP	RFC 826	Yes	Yes	Yes	Yes	
Ipv6 Neighbor Discovery		Yes	Yes	Yes	Yes	
Path MTU						
Path MTU for IPv4 & IPv6	RFC 1191, RFC 8211	Yes	Yes	Yes	Yes	
Routing						
Transmission of IP Datagrams over Ethernet	RFC 894	Yes	Yes	Yes	Yes	
Congestion Control in IP/TCP Networks	RFC 896	Yes	Yes	Yes	Yes	
IP Broadcast	RFC 919	Yes	Yes	Yes	Yes	
IP Broadcast in the Presence of Subnets	RFC 922	Yes	Yes	Yes	Yes	
IP Subnetting	RFC 950	Yes	Yes	Yes	Yes	
Classless Inter-Required-P0 Routing (CIDR)	RFC 1519	Yes	Yes	Yes	Yes	
Requirements for IP Version 4 Routers	RFC 1812	Yes	Yes	Yes	Yes	
Route Redistribution across OSPF and BGP		Yes	Yes	Yes	Yes	
VLAN routing		Yes	Yes	Yes	Yes	
VRF lite		Yes	Yes	Yes	Yes	
Reverse-path forwarding (RPF)		No	Yes	Yes	Yes	
Unnumbered interfaces		No	Yes	Yes	Yes	
IPv6 Addressing		Yes	Yes	Yes	Yes	
Border Gateway Protocol (BGP)						
Border Gateway Protocol, version 4	RFC 4271	Yes	Yes	Yes	Yes	
BGP Peering sessions between IPv4 and IPv6 Peers		Yes	Yes	Yes	Yes	
BGP Community Attributes	RFC 1997	Yes	Yes	Yes	Yes	
BGP Route Flap Damping	RFC 2439	Yes	Yes	Yes	Yes	
BGP Route Reflection	RFC 4456	Yes	Yes	Yes	Yes	
Autonomous System Confederations for BGP	RFC 5065	Yes	Yes	Yes	Yes	
Capabilities Negotiation with BGP-4	RFC 5492	Yes	Yes	Yes	Yes	
Applications of BGP-4 in the Internet	RFC 1772	Yes	Yes	Yes	Yes	
Protection of BGP Sessions Via the TCP MD5 Signature Option	RFC 2385	Yes	Yes	Yes	Yes	
Route Refresh Capability for BGP-4	RFC 2918	Yes	Yes	Yes	Yes	
BGP Support for Four-Octet AS Number Space	RFC 4893	Yes	Yes	Yes	Yes	
Subcodes for BGP Cease Notifications	RFC 4486	Yes	Yes	Yes	Yes	
BGPv4 MD5 Authentication	RFC 2385	Yes	Yes	Yes	Yes	
BGP soft configuration		Yes	Yes	Yes	Yes	
BFD Trigger for BGP		Yes	Yes	Yes	Yes	
Route Target Filter		Yes	Yes	Yes	Yes	
BGP - Outbound Route Filter	RFC 5292	Yes	Yes	Yes	Yes	
MP-BGP Support	RFC 4760	Yes	Yes	Yes	Yes	
BGP Nexthop Tracking		Yes	Yes	Yes	Yes	
Support to Use of BGP-4 Multiprotocol Extensions for IPv6 Inter-Domain Routing	RFC 2545	Yes	Yes	Yes	Yes	
Open Shortest Path First (OSPF)						
Open Shortest Path First Version 2	RFC 2328	Yes	Yes	Yes	Yes	
Applicability statement for OSPF	RFC 1370	Yes	Yes	Yes	Yes	
OSPF Opaque LSA	RFC 5250	Yes	Yes	Yes	Yes	
Passive Interface Support for OSPFv2		Yes	Yes	Yes	Yes	
OSPF Not-So-Stubby-Area (NSSA) Option	RFC 3101	Yes	Yes	Yes	Yes	
BFD offload for OSPFv2		Yes	Yes	Yes	Yes	
OSPF LSA Throttling		Yes	Yes	Yes	Yes	
Virtual link		Yes	Yes	Yes	Yes	
Support for Multi-instance OSPF		Yes	Yes	Yes	Yes	
OSPFv3 for IPv6 Support	RFC 5340	Yes	Yes	Yes	Yes	
Passive Interface Support in OSPFv3		Yes	Yes	Yes	Yes	
BFD Offload for OSPFv3		Yes	Yes	Yes	Yes	
Support for OSPFv2 process within a VRF (non-default VRF)		Yes	Yes	Yes	Yes	
Support for MD5 Authentication for OSPFv2		Yes	Yes	Yes	Yes	
Bidirectional Forwarding Detection (BFD)						
BFD		Yes	Yes	Yes	Yes	
BFD for IPv4 single hop		Yes	Yes	Yes	Yes	
Generic Application for BFD		Yes	Yes	Yes	Yes	
BFD Multi-hop		Yes	Yes	Yes	Yes	
BFD Over OSPFv2/v3 / Static route		Yes	Yes	Yes	Yes	
Support for HW offloaded BFD		Yes	Yes	Yes	Yes	
BFD Over OSPFv2/v3 / Static route		Yes	Yes	Yes	Yes	
BFD over BGP (h/w BFD Support)		Yes	Yes	Yes	Yes	
BFD by using IPv6 addressing		Yes	Yes	Yes	Yes	
Support for HW offloaded BFD		Yes	Yes	Yes	Yes	
Support for upto 10 msec timer for BFD		Yes	Yes	Yes	Yes	
Policy Based Routing (PBR)						
Support to override default IP forwarding with an explicit rule to forward packed to specific next hop.		No	Yes	Yes	Yes	
Support Multiple PBR rules on same physical/logical interface		No	Yes	Yes	Yes	
Static Routing						
IPv4 and IPv6 Static Route Configuration		Yes	Yes	Yes	Yes	
Support of multiple static routes to an interface and sub-interface		Yes	Yes	Yes	Yes	
Support for Floating Static Routes		Yes	Yes	Yes	Yes	
Support of cost assignments for static routes.		Yes	Yes	Yes	Yes	
Virtual Router Redundancy Protocol (VRRP)						
VRRP version 2		Yes	Yes	Yes	Yes	
VRRP Version 3 for IPv4	RFC 5798	Yes	Yes	Yes	Yes	
VRRP Interface Tracking		Yes	Yes	Yes	Yes	
Network Address Translation						
NAT v4, v6		No	Yes	Yes	Yes	
CGNAT		No	Yes	Yes	Yes	
Application Layer Gateway		No	Yes	Yes	Yes	
Stateful Fallover		No	Yes	Yes	Yes	
Multicast						
Protocol Independent Multicast (PIM)						
PIM - Sparse Mode (PIM-SM)	RFC 4601	Yes	Yes	Yes	Yes	
Bootstrap Router (BSR) Mechanism for PIM	RFC 5059	Yes	Yes	Yes	Yes	
Static Rendezvous Point Configuration		Yes	Yes	Yes	Yes	
PIM - Dense Mode (PIM-DM): Protocol Specification (Revised)	RFC 3973	Yes	Yes	Yes	Yes	
PIM - Source Specific Multicast (PIM-SSM)		Yes	Yes	Yes	Yes	
Multicast Source Discovery Protocol (MSDP)	RFC 3618	Yes	Yes	Yes	Yes	
Support for More than 32 PIM Interfaces		Yes	Yes	Yes	Yes	
Source-Specific Multicast for IP	RFC 4607	Yes	Yes	Yes	Yes	
Source-Specific Protocol-Independent Multicast in 232/8	RFC 4608	Yes	Yes	Yes	Yes	
Overview of Source-Specific Multicast (SSM)	RFC 3569	Yes	Yes	Yes	Yes	
Internet Group Management Protocol (IGMP)						
IGMP, Version 2	RFC 2236	Yes	Yes	Yes	Yes	
IGMP, Version 3	RFC 3376	Yes	Yes	Yes	Yes	
IGMP report suppression for v1, v2 and v3		Yes	Yes	Yes	Yes	
Quality of Service (QoS)						
QoS General						

HQoS 3 Level		Yes	Yes	Yes	Yes	Different QoS features stacked in layers with at least three layers, however not all QoS features allowed at every layer.
QoS on L3 interface		Yes	Yes	Yes	Yes	
Classification based on DSCP		Yes	Yes	Yes	Yes	
Shaping, marking, policing		Yes	Yes	Yes	Yes	
Shaping per Virtual Port (Vlan ID)		Yes	Yes	Yes	Yes	
Shaping per Physical Port		Yes	Yes	Yes	Yes	
Support of 8 Queues. Default queues, 2 Priority, 4 Assured Forwarding, 1 Best Effort, 1 Expedited Forwarding		Yes	Yes	Yes	Yes	
At least 2 WRED levels within service egress assured classes		Yes	Yes	Yes	Yes	
QoS Marking for self generated control plane traffic (BGP, OSPF)		Yes	Yes	Yes	Yes	All control protocols originating from DANOS-Vyatta edition are automatically marked with DSCP value CS6.
Maximum Bandwidth Per Queue, Configurable Weight and Queue depth, Tail-Drop.		Yes	Yes	Yes	Yes	Weight is configurable per queue, but queue depth is only configurable per traffic-class.
Control plane policing (CoPP)		No	Yes	Yes	Yes	
VPN						
IPsec (interface based/Virtual Tunnel Interfaces)		No	Yes	Yes	Yes	
IPsec (policy based)		No	Yes	Yes	Yes	
IPsec Virtual Feature Point (VFP) interfaces		No	Yes	Yes	Yes	
IPsec Site-to-site over IPv4/IPv6		No	Yes	Yes	Yes	
Dynamic Multipoint VPN (DMVPN)		No	Yes	Yes	Yes	
OpenLDAP auth		No	Yes	Yes	Yes	
Open VPN		No	Yes	Yes	Yes	
Management						
General						
CLI access via console, telnet and SSH		Yes	Yes	Yes	Yes	
Telnet/SSH server		Yes	Yes	Yes	Yes	
Authentication using tacacs+/radius client		Yes	Yes	Yes	Yes	
ACM/RBAC		Yes	Yes	Yes	Yes	
Extended ping and traceroute		Yes	Yes	Yes	Yes	
SNMP v1, v2, v3, server		Yes	Yes	Yes	Yes	
DHCP v4/v6 client		Yes	Yes	Yes	Yes	
DHCP v4/v6 relay		Yes	Yes	Yes	Yes	
DHCP v4/v6 server		Yes	Yes	Yes	Yes	
NTP server		Yes	Yes	Yes	Yes	
Syslog		Yes	Yes	Yes	Yes	
File Upload/Download using FTP/TFTP/SFTP/SCP		Yes	Yes	Yes	Yes	
Management VRF		Yes	Yes	Yes	Yes	
DNS: Host config, Dynamic DNS, DNS forwarding		Yes	Yes	Yes	Yes	
Patch Upgrade Mechanism with & without ONIE		Yes	Yes	Yes	Yes	
Persistent configuration across Image Upgrades		Yes	Yes	Yes	Yes	
NETCONF	RFC 6241	Yes	Yes	Yes	Yes	
Netconf support for Rollback		Yes	Yes	Yes	Yes	
Link Layer Discovery Protocol (LLDP)		Yes	Yes	Yes	Yes	
REST		Yes	Yes	Yes	Yes	
Path Monitor		Yes	Yes	Yes	Yes	
SPAN/RSPAN/ERSPAN		No	Yes	Yes	Yes	
Zero Touch Provisioning (zTP)		Yes	No	No	No	
TWAMP						
TWAMP Active Performance Monitoring		Yes	Yes	Yes	Yes	Integrated with Path Monitor to provide continuous monitoring and stats collection.
TWAMP Active Performance Monitoring IOT with Third Party Controller	RFC 5357	Yes	Yes	Yes	Yes	Server/Session-Reflector will interoperate with a 3rd party Control-Client/Session-Sender.
Security						
General						
Secure interface login and password		Yes	Yes	Yes	Yes	
SSH v1, v2		Yes	Yes	Yes	Yes	
Storm control		Yes	No	No	No	
Dynamic load balancing (ECMP)		Yes	Yes	Yes	Yes	
Access Control Lists (ACLs) based on:						
Source IP address		Yes	Yes	Yes	Yes	
Destination IP address		Yes	Yes	Yes	Yes	5-tuple + GTP TEID supported for ECMP
TCP/UDP source port		Yes	Yes	Yes	Yes	
TCP/UDP destination port		Yes	Yes	Yes	Yes	Ingress hw L3 ACL supported.
IP protocol type		Yes	Yes	Yes	Yes	
TCP Flags, protocol type, IP fragment flags, DSCP, CoS, IP precedence, ICMP_TYPE/ICMPV6_TYPE, ICMP_CODE/ICMPV6_CODE, L4_SRC_PORT, L4_DST_PORT, IP_TTL and IP_DSCP		No	Yes	Yes	Yes	Only available as a firewall rule for control plane traffic
Rule prioritization and Re-sequence		Yes	Yes	Yes	Yes	
On-fly modification		Yes	Yes	Yes	Yes	
Firewall						
ACLs		Yes	Yes	Yes	Yes	
L3 Egress ACLs		Yes	Yes	Yes	Yes	
Application Layer Gateway		No	Yes	Yes	Yes	
Stateful Fallover		No	Yes	Yes	Yes	
IPv6 Firewall		No	Yes	Yes	Yes	
Zone based		No	Yes	Yes	Yes	
Hardware Monitoring						
Temperature monitor		Yes	Yes	Yes	Yes	Through "service snmp notification entity-sensor" configuration plus "service snmp notification-to-syslog enable" for monitoring to syslog
Power Monitoring		Yes	Yes	Yes	Yes	Through "service snmp notification entity-sensor" configuration plus "service snmp notification-to-syslog enable" for monitoring to syslog
CPU load monitoring		Yes	Yes	Yes	Yes	
Board information (EEPROM)		Yes	Yes	Yes	Yes	Through platform specific "request hardware-diagnostic version"
Fan and PSU FRU information		Yes	Yes	Yes	Yes	Through "show hardware fru" and entity-state MIB
Timing						
IEEE 1588v2 Boundary Clock for time/phase sync [G.8275.2]		Yes	No	No	No	
IEEE 1588v2 Slave Clock for time/phase sync [G.8275.2]		Yes	No	No	No	
Deep Packet Inspection						
Firewall		No	Yes	Yes	Yes	
NAT		No	Yes	Yes	Yes	
Flow Export						
Netflow		No	Yes	Yes	Yes	
IPFIX		No	Yes	Yes	Yes	
SFLOW		No	Yes	Yes	Yes	
Virtualization						
Support for 3rd party VNFs		No	No	No	Yes	