



DELL EMC POWERSWITCH N1500 SERIES SWITCHES

Extending enterprise features to small and mid-sized businesses

The N1500 switch series offers a power-efficient Gigabit Ethernet (GbE) network-access switching solution with integrated 10GbE uplinks. With high-performance capabilities and wire-speed performance, utilizing a non-blocking architecture to easily handle unexpected traffic loads, the switches offer simple management and scalability via an 40Gbps (full-duplex) high availability stacking architecture that allows management of up to four switches from a single IP address. An integrated 80PLUS-certified power supply and features such as Energy-Efficient Ethernet and short cable detection provide energy efficiency to help decrease power and cooling costs.

Modernize campus network architectures

Modernize campus network architectures with a power-efficient and resilient 1/10GbE switching solution with Power over Ethernet Plus (PoE+). Select N1500 models offer 24 or 48 ports of PoE+ to deliver clean power to network devices such as wireless access points (APs), Voice-over-IP (VoIP) handsets, video conferencing systems and security cameras.

Achieve high availability and full bandwidth utilization with Multi-chassis Link Aggregation (MLAG). N3000E series switches support MLAG to create active/active loop-free redundancy without spanning tree. Server rooms can deliver reliable server and storage connectivity with features to help save time and avoid configuration errors. N3000E supports VRF-lite, allowing it to be partitioned into multiple virtual routers with isolated control and data planes on the same physical switch.

Leverage familiar tools and practices

All N-Series switches include Dell EMC Networking OS6, designed for easier deployment, greater interoperability and a lower learning curve for network administrators. OS6 common command line interface (CLI) and graphic user interface (GUI) using a well-known command language gets skilled network administrators productive quickly. With USB auto-configuration, network administrators can rapidly deploy mirrored configurations to numerous devices by simply inserting a USB key.

Deploy with confidence at any scale

N1500 series switches help create performance assurance with a data rate up to 176Gbps (full duplex) and a forwarding rate up to 164Mpps. Scale easily by stacking with 10GbE ports. Switch stacks of up to 200 1GbE ports can be managed from a single screen using the highly available stacking architecture for high-density aggregation with seamless redundant availability. N-Series switches help provide certainty with a lifetime warranty that covers software upgrades, hardware repair or replacement, and optics and cables purchased with the switch.*

Hardware, performance and efficiency

- Up to 48 line-rate GbE RJ-45 ports and four integrated 10GbE SFP+ ports.
- Up to 48 ports of PoE+ with an optional external power supply.
- Up to 200 1GbE ports in a 4-unit stack for high-density, high-availability in IDFs, MDFs and wiring closets.
- Non-stop forwarding and fast failover in stack configurations.
- Energy-Efficient Ethernet and lower power PHYs reduce power to inactive ports and idle links, providing energy savings from the power cord to the port.
- Fresh Air compliance for operation in environments up to 113°F (45°C) helps reduce cooling costs in temperature-constrained deployments.

Deploying, configuring and managing

- USB auto-configuration rapidly deploys the switch without setting up complex TFTP configurations or sending technical staff to remote offices.
- Management via an intuitive and familiar CLI, embedded web server (GUI), SNMP-based management console application (including Dell EMC OpenManage Network Manager), Telnet or serial connection.
- Private VLAN extensions and Private VLAN Edge support.

Product	Description
N1500 series	N1524: 24x RJ45 10/100/1000Mb auto-sensing ports, 4x SFP+ ports, 1 integrated 40W PSU N1524P: 24x RJ45 10/100/1000Mb PoE+ (up to 30.8w) auto-sensing ports, 4x SFP+ ports, 1 integrated 600W PSU (requires C15 plug) N1548: 48x RJ45 10/100/1000Mb auto-sensing ports, 4x SFP+ ports, 1 integrated 100W PSU N1548P: 48x RJ45 10/100/1000Mb PoE+ (up to 30.8w) auto-sensing ports, 4x SFP+ ports, 1 integrated 600W PSU (requires C15 plug)
Power cords	C13 to NEMA 5-15, 3M C13 to C14, 2M C15 to NEMA 5-15, 2M (C15 for POE N-Series only)
Power supplies (optional)	RPS720 external power supply for N1500 non-POE (720 watts): N1524 and N1548 (sold separately) MPS1000 external power supply for N1500 PoE+ switches (1000 watts): N1524P and N1548P (sold separately)
Optics (optional)	Transceiver, SFP, 1000BASE-T Transceiver, SFP, 1000BASE-SX, 850nm wavelength, up to 550m reach Transceiver, SFP, 1000BASE-LX, 1310nm wavelength, up to 10km reach Transceiver, SFP, 1000BASE-ZX, 1550nm wavelength, up to 80km reach Transceiver, SFP+, 10GbE, SR, 850nm wavelength, up to 300m reach Transceiver, SFP+, 10GbE, LR, 1310nm wavelength, up to 10km reach Transceiver, SFP+, 10GbE, ER, 1550nm wavelength, up to 40km reach
Cables (optional)	Dell Technologies Networking cable, SFP+ to SFP+, 10GbE, copper twinax direct

Technical specifications

Physical

4 integrated front 10GbE SFP+ dedicated ports,
2 10GbE can be used as stacking ports
USB (Type A) port for configuration via USB flash drive
Auto-negotiation for speed and flow control
Auto MDI/MDIX, port mirroring
Flow-based port mirroring
Broadcast storm control
Energy-Efficient Ethernet per port settings
Redundant variable speed fans
Air flow: I/O to power supply
Integrated power supply: 40W AC (N1524),
100W AC (N1548), 600W AC (N1524P,
N1548P)
RJ45 console port with RS232 signaling (RJ-45 to
female DB-9 connector cable included)
Dual firmware images on-board
Switching engine model: Store and forward

Chassis

Size (1RU, H x W x D):
N1524 and N1548: 1.7 in x 17.3 in x 10.1 in
(43.2 mm x 440.0 mm x 257.0 mm)
N1524P and N1548P: 1.7 in x 17.3 in x 15.2 in
(43.2 mm x 440.0 mm x 387.0 mm)
Approximate weight: 6.6lbs/3kg (N1524),
12.8lbs/5.8kg (N1524P), 8.8lbs/4kg (N1548),
15.4lbs/7kg (N1548P)
Rack mounting kit with 2 mounting brackets, bolts
and cage nuts

Environmental

Power supply efficiency: 80% or better in all
operating modes
Max. thermal output (BTU/hr): 103.1 (N1524),
297.2 (N1524P), 152.2 (N1548),
582.3 (N1548P)
Power consumption max (watts): 30.2 (N1524),
87.1 (N1524P), 44.6 (N1548), 170.4 (N1548P)
Operating temperature: 32° to 113°F (0° to 45°C)
Operating humidity: 95%
Storage temperature: -40° to 149°F
(-40° to 65°C)
Storage relative humidity: 85%

Performance

MAC addresses: 16K
Static routes: 256 (IPv4)/128 (IPv6)
Dynamic routes: 256 (IPv4)
Switch fabric capacity: 128Gbps (N1524 and
N1524P) (full duplex); 176Gbps (N1548 and
N1548P)
Forwarding rate: 128Mpps (86 Gbps) N1524 and
N1524P
164Mpps (110 Gbps) N1548 and N1548P
Link aggregation: 64 LAG groups, 144 dynamic
ports per stack, 8 member ports per LAG
Priority queues per port: 8
Line-rate Layer 2 switching: All (non-blocking)
Line-rate Layer 3 routing: All (non-blocking)
Flash memory: 256MB
Packet buffer memory: 1.5MB
CPU memory: 1GB
RIP routing interfaces: 128
VLAN routing interfaces: 128
VLANs supported: 512
Protocol-based VLANs: Supported
ARP entries: 2,048 (IPv4)/512 (IPv6)
NDP entries: 400
Access control lists (ACL): Supported
MAC and IP-based ACLs: Supported
Time-controlled ACLs: Supported
Max number of ACLs: 100
Max ACL rules system-wide: 2,048
Max rules per ACL: 1,023
Max ACL rules per interface (IPv4): 1,023
(ingress), 1,023 (egress)
Max ACL rules per interface (IPv6): 512 (ingress),
509 (egress)
Max VLAN interfaces with ACLs applied: 24

IEEE compliance

802.1AB LLDLP
Dell Voice VLAN
Dell ISDP (inter-operates with devices running CDP)
802.1D Bridging, Spanning Tree
802.1p Ethernet Priority (User Provisioning
and Mapping)
Dell Adjustable WRR and Strict Queue Scheduling

802.1Q VLAN Tagging, Double VLAN Tagging,
GVRP
802.1S Multiple Spanning Tree (MSTP)
802.1v Protocol-based VLANs
802.1W Rapid Spanning Tree (RSTP)
Dell RSTP-Per VLAN (compatible with Cisco's
RPVST+)
Dell Spanning tree optional features: STP root
guard, BPDU guard, BPDU filtering
Network Access Control, Auto VLAN
802.1X Logical Link Control
802.2 10BASE-T
802.3 Gigabit Ethernet (1000BASE-T)
802.3ab Frame Extensions for VLAN Tagging
802.3ac Link Aggregation with LACP
802.3ad 10 Gigabit Ethernet (10GBASE-X)
802.3ae PoE+ (N1524P and N1548P)
802.3at LAG Load Balancing
802.3AX Energy Efficient Ethernet (EEE)
802.3az Fast Ethernet (100BASE-TX) on
Management Ports
802.3u Flow Control
802.3x Gigabit Ethernet (1000BASE-X)
802.3z LLDLP-MED (TIA-1057)
ANSI
MTU 9,216 bytes

RFC compliance and additional features

General Internet protocols

General Internet protocols are supported. For a
detailed list, please contact your Dell Technologies
representative.

General IPv4 protocols

General IPv4 protocols are supported. For a
detailed list, please contact your Dell Technologies
representative.

General IPv6 protocols

General IPv6 protocols are supported. For a
detailed list, please contact your Dell Technologies
representative.

Layer 3 functionality

1058 RIPv1
2082 RIP-2 MD5 Auth
1724 RIPv2 MIB Extension 2453
RIPv2

Multicast

- 2932 IPv4 MIB
- 4541 IGMP v1/v2/v3 Snooping and Querier
- IEEE 802.1ag draft 8.1-Connectivity Fault Management

Quality of service

- 2474 DiffServ Field
- Dell Flow Based QoS
- 2475 DiffServ Architecture Services Mode
- 2597 Assured Fwd PHB (IPv4/IPv6)
- Dell L4 Trusted Mode
- Dell Port Based QoS (TCP/UDP) Services Mode
- Dell UDLD

Network management and security

- 1155 SMIv1
- 1157 SNMPv1
- 1212 Concise MIB Definitions
- 1213 MIB-II
- 1215 SNMP Traps
- 1286 Bridge MIB
- 1442 SMIv2
- 1451 Manager-to-Manager MIB
- 1492 TACACS+
- 1493 Managed Objects for Bridges MIB
- 1573 Evolution of Interfaces
- 1612 DNS Resolver MIB Extensions
- 1643 Ethernet-like MIB
- 1757 RMON MIB
- 1867 HTML/2.0 Forms with File Upload Extensions
- 1901 Community-based SNMPv2
- 1907 SNMPv2 MIB
- 1908 Coexistence Between SNMPv1/v2
- 2011 IP MIB
- 2012 TCP MIB
- 2013 UDP MIB
- 2068 HTTP/1.1
- 2096 IP Forwarding Table MIB
- 2233 Interfaces Group using SMIv2
- 2246 TLS v1
- 2271 SNMP Framework MIB
- 2295 Transport Content Negotiation
- 2296 Remote Variant Selection
- 2576 Coexistence Between SNMPv1/v2/v3
- 2578 SMIv2
- 2579 Textual Conventions for SMIv2
- 2580 Conformance Statements for SMIv2
- 2613 RMON MIB
- 2618 RADIUS Authentication MIB
- 2620 RADIUS Accounting MIB
- 2665 Ethernet-like Interfaces MIB
- 2674 Extended Bridge MIB
- 2737 ENTITY MIB
- 2818 HTTP over TLS
- 2819 RMON MIB (groups 1, 2, 3, 9)
- 2863 Interfaces MIB
- 2865 RADIUS
- 2866 RADIUS Accounting
- 2868 RADIUS Attributes for Tunnel Prot.
- 2869 RADIUS Extensions
- 3410 Internet Standard Mgmt. Framework
- 3411 SNMP Management Framework
- 3412 Message Processing and Dispatching
- 3413 SNMP Applications
- 3414 User-based security model

- 3415 View-based control model
- 3416 SNMPv2
- 3418 SNMP MIB
- 3577 RMON MIB
- 3580 802.1X with RADIUS
- 3737 Registry of RMOM MIB
- 4086 Randomness Requirements
- 4113 UDP MIB
- 4251 SSHv2 Protocol
- 4252 SSHv2 Authentication
- 4253 SSHv2 Transport
- 4254 SSHv2 Connection Protocol
- 4419 SSHv2 Transport Layer Protocol
- 4521 LDAP Extensions
- 4716 SECSH Public Key File Format
- 5246 TLS v1.2
- 6101 SSL
- Dell Enterprise MIB supporting routing features draft-ietf-hubmib-etherif-mib-v3-00.txt (Obsoletes RFC 2665)

Regulatory, environment and other compliance

- Safety and emissions**
- Australia/New Zealand: ACMA RCM Class A
- Canada: ICES Class A; cUL
- China: CCC Class A; NAL
- Europe: CE Class A
- Japan: VCCI Class A
- USA: FCC Class A; NRTL UL; FDA 21 CFR 1040.10 and 1040.11
- Eurasia Customs Union: EAC
- Germany: GS mark
- Product meets EMC and safety standards in many countries inclusive of USA, Canada, EU, Japan, China. For more country-specific regulatory information and approvals, please see your Dell Technologies representative.

RoHS

- Product meets RoHS compliance standards in many countries inclusive of USA, EU, China, and India. For more country-specific RoHS compliance information, please see your Dell Technologies representative.

- EU WEEE
- EU Battery Directive
- REACH

Energy

- Japan: JEL
- Certifications (available or coming soon)
- Available with US Trade Agreements Act (TAA) compliance.
- N-Series products have the necessary features to support a PCI-compliant network topology.

- Dell LAG MIB
- Support for 802.3ad
- Functionality
- Dell sflow version 1.3 draft 5
- Dell 802.1x Monitor Mode
- Dell Custom Login Banners
- Dell Dynamic ARP Inspection
- Dell IP Address Filtering
- Dell Tiered Authentication
- Dell RSPAN
- Dell OpenFlow 1.3
- Dell Python Scripting
- Dell Support Assist
- HiveManager NG



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