



Dell Networking N1500 series

Dell Networking N1500 is a series of energy-efficient, cost-effective 1GbE switches designed to extend enterprise features to small and mid-sized businesses. N1500 switches utilize a comprehensive Layer 2+ feature set and offer high-availability for smaller managed networks.

The N1500 switch series offers a power-efficient Gigabit Ethernet (GbE) network-access switching solution with integrated 10GbE uplinks. The N1500 switch series has 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.

Leverage familiar tools and practices

All N-Series switches include Dell Networking OS 6, designed for easier deployment, greater interoperability and a lower learning curve for network administrators. One common command line interface (CLI) and graphic user interface (GUI) using a well-known command language gets skilled network administrators productive quickly. This allows network administrators to maintain consistent configurations by running one OS release across all N-Series products. 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. Details at Dell.com/LifetimeWarranty.*

Hardware, performance and efficiency

- Up to 48 line-rate GbE RJ-45 ports and four integrated 10GbE SFP+ ports.
- Support for 24 ports of PoE+ in 1RU or 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.
- Dell 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 OpenManage Network Manager), Telnet or serial connection.
- Private VLAN extensions and Private VLAN Edge support.
- AAA authorization, TACACS+ accounting and RADIUS support for comprehensive secure access support.
- Authentication tiering allows network administrators to tier port authentication methods such as 802.1x, MAC Authentication Bypass and Captive Portal in priority order so that a single port can provide flexible access and security.
- Advanced Layer 2+ IPv4 and IPv6 functionality including static routing and Routing Information Protocol support.
- Remote Switch Port Analyzer (RSPAN) monitors ports across a Layer 2 domain without costly dedicated network taps.

*Select Networking products carry a Lifetime Limited Warranty with Basic Hardware Service (repair or replacement) for life. Repair or replacement does not include troubleshooting, configuration, or other advanced service provided by Dell ProSupport.

Specifications: Dell Networking N1500 series

Dell SKU description

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, 2x stacking 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 80km reach
Transceiver, SFP, 1000BASE-ZX, 1550nm wavelength, up to 10km 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 Networking, cable, SFP+ to SFP+, 10GbE, copper twinax direct attach cable, 0.5m, 1m, 3m, 5m and 7m

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 (lRU, H x W x D): 1.7 in x 17.3 in x 10.1 in (43.2 mm x 440.0 mm x 257.0 mm) (N1524 and N1548)
1.7 in x 17.3 in x 15.2 in (43.2 mm x 440.0 mm x 387.0 mm) (N1524P and N1548P)
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), 2972 (N1524P), 152.2 (N1548), 5824.3 (N1548P)
Power consumption max (watts): 30.2 (N1524), 871 (N1524P), 44.6 (N1548), 1704 (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 (N1524 and N1524P)
164Mpps (N1548 and N1548P)
64 LAG groups, 144 dynamic ports per stack, 8 member ports per LAG

Link aggregation: 8

Priority queues per port: All (non-blocking)
Line-rate Layer 2 switching: All (non-blocking)
Line-rate Layer 3 routing: 256MB
Flash memory: 1.5MB
Packet buffer memory: 1GB
CPU memory: 128
RIP routing interfaces: 128
VLAN routing interfaces: 512
VLANs supported: Supported
Protocol-based VLANs: 2,048 (IPv4)/512 (IPv6)
ARP entries: 400
NDP entries: Supported
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: 1,023
Max rules per ACL: 1,023 (ingress), 1,023 (egress)
Max ACL rules per interface (IPv4): 512 (ingress), 509 (egress)
Max ACL rules per interface (IPv6): 24
ACLs applied: 24

IEEE compliance

802.1AB LLD
Dell Voice VLAN
802.1D ISDP (inter-operates with devices running CDP)
802.1p Bridging, Spanning Tree
Dell Ethernet Priority (User Provisioning and Mapping)
802.1Q Adjustable WRR and Strict Queue Scheduling
802.1S VLAN Tagging, Double VLAN Tagging, GVRP
802.1Q 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
802.1X Network Access Control, Auto VLAN
802.2 Logical Link Control
802.3 10BASE-T
802.3ab Gigabit Ethernet (1000BASE-T)
802.3ac Frame Extensions for VLAN Tagging
802.3ad Link Aggregation with LACP
802.3ae 10 Gigabit Ethernet (10GBASE-X)
802.3at PoE+ (N1524P and N1548P)
802.3AX LAG Load Balancing
802.3az Energy Efficient Ethernet (EEE)
802.3u Fast Ethernet (100BASE-TX) on Management Ports
802.3x Flow Control
802.3z Gigabit Ethernet (1000BASE-X)
ANSI LLDP-MED (TIA-1057)
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 representative.

General IPv4 protocols

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

General IPv6 protocols

General IPv6 protocols are supported. For a detailed list, please contact your Dell 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
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IEEE 802.1ag draft 8.1 – Connectivity Fault Management

Quality of service

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

Network management and security

1155	SMLv1	2819	RMON MIB (groups 1, 2, 3, 9)
1157	SNMPv1		Interfaces MIB
1212	Concise MIB Definitions	2863	RADIUS
1213	MIB-II	2865	RADIUS Accounting
1215	SNMP Traps	2866	RADIUS Attributes for Tunnel Prot.
1286	Bridge MIB	2868	RADIUS Extensions
1442	SMLv2	2869	Internet Standard Mgmt. Framework
1451	Manager-to-Manager MIB	3410	SNMP Management Framework
1492	TACACS+	3411	Message Processing and Dispatching
1493	Managed Objects for Bridges MIB	3412	SNMP Applications
1573	Evolution of Interfaces	3413	User-based security model
1612	DNS Resolver MIB Extensions	3414	View-based control model
1643	Ethernet-like MIB	3416	SNMPv2
1757	RMON MIB	3418	SNMP MIB
1867	HTML/2.0 Forms with File Upload Extensions	3415	SNMPv2 MIB
1901	Community-based SNMPv2	3577	RMON MIB
1907	SNMPv2 MIB	3580	802.1X with RADIUS
1908	Coexistence Between SNMPv1/v2	3737	Registry of RMOM MIB
2011	IP MIB	4086	Randomness Requirements
2012	TCP MIB	4113	UDP MIB
2013	UDP MIB	4251	SSHv2 Protocol
2068	HTTP/1.1	4252	SSHv2 Authentication
2096	IP Forwarding Table MIB	4253	SSHv2 Transport Protocol
2233	Interfaces Group using SMLv2	4254	SSHv2 Connection Protocol
2246	TLS v1	4419	SSHv2 Transport Layer Protocol
2271	SNMP Framework MIB	4521	LDAP Extensions
2295	Transport Content Negotiation	4716	SECSSH Public Key File Format
2296	Remote Variant Selection	6101	SSL
2346	AES Ciphersuites for TLS	Dell	Enterprise MIB supporting routing features draft-ietf-hubmib-etherif-mib-v3-00.txt (Obsoletes RFC 2665)
2576	Coexistence Between SNMPv1/v2/v3	Dell	LAG MIB Support for 802.3ad Functionality sflow version 1.3 draft 5
2578	SMLv2		802.1x Monitor Mode
2579	Textual Conventions for SMLv2		Custom Login Banners
2580	Conformance Statements for SMLv2		Dynamic ARP Inspection
2613	RMON MIB		IP Address Filtering
2618	RADIUS Authentication MIB		Tiered Authentication
2620	RADIUS Accounting MIB		RSPAN
2665	Ethernet-like Interfaces MIB		
2674	Extended Bridge MIB		
2737	ENTITY MIB		
2818	HTTP over TLS		

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

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 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 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.

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