DELL EMC NETWORKING 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.

Leverage familiar tools and practices

All N-Series switches include Dell EMC 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. 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.*

*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 EMC ProSupport.

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 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.
- Layer 3 Lite 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.
- OpenFlow 1.3 provides the ability to separate the control plane from the forwarding plane for more sophisticated traffic management.

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 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), 2972 (N1524P), 152.2 (N1548), 5824.3 (N1548P)
Power consumption max (watts): 30.2 (N1524), 871 (N1524P), 44.6 (N1548), 1704 (N1548P)
Operating temperature: 32º to 113ºF (0º to 45ºC)
Operating humidity: 95%
Storage temperature: –40º to 149ºF (–40º to 65ºC)
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)
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)
ACLs applied: 24

IEEE compliance

802.1AB LLDP
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
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 EMC representative.

General IPv4 protocols

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

General IPv6 protocols

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

Layer 3 functionality

1058 RIPv1
1724 RIPv2 MIB Extension
2082 RIP-2 MD5 Auth
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
2475 DiffServ Architecture
2597 Assured Fwd PHB
Dell L4 Trusted Mode (TCP/UDP)
Dell UDLD
Dell Flow Based QoS Services Mode (IPv4/IPv6)
Dell Port Based QoS Services Mode

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
2346 AES Ciphersuites for TLS
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
6101 SSL
Dell Enterprise MIB supporting routing features draft-ietf-hubmib-etherif- mib-v3-00.txt (Obsoletes RFC 2665)
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

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 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 EMC 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.

IT Lifecycle Services for Networking

Experts, insights and ease

Our highly trained experts, with innovative tools and proven processes, help you transform your IT investments into strategic advantages.

Plan & Design

Let us analyze your multivendor environment and deliver a comprehensive report and action plan to build upon the existing network and improve performance.

Deploy & Integrate

Get new wired or wireless network technology installed and configured with ProDeploy. Reduce costs, save time, and get up and running fast.

Educate

Ensure your staff builds the right skills for long-term success. Get certified on Dell EMC Networking technology and learn how to increase performance and optimize infrastructure.

Manage & Support

Gain access to technical experts and quickly resolve multivendor networking challenges with ProSupport. Spend less time resolving network issues and more time innovating.

Optimize

Maximize performance for dynamic IT environments with Dell EMC Optimize. Benefit from in-depth predictive analysis, remote monitoring and a dedicated systems analyst for your network.

Retire

We can help you resell or retire excess hardware while meeting local regulatory guidelines and acting in an environmentally responsible way.

Learn more at Dell.com/lifecycleservices

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