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.*

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.

*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.
<table>
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<th>Product</th>
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| **N1500 series**        | N1524: 24x RJ-45 10/100/1000Mb auto-sensing ports, 4x SFP+ ports, 1 integrated 40W PSU  
|                         | N1524P: 24x RJ-45 10/100/1000Mb PoE+ (up to 30.8w) auto-sensing ports, 4x SFP+ ports, 1 integrated 600W PSU (requires C15 plug)  
|                         | N1548: 48x RJ-45 10/100/1000Mb auto-sensing ports, 4x SFP+ ports, 1 integrated 100W PSU  
|                         | N1548P: 48x RJ-45 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, ER, 1550nm wavelength, up to 40km reach  
|                         | Transceiver, SFP+, 10GbE, SR, 850nm wavelength, up to 300m reach  
|                         | Transceiver, SFP+, 10GbE, LR, 1310nm wavelength, up to 10km 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  
- Redundant variable speed fans  
- Dual fan failure  

#### 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: 6.8lbs/3kg (N1524), 12.8lbs/5.8kg (N1524P), 8.8lbs/4kg (N1548), 16.4lbs/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)  

#### Performance
- 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%  

#### IEEE compliance
- 802.1AB LLDP  
- Dell Voice VLAN  
- Dell ISDP (inter-opens 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 RSTP)  
- 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  
- 802.3ad Link Aggregation with LACP  
- 802.3ac Frame Extensions for VLAN Tagging  
- 802.3af Power over Ethernet (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  
- 802.5z 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 2453 RIPv2

**Multicast**
- 2332 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) Services Mode
- Dell UDLQ

**Network management and security**
- 1155 SMIV1
- 1157 SMNPV1
- 1212 Concise MIB Definitions
- 1213 MIB-II Definitions
- 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

**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 SNMPv2 MIB**

**3577 RMON MIB**

**3580 802.3x with RADIUS**

**3737 Registry of RMON MIB**

**4086 Randomness Requirements**

**4113 UDP MIB**

**4251 SSHv2 Protocol**

**4252 SSHv2 Authentication**

**4253 SSHv2 Transport**

**4254 SSHv2 Protocol Connection**

**4256 SSHv2 Transport Layer Protocol**

**4521 LDAP Extensions**

**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.

**ITU-T**

**Energy**

**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.

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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.

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**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.

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