Dell Networking N2000 series

Dell Networking N2000 is a series of energy-efficient and cost-effective 1GbE switches designed for modernizing and scaling network infrastructure. N2000 switches utilize a comprehensive enterprise-class Layer 3 standard feature set, deliver consistent, simplified management and offer high-availability device and network design.

The N2000 switch series offers a power-efficient Gigabit Ethernet (GbE) network-access switching solution with integrated 10GbE uplinks. The N2000 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 84Gbps (full-duplex) high-availability stacking architecture that allows management of up to 12 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 N2000 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. For greater interoperability in multivendor networks, N2000 switches offer the latest open-standard protocols and include technology to interface with Cisco protocol RPVST+ and devices using CDP. Achieve high availability and full bandwidth utilization with Multi-chassis Link Aggregation (MLAG). N2000 switches support MLAG to create active/active loop-free redundancy without spanning tree. The N2000 series is also fully tested and validated to work with Dell EqualLogic™ PS-Series storage arrays.*

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

N2000 series switches help create performance assurance with a data rate up to 220Gbps (full duplex) and a forwarding rate up to 164Mpps. Scale easily with built-in rear stacking ports. Switch stacks of up to 600 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 two 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 600 1GbE ports in a 12-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.
- Achieve high availability and full bandwidth utilization with MLAG and support firmware upgrades without taking the network offline.
- Interfaces with RPVST+ protocol for greater flexibility and interoperability in Cisco networks.
- Layer 3 Standard IPv4 and IPv6 functionality including static routing, RIP, and OSPFv2 (future OS release) support.
- Policy based forwarding provides access control for all packets that are bridged within a VLAN or that are routed into or out of a VLAN.
- Remote Switch Port Analyzer (RSPAN) monitors ports across a Layer 2 domain without costly dedicated network taps.
Specifications: Dell Networking N2000 series

Dell SKU description

N2024: 24x RJ45 10/100/1000Mb auto-sensing ports, 2x SFP+ ports, 2x stacking ports, 1 integrated 1000W PSU
N2024P: 24x RJ45 10/100/1000Mb PoE+ (up to 30.8W) auto-sensing ports, 2x SFP+ ports, 2x stacking ports, 1 integrated 1000W PSU
N2048: 48x RJ45 10/100/1000Mb auto-sensing ports, 4x SFP+ ports, 2x stacking ports, 1 integrated 1000W PSU
N2048P: 48x RJ45 10/100/1000Mb PoE+ (up to 30.8W) auto-sensing ports, 4x SFP+ ports, 2x stacking ports, 1 integrated 1000W 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)
PoE240 external power supply for N2000 non-POE (720 watts): N2024 and N2048 (sold separately)
PoE1500 external power supply for N2000 PoE+ switches (1000 watts): N2024P and N2048P (sold separately)

Optics (optional)
Transceiver: SFP, 1000BASE-T
Transceiver: SFP+, 1000BASE-X, 850nm wavelength, up to 550m reach
Transceiver: SFP1000BASE-LX, 1310nm wavelength, up to 10km reach
Transceiver: SFP1000BASE-LX+, 2550nm wavelength, up to 80km reach
Transceiver: SFP+, 10GBase-LR, 850nm wavelength, up to 30km reach
Transceiver: SFP+, 10GBase-LR, 1310nm wavelength, up to 10km reach
Transceiver: SFP+, 10GBase-LR, 1550nm wavelength, up to 40km reach

Cables (optional)
Stacking cable 0.5m, 1m and 3m
Cables (optional)
Transceiver, SFP+, 10GbE, ER, 1550nm wavelength, up to 40km reach
Transceiver, SFP+, 10GbE, LRM, 1310nm wavelength, up to 220m reach
Transceiver, SFP+, 10GBase-LR, 850nm wavelength, up to 30km reach
Transceiver, SFP+, 10GBase-LR, 1310nm wavelength, up to 10km reach
Transceiver, SFP+, 10GBase-LR, 1550nm wavelength, up to 40km reach

Power consumption max (watts): 42.9 (N2024), 913 (N2024P), 53.9 (N2048P)
Max. thermal output (BTU/hr): 117.44 (N2024), 3,113.33 (N2024P), 1,035.09 (N2048P)
Power supply efficiency: 80% or better in all operating modes

Environmental
Power supply voltage: 85-265VAC, 44-63Hz; or 88-132VDC
Max. thermal output (BTU/hr): 1744 (N2024), 3133.13 (N2048P), 1677 (N2048P)
Approximate weight: 8.13 (N2024), 9.52 (N2024P), 1.49 (N2048P)
Storage temperature: -40° to 149°F (–40° to 65°C)
Storage humidity: 95%

Performance
MAC addresses: 32
Static routes: 256 (IPv4)/128 (IPv6)
Dynamic routes: 451 (IPv4)
Switch fabric capacity: 172Gbps (N2024 and N2024P)
Forwarding rate: 228Mpps (N2024 and N2024P), 164Mpps (N2048 and N2048P)
Link aggregation: 128 LAG groups, 144 dynamic ports per stack, 8 member ports per LAG

Network management and security
N2024: SMTPv1
1157: SNMPv3
1212: Concise MIB Definitions
1215: MIB-II
2155: SNMP Traps
2186: Bridge MIB
1442: SMIV2
1453: Manager-to-Monitor MIB
1492: TACACS+
1493: Managed Objects for Bridges MIB
1573: Evolution of Interfaces
1612: DNS Resolver MIB
1643: Ethernet-like MIB
1757: RMON MIB
1867: DHTML/2.0 Forms with...model
901: Community-based SNMPv2
907: SNMPv2 MIB
908: 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: VXLAN
2271: SNAP Framework MIB
2295: Transport Content Negotiation
2296: Remote Variant Selection
2346: AES Cryptosuites for TLS
2576: Coexistence Between SNMPv1/v2/v3
2578: SMIV2
2579: Textual Conventions for SMIV2
2613: RMON MIB
2618: RADIUS Authentication
2620: RADIUS Accounting MIB
2665: Ethernet-like interfaces MIB
2666: Identification of Ethernet Chips
2674: Text Conv. For High Capacity Data Types

Regulatory, environmental 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 including US, China, Japan, Korea.
For more country-specific regulatory information and approvals, please see your Dell representative.

RoHS
Product meets RoHS compliance standards in many countries including US, EU, China, and India.
For more country-specific RoHS compliance information, please see your Dell representative.
EU: WEEE
EU: Battery Directive
REACH

Energy
Japan: JES

Certificates (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.