



Dell EMC PowerSwitch N3000E Series Switches

Energy-efficient, cost-effective 1GbE switches for modernizing and scaling network infrastructure

The N3000E switch series offers a power-efficient and resilient Gigabit Ethernet (GbE) switching solution with integrated 10GbE uplinks for advanced Layer 3 distribution for offices and campus networks. The series has high-performance capabilities and wire-speed performance utilizing a non-blocking architecture to easily handle unexpected traffic loads. Use dual internal hot-swappable 80PLUS-certified power supplies for high availability and power efficiency. 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. Note: With OS 6.5.1.x and higher, max stack for N3000E series is 8; however, N3000E series and N3132PX-ON support max stack of 12 members. N3000E series can be stacked with N3000E series; however, stack size is limited to 8 and active VLANs to 1024.

Modernize campus network architectures

Modernize campus network architectures with a power-efficient and resilient 1/10GbE switching solution with dense Power over Ethernet Plus (PoE+) and PoE 60W. Select N3000E models offer 24 or 48 ports of PoE+, or up to 32 ports of PoE 60W 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, N3000E series 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). 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. The N3000E series is also fully tested and validated to work with Dell EMC EqualLogic™ PSSeries storage arrays.*

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. OS 6 common command line interface (CLI) and graphic user interface (GUI) are intuitive, so skilled network administrators can get productive quickly. Select N3000E switches now support the Open Network Install Environment (ONIE), enabling installation of alternate network operating systems.

Deploy with confidence at any scale

N3000E series switches help create performance assurance with a data rate up to 328Gbps (full duplex) and a forwarding rate up to 428Mpps. Scale easily with built-in rear stacking ports. Switch stacks of up to 624 1GbE ports can be managed from a single screen using the highlyavailable stacking architecture for high-density aggregation with seamless redundant availability. The N-Series switches' lifetime warranty 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 ports of copper or fiber, two combo ports for fiber/copper flexibility, and two integrated 10GbE SFP+ ports.
- Up to 48 ports of PoE+ or 32 ports of PoE 60W in 1RU without an external power supply.
- Up to eight 2.5/5GbE ports delivering additional bandwidth for Wave 2 wireless access points.
- Hot swappable expansion module supporting dual-port SFP+ or dual-port 10GBaseT.
- Available with dual 80PLUS-certified hot swappable power supplies. Variable speed fan operation helps decrease cooling and power costs.
- 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 EMC Fresh Air compliance for operation in environments up to 113°F (45°C) reduces cooling costs.

Deploying, configuring and managing

- USB auto-configuration rapidly deploys the switch without complex TFTP configurations or sending technical staff to remote offices.
- Plug-and-Play configuration with Dell EMC EqualLogic iSCSI storage arrays* and one-command iSCSI setup alleviates multiple step configuration and potential configuration errors.
- 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
N3000E series	<p>N3024: 24x RJ45 10/100/1000Mb auto-sensing ports, 2x SFP+ ports, 2x GbE combo media ports, 1x hot swap expansion module bay, 1x 200W PSU included</p> <p>N3024ET-ON: 24x RJ45 10/100/1000Mb auto-sensing ports, 2x SFP+ ports, 2x GbE combo media ports, 1x hot swap expansion module bay, 1x 200W PSU included, 2Gb memory and 1Gb of flash</p> <p>N3024F: 24x 1000-SX (up to 500m distance) or 1000-LX (up to 10km distance) SFP GbE ports, 2x SFP+ ports, 2x GbE combo media ports, 1x hot swap expansion module bay, 1x 200W PSU included</p> <p>N3024EF-ON: 24x 1000-SX (up to 500m distance) or 1000-LX (up to 10km distance) SFP GbE ports, 2x SFP+ ports, 2x GbE combo media ports, 1x hot swap expansion module bay, 1x 200W PSU included, 2Gb memory and 1Gb of flash</p> <p>N3024P: 12x RJ45 10/100/1000Mb PoE+ (up to 30.8W) auto-sensing ports, 12x RJ45 10/100/1000Mb PoE 60W auto-sensing ports, 2x SFP+ ports, 2x GbE combo media ports, 1x hot swap expansion module bay, 1x 715W PSU included (requires C15 plug)</p> <p>N3024EP-ON: 12x RJ45 10/100/1000Mb PoE+ (up to 30.8W) auto-sensing ports, 12x RJ45 10/100/1000Mb PoE 60W auto-sensing ports, 2x SFP+ ports, 2x GbE combo media ports, 1x hot swap expansion module bay, 1x 715W PSU included (requires C15 plug), 2Gb memory and 1Gb of flash</p> <p>N3048: 48x RJ45 10/100/1000Mb auto-sensing ports, 2x SFP+ ports, 2x GbE combo media ports, 1x hot swap expansion module bay, 1x 200W PSU included</p> <p>N3048ET-ON: 48x RJ45 10/100/1000Mb auto-sensing ports, 2x SFP+ ports, 2x GbE combo media ports, 1x hot swap expansion module bay, 1x 200W PSU included, 2G memory and 1Gb of flash</p> <p>N3048EP-ON: 48x RJ45 10/100/1000Mb PoE+ (up to 30.8W) auto-sensing ports; first twelve RJ45 10/100/1000Mb can provide PoE 60W auto-sensing ports, 2x SFP+ ports, 2x GbE combo media ports, 1x hot swap expansion module bay, 1x 1100W PSU included (requires C15 plug); 2GB memory and 1GB flash</p> <p>N3048P: 48x RJ45 10/100/1000Mb PoE+ (up to 30.8W) auto-sensing ports; first twelve RJ45 10/100/1000Mb PoE 60W auto-sensing ports, 2x SFP+ ports, 2x GbE combo media ports, 1x hot swap expansion module bay, 1x 1100W PSU included (requires C15 plug)</p> <p>N3132PX-ON: 24x RJ45 10/100/1000Mb PoE 60W auto-sensing ports, 8x RJ45 10/100/1000/2500/5000Mb PoE 60W auto-sensing ports, 4x SFP+ ports, 1x hot swap expansion module bay, 1x 1100W PSU included (requires C15 plug)</p>
Power cords	<p>C13 to NEMA 5-15, 3M</p> <p>C13 to C14, 2M</p> <p>C15 to NEMA 5-15, 2M (C15 for POE N-Series only)</p>

Product	Description
Modules (optional)	2-port 10 Gigabit BASE-T RJ-45 hot swappable uplink module 2-port 10 Gigabit SFP+ hot swappable uplink module 2-port 40 Gigabit QSFP+ hot swappable module (N3132PX-ON only) Stacking module (N3132PX-ON only)
Power supplies (optional)	200W AC hot swappable with V-Lock, adds redundancy to non- PoE switches (N3024, N3024ET-ON, N3024F, N3024EF-ON, and N3048 and N3048ET-ON only) 715W AC hot swappable, adds redundancy to N3024P and N3024EP-ON (N3024P only) 1100W AC hot swappable, adds redundancy to N3048P and N3048EP-ON or upgrade N3024P and N3024EP-ON for additional PoE+ power (N3024P, N3024EP-ON, N3048P, N3048EP-ON, N3132PX-ON only)
Optics (optional)	Transceiver, SFP, 100BASE-FX, 1310nm wavelength, up to 2km reach 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, LRM, 1310nm wavelength, up to 220m 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)	Stacking cable 0.25m, 1m and 3m Dell EMC Networking cable, SFP+ to SFP+, 10GbE, copper twinax direct attach cable, 0.5m, 1m, 3m, 5m and 7m

Technical specifications

Physical

2 rear stacking ports (21Gbps) supporting up to 84Gbps (full duplex) (N3132PX-ON requires optional stacking module)
2 integrated front 10GbE SFP+ dedicated ports (N3132PX-ON includes 4 integrated SFP+ ports)
Out-of-band management port (10/100/1000BASE-T)
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
RJ45 console/management 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):
1.7126 in x 17.0866 in x 16.0236 in (43.5 mm x 434.0 mm x 407.0 mm)
(Power supply handle adds 1.38 in or 35 mm)
Approximate weight:
13.2277lbs/6kg (N3024, N3024ET-ON, and N3024F and N3024EF-ON), 14.5505lbs/6.6kg (N3024P and N3024EP-ON), 13.8891lbs/6.3kg (N3048 and N3048ET-ON), 15.2119lbs/6.9kg (N3048P & N3048EP-ON), 15.7lbs/7.12kg (N3132PX-ON)
Two post rack mount

Environmental

Power supply:
200W (N3024, N3024ET-ON, N3024F, N3024EF-ON, and N3048 and N3048ET-ON)

715W or 1,100W (N3024P and N3024EP-ON)
1,100W (N3048P, N3048EP-ON and N3132PX-ON)
Power supply efficiency: 80% or better in all operating modes
Max. thermal output (BTU/hr):
151.4 (N3024, N3024ET-ON),
204.6 (N3024F, N3024EF-ON),
4,467.1 (N3024P, N3024EP-ON),
220.97 (N3048, N3048ET-ON),
3,113.33 (N3048P, N3048EP-ON),
7216.68 (N3132PX-ON)
Power consumption max (watts):
52.8 (N3024, N3024ET-ON),
67.1 (N3024F, N3024EF-ON),
1,287 (N3024P, N3024EP-ON),
74.8 (N3048, N3048ET-ON),
2,145 (N3048P, N3048EP-ON),
2,115 (N3132PX-ON)
Operating temperature: 32° to 113°F (0° to 45°C)
Operating relative humidity: 95%
Storage temperature: -40° to 149°F (-40° to 65°C)
Storage relative humidity: 85%

Performance

MAC addresses: 32K
Static routes: 1,024 (IPv4)/1,024 (IPv6)
Dynamic routes: 8,160 (IPv4)/4,096 (IPv6)
Switch fabric capacity:
212Gbps (N3024, N3024ET-ON, N3024F, N3024EF-ON, and N3024P, and N3024EP-ON) (full duplex)
260Gbps (N3048, N3048ET-ON, N3048EP-ON and N3048P)
328Gbps (N3132PX-ON)
Forwarding rate:
158Mpps (N3024, N3024ET-ON, N3024F, N3024EF-ON, N3024EP-ON and N3024P)
193Mpps (N3048, N3048ET-ON, N3048EP-ON and N3048P)
428Mpps (N3132PX-ON)
Link aggregation: 128 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 (512MB for N3132PX-ON)
Packet buffer memory: 4MB (5MB for N3132PX-ON)
CPU memory: 1GB (2GB for N3132PX-ON)
OSPF routing interfaces: 8,160
RIP routing interfaces: 512
ECMP next hops per route: 4
ECMP groups: 64
VLAN routing interfaces: 128
VLANs supported: 4,094
Protocol-based VLANs: Supported
Multicast forwarding entries: 1,536 (IPv4), 512 (IPv6)
ARP entries: 6,144
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: 4,096
Max rules per ACL: 1,023
Max ACL rules per interface (IPv4): 3,072 (ingress), 1,024 (egress)
Max ACL rules per interface (IPv6): 1,021 (ingress), 512 (egress)
Max VLAN interfaces with 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

Technical specifications

802.1Q	VLAN Tagging, Double VLAN Tagging, GVRP	Draft-ietf-pim-sm-bsr-05	2865	RADIUS
802.1S	Multiple Spanning Tree (MSTP)	Draft-ietf-idmr-dvmrp-v3-10 DVMRP	2866	RADIUS Accounting
802.1v	Protocol-based VLANs	Draft-ietf-magma-igmp-proxy-06.txt	2868	RADIUS Attributes for Tunnel Prot.
802.1W	Rapid Spanning Tree (RSTP)	IGMP/MLD Proxying	2869	RADIUS Extensions
Dell RSTP-Per VLAN (compatible with Cisco's RPVST+)		Draft-ietf-magma-igmpv3-and-routing-05.txt	3410	Internet Standard Mgmt. Framework
Dell Spanning tree optional features:		draft-ietf-idmr-dvmrp-mib-11	3411	SNMP Management Framework
STP root guard,		draft-ietf-magma-mgmd-mib-05	3412	Message Processing and Dispatching
BPDU guard, BPDU filtering		draft-ietf-pim-bsr-mib-06	3413	SNMP Applications
802.1X	Network Access Control, Auto VLAN	IEEE 802.1ag draft 8.1 – Connectivity Fault Management (CFM)	3414	User-based security model
802.2	Logical Link Control	IEEE 802.1p GMRP Dynamic L2 Multicast Registration	3415	View-based control model
802.3	10BASE-T		3416	SNMPv2
802.3ab	Gigabit Ethernet (1000BASE-T)	Quality of service	3417	Transport Mappings
802.3ac	Frame Extensions for VLAN Tagging	2474 DiffServ Field	3418	SNMP MIB
802.3ad	Link Aggregation with LACP	2475 DiffServ Architecture	3577	RMON MIB
802.3ae	10 Gigabit Ethernet (10GBASE-X)	2597 Assured Fwd PHB	3580	802.1X with RADIUS
802.3at	PoE+ (N3024P, N3024EP-ON, N3048EP-ON and N3048P)	Dell Port Based QoS Services (TCP/UDP) Mode	3737	Registry of RMON MIB
802.3AX	LAG Load Balancing	Dell Red/WRED	4086	Randness Requirements
Dell EMC Multi-Chassis LAG (MLAG)		Dell Flow Based QoS Services	4113	UDP MIB
Dell EMC Policy Based Forwarding		Dell Audio Video Bridging Mode (IPv4/IPv6)	4251	SSHv2 Protocol
802.3az	Energy Efficient Ethernet (EEE)	Dell UDLD	4252	SSHv2 Authentication
802.3u	Fast Ethernet (100BASE-TX) on management ports	2697 srTCM	4253	SSHv2 Transport
802.3x	Flow Control	4115 trTCM	4254	SSHv2 Connection Protocol
802.3z	Gigabit Ethernet (1000BASE-X)	Dell L4 Trusted Mode	4419	SSHv2 Transport Layer Protocol
ANSI LLDP-MED (TIA-1057)		1155 SMIv1	4521	LDAP Extensions
Dell EMC EqualLogic iSCSI Auto-configuration		1157 SNMPv1	4716	SECSSH Public Key File Format
MTU 9,216 bytes		1212 Concise MIB Definitions	6101	SSL
		1213 MIB-II	6398	IP Router Alert
		1215 SNMP Traps	Dell	Enterprise MIB supporting routing features draft-ietfhubmib-etherifmib-v3-00.txt (Obsoletes)
		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		
		2666 Identification of Ethernet chipsets		
		2674 Extended Bridge MIB		
		2737 ENTITY MIB		
		2818 HTTP over TLS		
		2819 RMON MIB (groups 1, 2, 3, 9)		
		2856 Text Conv. For High Capacity Data Types		
		2863 Interfaces MIB		

Regulatory, environment and other compliance

Safety and emissions

Australia/New Zealand: ACMA RCA 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 EMC 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 DellEMC.com/Services

Learn more at DellEMC.com/Networking