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 N3000 series is 8; however, N3000E series support max stack of 12 members. N3000 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 Multichassis 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.

Leverage familiar tools and practices

All N-Series switches include Dell EMC Networking OS6, designed for easier deployment, greater interoperability and a lower learning curve for network administrators. OS6 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 260Gbps (full duplex) and a forwarding rate up to 193Mpps. 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 highly available stacking architecture for high-density aggregation with seamless redundant availability. The N-Series switch’s lifetime warranty covers software upgrades, hardware repair or replacement, and optics and cables purchased with the switch.*

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+ in 1RU without an external power supply.
• 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.
• 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.

**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. For details, visit https://www.dell.com/en-us/work/shop/networkingwarranty/cp/networkingwarranty.
<table>
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<th>Product</th>
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| **N3000E series** | **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  
**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  
**N3024EP-ON**: 12x RJ45 10/100/1000Mb PoE+ (up to 30.8W) 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  
**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, 2Gb memory and 1Gb of flash  
**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 4GB flash (on product shipping from July 1st, 2019). |
| **Power cords** | C13 to NEMA 5-15, 3M  
C13 to C14, 2M  
C15 to NEMA 5-15, 2M (C15 for PoE N-Series only) |
| **Modules (optional)** | 2-port 10 Gigabit BASE-T RJ-45 hot swappable uplink module  
2-port 10 Gigabit SFP+ hot swappable uplink module |
| **Power supplies (optional)** | 200W AC hot swappable with V-Lock, adds redundancy to non-PoE switches (N3024ET-ON, N3024EF-ON and N3048ET-ON only)  
715W AC hot swappable, adds redundancy to N3024EP-ON  
1100W AC hot swappable, adds redundancy to N3048EP-ON  
N3024EP-ON for additional PoE+ power (N3024EP-ON, N3048EP-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 Technologies Networking cable, SFP+ to SFP+, 10GbE, copper twinax direct attach cable, 0.5m, 1m, 3m, 5m and 7m |
Physical
2 rear stacking ports (21Gbps) supporting up to 84Gbps (full-duplex)
2 integrated front 10GbE SFP+ dedicated 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
Size (1RU, H x W x D): 17.126 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: 13.227lbs/6Kg (N3048ET-ON and N3048EFON), 14.550lbs/6.6kg (N3048EPON),
13.889lbs/6.3kg (N3048ET-ON), 15.211lbs/6.9kg (N3048EP-ON),
1.7126 in x 17.0866 in x 16.0236 in
(43.5 mm x 434.0 mm x 407.0 mm)
MEP 4-ports per stack, 8 member ports per LAG
Link aggregation: 128 LAG groups, 144 dynamic
N3048EP-ON)
193Mpps (130 Gbps) (N3024ET-ON, N3024EF-ON, N3024EP-ON) (full duplex)
260Gbps (N3048ET-ON, N3048EP-ON)
Flash memory: 256MB
Packet buffer memory: 4MB
CPU memory: 1GB
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
(1.3SM+)
ARP entries: 6,144
NPD entries: 400
Access control lists (ACLs): 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: 1,024
Max ACL rules per interface (IPv4): 3,072
(ingress), 1,024 (egress)
Max ACL rules per interface (IPv6): 1,024 (ingress), 512 (egress)
Max VLAN interfaces with
ACLs applied: 24
IEEE compliance
802.1AB LLDP
Dell Voice VLAN
Dell ISDP (inter-operations 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+ (N3048EP and N3048BP)
802.3AX LAG Load Balancing
Dell Multi-Chassis LAG (MLAG)
Dell Policy Based Forwarding
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 9,126 bytes
RFC compliance and additional features
General Internet protocols
General IPv4 protocols are supported. For a
detailed list, please contact your Dell Technologies
representative.
General IPv6 protocols
General IPv6 protocols are supported. For a
detailed list, please contact your Dell Technologies
representative.
Layer 3 functionality
1058 RIPV1 2453 RIPV2
1724 RIPV2 MB Extension 2740 OSPFV3
1765 OSPF DB overflow 2787 VRRP MB
1850 OSPF MB 3101 NSSA
2082 RIP-2 MD5 Auth 3137 OSPF Stub Router
Advext
2328 OSPFv2 3623 Graceful Restart
2338 VRRP 5768 VRRP
2570 Cisco LSA Option 4271 BGP
Dell Policy Based Routing 5187 OSPFv3 Graceful
Restart
Multicast
1112 IGMPv1 3810 MLDv2
2236 IGMPv2 3973 PIM-DM
2365 Admin scoped IP 4541 IGMP v1/v2/v3
Mcast
2710 MDL 4601 PIM-SM
2932 IPv4 MB 5060 PIM MB
2933 IGMP 5376 IGMPv5 Dell Static IP Multicast
Draft-ietf-pim-sm-bsr-05
Draft-ietf-ldr-dvmrp-v3-10 DVMRP
Draft-ietf-magma-igmp-proxy-06.txt IGMP/MLD
Proxying
Draft-ietf-magma-igmpv3-and-routing-05.txt
Draft-ietf-ldr-dvmrp-mib-11
Draft-ietf-magma-mgmd-mib-05
Draft-ietf-ldr-dvmrp-mib-05
IEEE 802.3ag draft 8.1 – Connectivity Fault
Management (CFM)
IEEE 802.1p GMRP Dynamic L2 Multicast
Registration
Quality of service
2474 DiffServ Field 2697 stTCM
2475 DiffServ Architecture 4115 trTCM
2597 Assured Flow PHB Dell L4 Trusted Mode
Dell Port Based GoS Services (TCP/UDP)
Mode
Dell Red/WRED
Dell Flow Based GoS Services
Dell Audio Video Bridging Mode (IPv4/IPv6)
Dell UDL D
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 v1.3
2271 SNMP Framework MIB
2295 Transport Content Negotiation
2296 Remote Variant Selection
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)
2886 Text Conv. For High Capacity Data Types
2886 RADIUS ACCOUNTING MIB
2886 RADIUS Accounting
2886 RADIUS Attributes for Tunnel Prot.
2889 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
3417 Transport Mappings
3418 SNMP MIB
3577 RMON MIB
3580 802.1X with RADIUS
3737 Registry of RMON 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
5246 TLS v1.2
6101 SSL
6398 IP Router Alert
Dell Enterprise MIB supporting routing features draft-ietf-hubmb-ethernet-mib-v3-00.txt (Obsoletes RFC 2665)
Dell LAG MIB Support for 802.3ad functionality
Dell sflow version 1.3

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 Technologies 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 Technologies representative.

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.

Learn more at DellTechnologies.com/Services

Plan, deploy, manage and support your IT transformation with our top-rated services

Consulting
Dell Technologies Consulting Services provides industry professionals with a wide range of tools and the experience you need to design and execute plans to transform your business.

Deployment
Accelerate technology adoption with ProDeploy Enterprise Suite. Trust our experts to lead deployments through planning, configuration and complex integrations.

Management
Regain control of operations with flexible IT management options. Our Residency Services help you adopt and optimize new technologies and our Managed Services allow you to outsource portions of your environment to us.

Support
Increase productivity and reduce downtime with ProSupport Enterprise Suite. Expert support backed by proactive and predictive artificial intelligence tools.

Education
Dell Technologies Education Services help you develop the IT skills required to lead and execute transformational strategies. Get certified today.

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