DELL EMC NETWORKING N1100 SERIES SWITCHES

Fully managed 1/10GbE Layer 2 switching with Open Networking capabilities

The N1100 switch series offers a power-efficient Gigabit Ethernet (GbE) network-access switching solution with integrated 1GbE and 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 a 1Gbps (full-duplex) high availability stacking architecture that allows management of up to four switches from a single IP address. Fanless operation on select models, 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 up to 24 PoE/PoE+ ports. PoE power budgets up to 380W deliver clean power to network devices such as wireless access points (APs), Voiceover-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. The N1100 switch series also supports the Open Network Install Environment (ONIE), enabling installation of alternate network operating systems.

Deploy with confidence at any scale

N1100 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 192 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 RJ45 ports and four integrated 10GbE SFP+ ports.
- Up to 12 PoE/PoE+ ports without an optional external power supply.
- Up to 192 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 (24- and 48-port models only).
- 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 113ºF (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.
- Deploy, monitor and troubleshoot via integration with HiveManager cloud or on-premise management
- 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.
- Remote Switch Port Analyzer (RSPAN) monitors ports across a Layer 2 domain without costly dedicated network taps.

Product	Description
N1100 series	N1108T-ON: 8x 10/100/1000Mbps half/full duplex RJ45 ports, 2x GbE RJ45 and 2x GbE SFP interfaces, 1 RU half-width form factor, fanless operation N1108P-ON: 8x 10/100/1000Mbps half/full duplex ports, 2x GbE RJ45 and 2x GbE SFP interfaces, 4xPoE/PoE+, 75W PoE power budget RJ45, 1 RU half-width form factor N1124T-ON: 24x 10/100/1000Mbps half/full duplex RJ45 ports, 4x SFP/SFP+ 1/10GbE ports, 1 RU switch form factor, fanless operation N1124P-ON: 24x 10/100/1000Mbps half/full duplex ports, 4x SFP/SFP+ 1/10GbE ports, 12xPoE/PoE+ ports 190W PoE power budget, 1 RU switch form factor N1148T-ON: 48x 10/100/1000Mbps half/full duplex RJ45 ports, 4x SFP+ 10GbE ports, 1 RU switch form factor, fanless operation N1148P-ON: 48x 10/100/1000Mbps half/full duplex ports, 4x SFP/SFP+ 1/10GbE ports, 24xPoE/PoE+ ports, 380W PoE power budget, 1 RU switch form factor
Power cords	C13 to NEMA 5-15, 3M C13 to C14, 2M C15 to NEMA 5-15, 2M (C15 for PoE N-Series only)
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
4x integrated front 10GbE SFP+ dedicated ports, 2x 10GbE can be used as stacking ports (24 and 48-port models), 2x 1GbE SFP links (8-port models)

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: 24W AC (N1108T-ON); 24W and 80W AC (N1108P-ON); 40W AC (N1124T-ON); 250W AC (N1124P-ON); 60W AC (N1148T-ON); 500W AC (N1148P-ON)

Micro USB Console port (Micro USB to USB cable included)

Dual firmware images on-board

Switching engine model: Store and forward

Chassis
Size (H x W x D):
N1108T-ON, N1108P-ON: 1.75 in x 8.5 in x 10 in
N1124T-ON, N1124P-ON, N1148T-ON, N1148P-ON: 1.75 in x 17 in x 10 in

Approximate weight: 3.54lbs, 1.61kg (N1108T-ON), 4.43lbs, 2.01kg (N1108P-ON), 6.72lbs, 3.05kg (N1124T-ON), 8.33lbs, 3.78kg (N1124P-ON), 8.33lbs, 3.78kg (N1148T-ON), 9.19lbs, 4.17kg (N1148P-ON)

Rack mounting kit with 2 mounting brackets, bolts and cage nuts

1RU tray to accommodate two half rack width switches (kit includes L-brackets for 800mm deep rack/ cabinet)

Environmental
Power supply efficiency: 80% or better in all operating modes

Max. thermal output (BTU/hr):
35.72 (N1108T-ON), 292.62 (N1108P-ON), 65.85 (N1124T-ON), 851.66 (N1124P-ON), 102.98 (N1148T-ON), 1566.15 (N1148P-ON)

Power consumption max (watts):
10.47 (N1108T-ON), 85.76 (N1108P-ON), 19.3 (N1124T-ON), 249.6 (N1124P-ON), 30.18 (N1148T-ON), 459 (N1148P-ON)

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%

Performance
MAC addresses: 16K

Switch fabric capacity: 24Gbps (N1108T-ON and N1108P-ON), 128Gbps (N1124T-ON and N1124P-ON), 176Gbps (N1148T-ON and N1148P-ON)

Forwarding rate: 18Mpps (N1108T-ON and N1108P-ON), 96Mpps (N1124T-ON and N1124P-ON), 132Mpps (N1148T-ON and N1148P-ON)

Link aggregation: 64 LAG groups, 144 dynamic ports per stack, 8 member ports per LAG

Queues per port: 8

Line-rate Layer 2 switching: All (non-blocking)

Flash memory: 1GB

Packet buffer memory: 1.5MB (N1108T-ON and N1108P-ON), 2MB (N1124T-ON and N1124P-ON), 4MB (N1148T-ON and N1148P-ON)

CPU memory: 1GB

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 ACL rules (system-wide): 4K

Max configurable rules per list: 1023

Max ACL rules per interface and direction (IPv4/L2): 1023

Max ACL rules per interface and direction (IPv6): 1021 ing/253 egr

Max ACL logging rules (system-wide): 128

Max number of ACLs: 100

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

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)

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802.3af	PoE (N1108P-ON, N1124P-ON, N1148P-ON)
802.3at	PoE+ (N1108P-ON, N1124P-ON, N1148P-ON)
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.

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	Dell	Flow Based QoS Services Mode (IPv4/IPv6)
2475	DiffServ Architecture		
2597	Assured Fwd PHB		
Dell	L4 Trusted Mode (TCP/UDP)	Dell	Port Based QoS Services Mode
Dell	UDLD		

Network management and security
1155	SMIv1	2233	Interfaces Group using SMIv2
1157	SNMPv1		
1212	Concise MIB Definitions	2246	TLS v1
1213	MIB-II	2271	SNMP Framework MIB
1215	SNMP Traps		
1286	Bridge MIB	2295	Transport Content Negotiation
1442	SMIv2		
1451	Manager-to-Manager MIB	2296	Remote Variant Selection
1492	TACACS+		
1493	Managed Objects for Bridges MIB	2346	AES Ciphersuites for TLS
1573	Evolution of Interfaces	2576	Coexistence Between SNMPv1/v2/v3
1612	DNS Resolver MIB Extensions	2578	SMIv2
1643	Ethernet-like MIB	2579	Textual Conventions for SMIv2
1757	RMON MIB		
1867	HTML/2.0 Forms with File Upload Extensions	2580	Conformance Statements for SMIv2
1901	Community-based SNMPv2	2613	RMON MIB
1907	SNMPv2 MIB	2618	RADIUS Authentication MIB
1908	Coexistence Between SNMPv1/v2	2620	RADIUS Accounting MIB
2011	IP MIB	2665	Ethernet-like Interfaces MIB
2012	TCP MIB		
2013	UDP MIB	2674	Extended Bridge MIB
2068	HTTP/1.1	2737	ENTITY MIB
2096	IP Forwarding Table 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	

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

Learn more at Dell.com/N1100

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