

NORTEL

Hot Sheet

Nortel Ethernet Routing Switch 5500 Series

The Nortel Ethernet Routing Switch 5500 Series is a set of premium, high-performance, highly efficient, Stackable Switches with comprehensive Layer 3 Routing, advanced security and unified communications features. As a flexible, multi-role platform, the Ethernet Routing Switch 5500 is suitable for Wiring Closet, Data Center aggregation and network Core applications.

The Ethernet Routing Switch 5500 Series (ERS 5500) currently includes five distinct models. Two high-performance 10/100/1000 models offer either 24- or 48-ports including two Combo 1000BASE-T/1000BASE-SFP Uplinks ports. Then there are the high-performance models that deliver Standards-based Power-over-Ethernet (PoE) 10/100/1000 in 24- or 48-ports variants including four Combo 1000BASE-T/1000BASE-SFP Uplinks ports. And lastly, the model that rounds out the portfolio delivers 24 ports of 10/100/1000, including 12 Combo ports of 1000BASE-T/1000BASE-SFP Uplinks ports, plus two 10GBASE-XFP slots (see Table 1 for more information). All models support power resiliency via the external Redundant Power Supply 15 solution.

The Ethernet Routing Switch 5500 Series features an advanced implementation of Nortel's Flexible Advanced Stacking Technology (FAST), also seen on the other Stackable product lines in Nortel's Ethernet Routing Switch portfolio.

A key aspect for the ERS 5500 is that these models are 100% Stack-compatible with the new ERS 5600 Series products. Any combination of ERS 5000 Series units -5500 or 5600 models — can be Stacked up to eight units high, or to a maximum of 400 ports. When ERS 5500s are Stacking directly together, the Stacking bandwidth is 80Gbps per unit, and therefore up to an extremely impressive 640Gbps for a complete Stack. When 5600 models are adjacent to 5500 models - known as 'Hybrid Stacking' - the Stacking bandwidth is the standard 80Gbps; however, when 5600 models are Stacked together, the capacity increases to 144Gbps, and a pure Stack of ERS 5600 models is an Industry-leading 1.152Tbps.

This unique 'Hybrid Stacking' capability ensures that the Ethernet Routing Switch 5000 Series provides incredible versatility and investment protection; something which is distinctly lacking in many competitive offerings. Being able to mix and match models in a Hybrid Stack from the full ERS 5000 Series range enables Operators to easily and cost-effectively add to existing ERS 5500 deployments; the requirement could be to scale capacity or to add 10G Ethernet Uplinks for the high-performance Wiring Closet and other deployment scenarios.

The Ethernet Routing Switch 5500 Series delivers highly scalable and flexible Power-over-Ethernet, with medium- and high-density models available to simplify deployment in high-intensity Convergence-centric networks. An external redundant power solution ensures both power redundancy and full PoE power.

Nortel Ethernet Routing Switch 5500 Series

- Versatile portfolio of 10/100/1000
 Switches with optional Power-over-Ethernet & 10G
- High-capacity, genuinely-resilient Stacking creating a 'Stackable Chassis' capability
- Virtual hot-swap facilitating zero impact unit replacement
- 100% Stack compatibility across the full ERS 5000 Series portfolio
- Dynamic Layer 3 IP Routing & Switch Clustering for high-availability for the
- Comprehensive network access control & denial-of-service prevention
- Graded software licensing to minimize over-investment & to reinforce the pay-as-you-grow
- Energy- & space-efficient

Tab	ole	1. r	lortel	Ethernet	t Routing	Switch	5500	Series
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Model	Link & Uplink Ports
ERS 5510-24T	24 x 1000BASE-T, including 2 x Combo 1000BASE-T/1000BASE-SFP
ERS 5510-48T	48 x 1000BASE-T, including 2 x Combo 1000BASE-T/1000BASE-SFP
ERS 5520-24T-PWR	24 x 1000BASE-T with Power-over-Ethernet, including 4 x Combo 1000BASE-T/1000BASE-SFP
ERS 5520-48T-PWR	48 x 1000BASE-T with Power-over-Ethernet, including 4 x Combo 1000BASE-T/1000BASE-SFP
ERS 5530-24TFD	24 x 1000BASE-T, including 12 x Combo 1000BASE-T/1000BASE-SFP, plus 2 x 10GBASE-XFP Slots



Ethernet Routing Switch 5500 Series

Ordering Information

Switch Models

Order Code	Description
AL1001?04-E5	Ethernet Routing Switch 5510-24T with 24 x 10/100/1000 ports plus 2 x Combo SFP ports. Includes Stacking Cable and Base Software License Kit. Power Cord ordered separately.
AL1001?03-E5	Ethernet Routing Switch 5510-48T with 48 x 10/100/1000 ports plus 2 x Combo SFP ports. Includes Stacking Cable and Base Software License Kit. Power Cord ordered separately.
AL1001?06-E5	Ethernet Routing Switch 5520-24T-PWR with 24 x 10/100/1000 Power-over-Ethernet ports plus 4 x Combo SFP ports. Includes Stacking Cable and Base Software License Kit. Power Cord ordered separately.
AL1001?05-E5	Ethernet Routing Switch 5520-48T-PWR with 48 x 10/100/1000 Power-over-Ethernet ports plus 4 x Combo SFP ports. Includes Stacking Cable and Base Software License Kit. Power Cord ordered separately.
AL1001?07-E5	Ethernet Routing Switch 5530-24TFD with 24 x 10/100/1000 ports, 12 x Combo SFP ports, 2 x XFP 10 Gigabit ports. Includes Stacking Cable and Base Software License Kit. Power Cord ordered separately.

Redundant Power Supply 15

Redundant Power Supply 15				
Order code	Description			
AA0005017-E5	Redundant Power Supply 15 – Chassis (supports up to 3 600W Power Supplies).			
AA0005?19-E5	Redundant Power Supply 15 – 600 Watt Power Supply Module, up to 3 can be installed in RPS 15 Chassis. Requires separate RPS Connecting Cable per RPS 15 Power Supply. Power Cord ordered separately.			
AA0005018-E6	Redundant Power Supply 15 – Connecting Cable (1.8m/6ft) for 1 x ERS 4626T-PWR, 4550T-PWR, 4526GTX-PWR, 4548GT-PWR, 5520-24T-PWR, 5520-48T-PWR, 5530 or ES 470-24T-PWR, 470-48T-PWR, (Does NOT require separate DC-DC Converter).			
AA0005020-E6	Redundant Power Supply 15 – Long Connecting Cable (1.8m/6ft) for 1x ERS 4626T-PWR, 4550T-PWR, 4526GTX-PWR, 4548GT-PWR, 5520-24T-PWR, 5520-48T-PWR, 5530 or ES 470-24T-PWR, 470-48T-PWR, (Does require separate DC-DC Converter).			
AA0005021-E6	Redundant Power Supply 15 – Short Connecting Cable (3m/10ft) for up to 4 x ERS 4526FX, 4526T, 4550T, 4524GT, 4526GTX, 4548GT, 5510-24T, 5510-48T or ES 470-24T, 470-48T. (Does requires separate DC-DC Converter)			
AL1904007-E6	DC-to-DC Converter – For installation in the ERS 4526FX, 4526T, 4550T, 4524GT, 4548CT, 5510-24T and 5510-48T, for use with the RPS15 (requires separately orderable cable AA0005020-E6 or AA0005021-E6)			
AA0011028	Redundant Power Supply 15 Rack Mount Replacement Kit (for use as Spare)			

Maintenance Service Options

Order code	Description
GE6300xxx	Technical Support Service
GL6300xxx	Return & Replace Service
GF6300xxx	Managed Spares Services Pack – Next Business Day
GG6300xxx	Managed Spares Services Pack – Same Business Day
GH6300xxx	Managed Spares Services Pack – 4 Hour (7x24)
GJ6300xxx	Managed On-Site with Spares Services Pack – Next Business Day
GK6300xxx	Managed On-Site with Spares Services Pack – Same Business Day
GN6300xxx	Managed On-Site with Spares Services Pack – 4 Hour (7x24)

SFP/XFP Pluggable Transceiver Options

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Order code	Description
AA1419043-E6	1-port 1000BASE-T SFP (RJ-45 Connector)
AA1419013-E5	1-port 1000BASE-SX SFP (LC Connector)
AA1419014-E5	1-port 1000BASE-SX SFP (MT-RJ Connector)
AA1419015-E5	1-port 1000BASE-LX SFP (LC Connector)
AA1419048-E6	1-port 1000BASE-SX DDI SFP (LC Connector)
AA1419049-E6	1-port 1000BASE-LX DDI SFP (LC Connector)
AA1419069-E6	1-port 1000BASE-BX DDI SFP (LC Connector) - 1310nm Wavelength. Must be paired with AA1419070-E6
AA1419070-E6	1-port 1000BASE-BX DDI SFP (LC Connector) - 1490nm Wavelength. Must be paired with AA1419069-E6
AA1419025-E5	1-port 1000BASE-CWDM SFP (LC Connector) - 1470nm Wavelength, 40km
AA1419026-E5	1-port 1000BASE-CWDM SFP (LC Connector) - 1490nm Wavelength, 40km
AA1419027-E5	1-port 1000BASE-CWDM SFP (LC Connector) - 1510nm Wavelength, 40km
AA1419028-E5	1-port 1000BASE-CWDM SFP (LC Connector) - 1530nm Wavelength, 40km
AA1419029-E5	1-port 1000BASE-CWDM SFP (LC Connector) - 1550nm Wavelength, 40km
AA1419030-E5	1-port 1000BASE-CWDM SFP (LC Connector) - 1570nm Wavelength, 40km
AA1419031-E5	1-port 1000BASE-CWDM SFP (LC Connector) - 1590nm Wavelength, 40km
AA1419032-E5	1-port 1000BASE-CWDM SFP (LC Connector) - 1610nm Wavelength, 40km
AA1419033-E5	1-port 1000BASE-CWDM SFP (LC Connector) - 1470nm Wavelength, 70km
AA1419034-E5	1-port 1000BASE-CWDM SFP (LC Connector) - 1490nm Wavelength, 70km
AA1419035-E5	1-port 1000BASE-CWDM SFP (LC Connector) - 1510nm Wavelength, 70km
AA1419036-E5	1-port 1000BASE-CWDM SFP (LC Connector) - 1530nm Wavelength, 70km
AA1419037-E5	1-port 1000BASE-CWDM SFP (LC Connector) - 1550nm Wavelength, 70km
AA1419038-E5	1-port 1000BASE-CWDM SFP (LC Connector) - 1570nm Wavelength, 70km
AA1419039-E5	1-port 1000BASE-CWDM SFP (LC Connector) - 1590nm Wavelength, 70km
AA1419040-E5	1-port 1000BASE-CWDM SFP (LC Connector) - 1610nm Wavelength, 70km
AA1403005-E5	1-port 10GBASE-SR XFP (LC Connector) - 300m over MMF
AA1403007-E6	1-port 10GBASE-LRM XFP (LC Connector) - 220m over MMF
AA1403001-E5	1-port 10GBASE-LR/LW XFP (LC Connector) - 10km over SMF
AA1403003-E5	1-port 10GBASE-ER/EW XFP (LC Connector) - 40km over SMF
AA1403006-E5	1-port 10GBASE-ZR/ZW XFP (LC Connector) - 80km over SMF

Each ERS 5000 Series Switch ships with the Base Software License kit and a 46cm /1.5ft Stacking Cable included. SFP & XFP Pluggable Transceivers and spare Stacking Cables are sold separately.

Where applicable the seventh character (?) of an Order Code is replaced to indicate the required product

- "A" No Power Cord option
 "B" Includes European "Schuko" Power Cord option, common in Austria, Belgium, Finland, France, Germany, Netherlands, Norway, & Sweden
 "C" - Includes Power Cord used in UK and Ireland
 "D" - Includes Power Cord used in Japan

- "E" Includes Power Cord used in North America
 "F" Includes Power Cord used in North America
 "F" Includes Power Cord used in Australia, New Zealand, and People's Republic of China

Accessories

Order Code	Description
AL1016001	Ethernet Routing Switch 5000 Series Advanced License Kit, for 1 Switch or Stack. Enabled features: ECMP, OSPF, PIM-SM, SMLT & VRRP. One License required per Switch or Stack.
AL1016002	Ethernet Routing Switch 5000 Series Advanced License 10-pack, for 10 Switches or Stacks. Enabled features: ECMP, OSPF, PIM-SM, SMLT & VRRP. One License required per Switch or Stack.
AL1016003	Ethernet Routing Switch 5000 Series Advanced License 50-pack, for 50 Switches or Stacks. Enabled features: ECMP, OSPF, PIM-SM, SMLT & VRRP. One License required per Switch or Stack.
AL1016004	Ethernet Routing Switch 5000 Series Advanced License 100-pack, for 100 Switches or Stacks. Enabled features: ECMP, OSPF, PIM-SM, SMLT & VRRP. One License required per Switch or Stack.
AL2018011-E6	Stacking Cable 46cm/1.5ft for ERS 5500 Series (for use as Spare)
AL2018009-E6	Stacking Cable 1.0m/3ft for ERS 5500 Series (Spare or for use as Return Cable)
AL2018013-E6	Stacking Cable 3.0m/10ft for ERS 5500 Series (Spare or for use as Return Cable)
AL2018014-E6	Stacking Cable 5.0m/16.4ft for ERS 5500 Series (Spare or for use as Return Cable)

Technical Specifications

Technical Specifications				
• 1000BASE-T Ethernet with auto-negotiation,	• IEEE 802.3af	Power-over-Ethernet	• RFC 1850	OSPFv2 MIB
delivering backwards compatibility to support	 RFC 768 	User Datagram Protocol	• RFC 1866	HyperText Markup Language v2
10/100Mbps devices, supporting 24 or 48 ports per Switch, available with and without PoE	• RFC 783	Trivial File Transfer Protocol (TFTP)	• RFC 1901	Introduction to Community-based SNMPv2
• 1000BASE-X Ethernet available on ERS 5510	• RFC 791/950	Internet Protocol (IP)	• RFC 1905/	SNMP
(2 Slots), ERS 5520 (4 Slots), & ERS 5530-	 RFC 792 	Internet Control Message	3416	
24TFD (12 Slots), supporting T, SX, LX, XD & ZX CWDM, BX Pluggable Transceivers	• RFC 793	Protocol (ICMP) Transmission Control Protocol	• RFC 1906/ 3417	SNMP Transport Mappings
 10GBASE-X Ethernet available on the ERS 5530-24TFD, supporting SR, LRM, LR/ 	• RFC 826	Address Resolution Protocol (ARP)	• RFC 1907/ 3418	SNMP MIB
LW, ER/EW, and ZR/ZW XFP Pluggable	• RFC 854	Telnet Server and Client	 RFC 1945 	HTTP v1.0
Transceivers	 RFC 894 IP 	Datagrams over Ethernet	 RFC 2011 	SNMP v2 MIB for IP
 Flexible Advanced Stacking Technology: supporting up to 8 ERS 5000 Series Switches 		Networks	 RFC 2012 	SNMP v2 MIB for TCP
and/or up to 384 ports per Stack	• RFC 951/	BOOTP	• RFC 2013	SNMP v2 MIB for UDP
Stacking ports: 2 built-in FAST640 Stacking	1542	D .: I.C .: D . I	• RFC 2131	DHCP
connectors per Switch	 RFC 1058 RFC 1112 	Routing Information Protocol Internet Group Management	• RFC 2138/ 2865	RADIUS Authentication
 Total Stacking capacity: 80Gbps per Switch & 	• KFC 1112	Protocol v1	• RFC 2139/	RADIUS Accounting
up to 640Gbps	• RFC 1157	Simple Network Management	2866	KADIO3 Accounting
Switching Fabric capacity: 80 – 192Gbps per		Protocol (SNMP)	• RFC 2030	Simple Network Time Protocol
Switch	 RFC 1213 	Management Information Base		(SNTP) Version 4 for IPv4, IPv6
• Packet throughput: 35.7 – 71.4Mpps		for Network Management of TCP/IP-based Internets	DDC 4007	and OSI
• Latency & Jitter: 9μsec & 12 – 14 μsec	• RFC 1215	SNMP Traps Definition	• RFC 2096	IP Forwarding Table MIB
• Concurrent VLANs: 256	• RFC 1253	OSPF Version 2 Management	• RFC 2236/ 3376	Internet Group Management Protocol v2/ v3
Maximum MAC Addresses: 16,000 Landa France Circles 25,10 Circl	10 0 12)9	Information Base	• RFC 2328	Open Shortest Path First v2
 Jumbo Frames: Gigabit & 10 Gigabit ports Power Resiliency: Redundant Power Supply 15 	• RFC 1271/	Remote Network Monitoring	• RFC 2338/	Virtual Router Redundancy
Rack consumption: 1RU per Switch	1757 / 2819	Management Information Base	3768	Protocol
Rack consumption: TKO per Switch	• RFC 1350	TFTP Protocol	 RFC 2362 	Protocol Independent Multicast —
Standards Compliance	• RFC 1354	IP Forwarding Table MIB	DEC 2/52	Sparse Mode
• IEEE 802.1D Spanning Tree	• RFC 1361/ 1769	Simple Network Time Protocol (SNTP)	• RFC 2452	IPv6 TCP MIB
IEEE 802.1p Priority Queues	• RFC 1442	Simple Network Management	RFC 2453RFC 2454	Routing Information Protocol v2 IPv6 UDP MIB
• IEEE 802.1Q VLANs	14 0 1112	Protocol (SNMPv2)	• RFC 2460	IPv6 (for switch management only)
• IEEE 802.1s Multiple Spanning Tree Groups	• RFC 1450	MIBv2 for SNMPv2	• RFC 2463	ICMPv6
 IEEE 802.1v VLAN Classification 	 RFC 1492 	Access Control Protocol,	• RFC 2464	Transmission of IPv6 over Ethernet
 IEEE 802.1w Rapid Spanning Tree 	DEC 1/02/	aka TACACS	• RFC 2465	IPv6 MIB
IEEE 802.1X Port Based Network Access	• RFC 1493/ 4188	Bridge MIB	• RFC 2466	ICMPv6 MIB
Control (Extensible Authentication Protocol)	• RFC 1519	Classless Inter-Domain Routing	 RFC 2474 	Differentiated Services Support
IEEE 802.1AB Link Layer Discovery Protocol	14 (3 1)1)	(CIDR)	 RFC 2475 	An Architecture for Differentiated
IEEE 802.1AB LLDP MED & Location TLV	• RFC 1541	Dynamic Host Configuration		Service
• IEEE 802.3 10BASE-T Ethernet		Protocol	 RFC 2526 	Reserved IPv6 Subnet Anycast
• IEEE 802.3i 10BASE-T Auto-negotiation	• RFC 1542	Bootstrap Protocol	• DEC 2570/	Addresses SNMPv3
• IEEE 802.3u 100BASE-TX Fast Ethernet	• RFC 1573/	(Clarifications and Extensions) Interface MIB	• RFC 2570/ 3410	SINIMPVS
• IEEE 802.3u Auto-Negotiation on Twisted	2863	Interface WIID	• RFC 2571/	SNMP Frameworks
Pair (ISO/IEC 8802-3,	• RFC 1587	OSPF NSSA Option	3411	
Clause 28) • IEEE 802.3x Flow Control	• RFC 1591	Domain Name System	• RFC 2572/	SNMP Message Processing
• IEEE 802.3x Flow Control • IEEE 802.3z Gigabit Ethernet (1000BASE-T)	• RFC 1643/	Ethernet MIB	3412	CNIMED 2 A 1: :
• IEEE 802.3ab 1000BASE-1)	2665		• RFC 2573/ 3413	SNMPv3 Applications
• IEEE 802.3ad Link Aggregation	• RFC 1724	RIP MIB	• RFC 2574/	SNMPv3 USM
• IEEE 802.3ae 10Gb/s Ethernet	• RFC 1812	IPv4 Router Requirements	3414	2

Technical Specifications — continued				
• RFC 2575/ 3415	SNMPv3 VACM			
• RFC 2576/ 3584	Co-existence of SNMP v1/v2/v3			
 RFC 2597 	Assured Forwarding PHB Group			
 RFC 2598 	An Expedited Forwarding PHB			
 RFC 2660 	HTTPS (Secure Web Server)			
 RFC 2665 	Ethernet MIB			
• RFC 2674/ 4363	Q-Bridge MIB			
 RFC 2737 	Entity MIBv2			
 RFC 2787 	VRRP MIB			
 RFC 2819 	RMON MIB			
• RFC 2868	RADIUS Attributes for Tunnel Protocol Support			
• RFC 2925	Managed objects for Ping, Traceroute & Lookup			
 RFC 2932 	IPv4 Mulitcast routing MIB			
 RFC 2992 	ECMP Algorithm			
 RFC 3046 	DHCP Relay agent			
• RFC 3101	OSPF Not-So-Stubby Area (NSSA) Option			
• RFC 3576	IEEE 802.1X Security Extensions			
 RFC 3621 	Power Ethernet MIB			
• RFC 3748	Extensible Authentication Protocol (EAP)			
• RFC 3826	Advanced Encryption Standard (AES) Cipher Algorithm in SNMP			
• RFC 3917	Requirements for IP Flow Information Export (IPFIX)			
• RFC 4251	SSH Protocol architecture			
• RFC 4252	SSH Authentication Protocol			

• RFC 4254 Key Features

• RFC 4253

 IP Local & Static Routing, DHCP Relay, UDP Forwarding, Proxy ARP, RIP, OSPF, VRRP

SSH Transport protocol

SSH Connection protocol

- DHCP Snooping
- Dynamic ARP Inspection
- IP Source Guard
- BPDU Filter/ BPDU Guard
- Distributed Link Aggregation Groups (IEEE 802.3ad LAG)
- Multi-Link Trunking (32 Groups of up to 8 Trunks)
- Distributed Multi-Link Trunking (DMLT)
- Switch Clustering (Nortel's Split Multi-Link Trunking)

- Virtual Link Aggregation Control Protocol (VLACP)
- Nortel Multiple Spanning Tree Groups
- DSCP-based Recognition, Marking and Re-Marking
- Ingress & Egress Port Mirroring
- Many-to-Many Port Mirroring
- Broadcast & Multicast Rate Limiting per Port
- ICMPv1/v2/v3 Snooping
- PIM-SM Multicast Routing
- Automatic Detection Automatic Configuration (ADAC)
- Customizable Auto-Negotiation Advertisements (CANA)
- 802.1X Single Host Single Authentication
- 802.1X Multiple Host Multiple Authentication
- 802.1X Guest VLAN
- 802.1X Single Host Multiple Authentication
- 802.1X Non-EAP (NEAP) access
- Nortel Secure Network Access (SNA) support
- ASCII Configuration File
- · Web, NNCLI, DM
- SSHv2 and SNMPv3 Secure Management support
- Single IP Address for Stack Management
- RADIUS and TACACS+ Management Authentication
- Resilient Fail-Safe Stacking
- Automatic Unit Replacement (Configuration and Software)
- Stack Health Check
- Backup and Restore Switch Software & Configuration Files
- USB Interface for Configuration & Software Storage

Power-over-Ethernet Specifications

- IEEE 802.3af-compliant with Power classification support
- PoE Power delivered over Signal Pair
- Maximum 15.4 Watts per port

Electrical Specification

- Power Supply: AC 100-240V, 50-60Hz
- Input Current at 110v: 1.3 6.5A
- Input Current at 220v: 0.65 3.5A
- Max Rated Power Consumption: 125 600W

Dimensions

- Width: 438.2mm/17.25in
- Height: 1RU 44.5mm/1.75in
- Depth: 387.4mm/15.25in
- Weight: 5.8kg/12.78lb 7.13kg /15.7lb

Environmental Specifications

- Operating temperature: 0° to 50° C
- Storage temperature: -25° to 55° C
- · Relative humidity: 10 to 90% non-condensing
- Peak noise level: 56dBA
- Thermal rating: 460 850BTU/hr
- Calculated MTBF: 161,379 210,361hrs

Safety Agency Approvals

- IEC 60950 International CB Certification
- EN 60950 European Certification
- UL60950 US certification
- · CSA22.2, #60950 Canadian Certification
- NOM Mexican Certification

Electromagnetic Emissions & Immunity

- CISPR22, Class A/CISPR24 International
- EN55022, Class A/EN55024 European
- FCC, Past 15, Class A US Certification
- ICES-003, Class A Canadian Certification
- AN/NZS 3548 Australian/NZ Certification
- BSMI Taiwan CNS 13438, Class A
- MIC Korea MIC, No. 2001-116
 VCCI Class A Japanese Certification

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For more information, contact your Nortel representative, or call 1-800-4 NORTEL or 1-800-466-7835 from anywhere in North America.

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