Nortel Ethernet Routing Switch 8800

Release Notes — Software Release 7.0

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Contents

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New in this release

The following sections detail what's new in *Nortel Ethernet Routing Switch 8800 Release Notes — Software Release 7.0* (NN46205-402) for Release 7.0.

Features

The following sections are new or updated for Release 7.0:

- “Configuration file modifications for BGP upgrades from release 4.x code” (page 51)
- “Considerations for upgrades from 5.0-based code releases” (page 50)
- “Configuration file modifications for BGP upgrades from release 4.x code” (page 51)
- “SMLT switch cluster upgrade considerations” (page 52)
- “Considerations for upgrades from 5.0-based code releases” (page 50)
- “Supported software and hardware scaling capabilities” (page 54)
- “Hardware and software compatibility” (page 57)
- Table 5 "Module and component compatibility" (page 59)
- “Module and chassis compatibility and performance considerations” (page 61)
- “SMLT considerations” (page 68)
- “RSMLT considerations” (page 69)
- “IST considerations” (page 69)
- “High Availability mode considerations” (page 60)
- “MTBF for 1 Gig SFPs” (page 71)
- “Resolved issues” (page 73)
- “Known issues and limitations” (page 77)

Other changes

See the following sections for information about changes that are not feature-related.

Nonsupported hardware for Release 7.0

Release 7.0 does not support any classic modules.

In addition, Release 7.0 supports the 8692 SF/CPU only if it is equipped with SuperMezz. The 8692 SF/CPU without SuperMezz is not supported with Release 7.0.

Finally, the 8003 chassis is no longer supported. It is replaced by the 8003-R chassis.

For a complete list of nonsupported hardware, see “Nonsupported hardware for Release 7.0” (page 30).

R mode

With Release 7.0, M mode is no longer supported. The software runs in R mode by default. References to R mode are removed from this document.

Introduction

This document describes important notices and fixed and known issues for Ethernet Routing Switch 8800 release 7.0 software.

Ethernet Routing Switch 8800 release 7.0 software introduces support for the new 8895 Switch Fabric/CPU Module. When an 8000 Chassis is equipped with the 8895 SF/CPU, this system is known as an Ethernet Routing Switch 8800; conversely, when equipped with an 8692 SF/CPU module (with SuperMezz) the system is known as an Ethernet Routing Switch 8600. Ethernet Routing Switch 8800 release 7.0 software can only operate on an Ethernet Routing Switch 8600 system with appropriate hardware configurations.

With release 7.0 software, the Ethernet Routing Switch 8800 takes over as the go-forward solution for new customers seeking the most reliable and versatile Campus LAN Core Switch. Additionally, release 7.0 software ensures high levels of investment protection and continuity of service for returning Ethernet Routing Switch 8600 customers, as existing Ethernet Routing Switch 8600 deployments can be incrementally upgraded to take advantage of new features.

In this document, use of the term Ethernet Routing Switch 8000 in relation to software and supported features indicates applicability to both 8600 systems and 8800 systems.

Please refer to the following sections of the Release Notes for additional detailed information regarding the supported and unsupported combinations of hardware and software, as well as new feature descriptions.

Navigation

- “New features” (page 17)
- “Important notices” (page 29)
- “Resolved issues” (page 73)

New features

The following sections describe the new features for the Ethernet Routing Switch 8800 Release 7.0.

8895 SF/CPU

The new 8895 SF/CPU is an enhanced version of the 8692 SF/CPU with Super Mezzanine daughter card, redesigned to give better performance (in future software releases) at a reduced cost. Feature changes include replacing the existing PCMCIA slot with a Compact Flash (CF) card and changing the existing Ethernet management port from 10/100 to 10/100/1000.

The 8895 SF/CPU module performs the same functions as the 8692 SF/CPU with SuperMezz.

For more information about the 8895 SF/CPU, see *Nortel Ethernet Routing Switch 8600 Installation — Modules* (NN46205-304).

ATTENTION
With the 8895 SF/CPU, the out-of-band management port now only operates with autonegotiation enabled. Autonegotiation cannot be disabled on the out-of-band management port. Further, for proper operation of the 8800 device, the 8895 management port must only be connected to a device that supports and is enabled for Autonegotiation and must also run in full duplex mode. Device connections that do not support autonegotiation and full duplex are not supported.

8003-R 3-slot chassis

Nortel Ethernet Routing Switch 8800 Release 7.0 supports the new 8003-R 3-slot chassis. The 8003-R chassis provides two slots for interface modules and one slot for the Ethernet Routing Switch 8692 SF/CPU (with SuperMezz) or the new 8895 SF/CPU. Only R and RS modules are supported in the interface slots. The 8003-R supports all 8004 and 8005 AC and DC power supplies, but does not support the 8003 power supplies.

For more information about the 8003-R chassis, see *Nortel Ethernet Routing Switch 8600 Installation — Chassis* (NN45205-303).

Enterprise Device Manager (EDM)

Starting with Release 7.0, Enterprise Device Manager (EDM) replaces the Java-based Device Manager.

EDM is a Web-based graphical user interface (GUI) for element management and configuration of the Ethernet Routing Switch 8800. EDM is an embedded application on the Ethernet Routing Switch, and the EDM Web server is the switch itself. You do not have to install any additional client software and there is no operating system dependency. EDM comes with each Ethernet Routing Switch and enables you to directly manage your switch.

To launch EDM, you must enable the Web server on the Ethernet Routing Switch 8800. By default, the Web server is disabled.

The default EDM username and password combination is rwa/rwa. From the initial login page, you also need to specify the name of the desired VRF to log on to. For the global routing instance (VRF 0), enter GlobalRouter. For any other VRF instance, enter the VRF name, not the VRF number.

ATTENTION
If you have configured a username and password for Web server access in a previous release, these configured values remain unchanged after upgrading to Release 7.0. To access EDM, use these previously configured username and password values. In this case, the rwa/rwa default values do not apply.

For more information on EDM, see *Nortel Ethernet Routing Switch User Interface Fundamentals* (NN46205-308).

Key Health Indicator (KHI) enhancements

Release 7.0 supports Key Health Indicators (KHI) that allow for the collection of statistics and information about the health of the system for troubleshooting purposes related to switch abnormalities. The Key Health Indicator (KHI) feature identifies a number of key health indicators that allow quick assessment of the overall operational state of the Ethernet Routing Switch 8800. These indicators do not provide complete coverage of all possible problem scenarios. Rather, KHI is a diagnostic tool for the health of the switch. More detailed debugging is often required to correctly understand the system state.

KHI provides global health information for the switch, including:

- Chassis health indication
- CPU performance health indication
- Port state change indication
- Forwarding health indication
- IP interface configuration and operation information
- Protocol information
- Management information: Log, TCP, UDP and Users

For more information on KHI, see *Nortel Ethernet Routing Switch 8600 Troubleshooting* (NN46205-703).

BPDU Filtering

To prevent unknown devices from influencing the Spanning Tree topology, the Ethernet Routing Switch 8800 supports Bridge Protocol Data Unit (BPDU) Filtering for Nortel Spanning Tree Groups (STPG), Rapid Spanning Tree Protocol (RSTP), and Multiple Spanning Tree Protocol (MSTP).

With BPDU Filtering, the network administrator can achieve the following:

- Block an unwanted root selection process when an edge device (for example, a laptop running Linux and enabled with STP) is added to the network. This prevents unknown devices from influencing an existing spanning tree topology.
- Block the flooding of BPDUs from an unknown device.

The STP BPDU Filtering feature is not supported on MLT, IST, SMLT, and RSMLT ports.

For more information about BPDU Filtering, *Nortel Ethernet Routing Switch 8600 Configuration — VLANs and Spanning Tree* (NN46205-517).

DHCP snooping

Dynamic Host Configuration Protocol (DHCP) snooping provides security to the network by preventing DHCP spoofing. DHCP snooping classifies ports into two types:

- Untrusted: ports that are configured to receive messages from outside the network or firewall. Only DHCP requests are allowed.
- Trusted: ports, such as switch-to-switch and DHCP server ports, that are configured to receive messages only from within the network. All types of DHCP messages are allowed.

To eliminate the capability to set up rogue DHCP servers on untrusted ports, the untrusted ports allow DHCP request packets only. DHCP replies and all other types of DHCP messages from untrusted ports are dropped.

DHCP snooping dynamically creates and maintains an IP-to-MAC binding table. You can also configure static DHCP binding entries.

For more information about DHCP snooping, see *Nortel Ethernet Routing Switch 8600 Security* (NN46205-601).

Dynamic ARP Inspection

Dynamic ARP Inspection (DAI) is a security feature that validates ARP packets in the network. It intercepts, discards, and logs ARP packets with invalid IP-to-MAC address bindings.

Without Dynamic ARP inspection, a malicious user can attack hosts, switches, and routers connected to the Layer 2 network by poisoning the ARP caches of systems connected to the subnet and by intercepting traffic intended for other hosts on the subnet (man-in-the-middle attacks). Dynamic ARP Inspection prevents this type of attack.

ATTENTION
For Dynamic ARP inspection to function, you must enable DHCP snooping globally and on the VLAN.

When you enable Dynamic ARP inspection, ARP packets on untrusted ports are filtered based on the source MAC and IP addresses. The switch forwards an ARP packet when the source MAC and IP addresses match an entry in the DHCP snooping IP-to-MAC binding table. Otherwise, the ARP packet is dropped.

Like DHCP snooping, Dynamic ARP Inspection supports MLT/SMLT ports as trusted ports only.

For more information about Dynamic ARP Inspection, see *Nortel Ethernet Routing Switch 8600 Security* (NN46205-601).

IP Source Guard

IP Source Guard is a security feature that validates IP packets by intercepting IP packets with invalid IP-to-MAC bindings.

IP Source Guard works closely with DHCP snooping and prevents IP spoofing by allowing only IP addresses that are obtained through DHCP on a particular port. Initially, all IP traffic on the port is blocked except for the DHCP packets that are captured by DHCP snooping. When a client receives a valid IP address from the DHCP server, traffic on the port is permitted when the source IP and MAC addresses match a DCHP binding table entry for the port. Any IP traffic that does not match an entry in the DHCP binding table is filtered out. This filtering limits the ability of a host to attack the network by claiming a neighbor host's IP address.

ATTENTION
For IP Source Guard to function, you must enable DHCP snooping and Dynamic ARP Inspection globally and at the VLAN level. To enable IP Source Guard on a port, the port must be configured as untrusted for DHCP snooping and untrusted for Dynamic ARP Inspection.

IP Source Guard cannot be enabled on MLT/SMLT ports.

For more information about IP Source Guard, see *Nortel Ethernet Routing Switch 8600 Security* (NN46205-601).

IGMP Layer 2 querier

In a multicast network, if the multicast traffic only needs to be Layer 2 switched, no multicast routing is required. However, for multicast traffic to flow from sources to receivers, an IGMP querier must exist on the network, a function that is normally provided by a multicast router.

To provide a querier on a Layer 2 network without a multicast router, you can use IGMP Layer 2 querier.

The IGMP Layer 2 querier provides the querier functions of a multicast router on the Layer 2 multicast network, forwarding queries for multicast traffic and processing the responses accordingly. On the connected Layer 2 VLANs, IGMP snoop continues to provide services as normal, responding to queries and identifying receivers for the multicast traffic.

To enable Layer 2 querier, you must configure an IP address for the querier, in order for it to receive forwarded report and leave messages.

In the Layer 2 multicast network, enable Layer 2 querier on one of the switches in the VLAN. Only one Layer 2 querier is supported in the same Layer 2 multicast domain. No querier election is available.

If a multicast router is present on the network, the Layer 2 querier is automatically disabled.

For more information about IGMP Layer 2 querier, see *Nortel Ethernet Routing Switch 8600 Configuration — IP Multicast Routing Protocols* (NN46205-501).

Multicast VLAN Registration (MVR)

With IGMP snoop enabled on a Layer 2 VLAN, all the ports, including receiver and source ports, are members of the same VLAN. When users in different VLANs join the same multicast group, the multicast router replicates one stream into multiple streams that are sent to these VLANs. Multiple streams waste bandwidth and decrease the performance of the multicast router.

The Multicast VLAN Registration (MVR) Protocol solves this problem. With MVR, the receiver ports remain in the IGMP Snoop VLAN, but one VLAN is designated as the MVR VLAN.

The MVR VLAN has a source port, which connects to the multicast router. After you bind several IGMP Snoop VLANs to the MVR VLAN, and a multicast data packet arrives from the source port, the switch replicates this packet and forwards it to all the IGMP Snoop VLANs that are bound to the MVR VLAN.

After you enable MVR globally, all IGMP control packages that are received from IGMP Snoop VLANs that are bound to the MVR VLAN (including report, leave, and query) are processed by MVR.

Each VRF on the Ethernet Routing Switch 8800 supports only one MVR VLAN.

You cannot enable MVR and Layer 2 querier on the same VLAN.

MVR is designed to work on the edge only. Do not enable MVR in the core network.

For more information about MVR, see *Nortel Ethernet Routing Switch 8600 Configuration — IP Multicast Routing Protocols* (NN46205-501).

PIM-SSM with SMLT

With Release 7.0, fast failover for multicast traffic in a PIM-SSM network is supported using SMLT/RSMLT. PIM-SSM is supported in triangle, square, and full mesh SMLT/RSMLT topologies. For information about all supported SMLT/RSMLT topologies, see *Switch Clustering Design Best Practices* (NN48500-584) and *Switch Clustering (SMLT/SLT/RSMLT/MSMLT) Supported Topologies and Interoperability with ERS 8600 / 5500 / 8300 / 1600* (NN48500-555).

For more information about PIM-SSM with SMLT, see *Nortel Ethernet Routing Switch 8600 Configuration — IP Multicast Routing Protocols* (NN46205-501).

IP Multinetting

Release 7.0 supports a new type of VLAN, IpMultinetting, which is an extension of a port-based VLAN. To achieve IP Multinetting, you must create one or more IP subnet-based VLANs and then link them to the IpMultinetting VLAN. By using the IP Multinetting feature, the Ethernet Routing Switch 8800 can support the configuration of multiple IP interfaces on a single VLAN.

For more information about IP Multinetting, see *Nortel Ethernet Routing Switch 8600 Configuration — VLANs and Spanning Tree* (NN46205-517).

Route Switch Processor Packet Tracing

Release 7.0 supports Route Switch Processor (RSP) Packet Tracing which provides support for co-processor (COP) debug commands.

When you enable Packet Tracing, the CP sends a message to the COP and Packet Tracing is internally enabled on the COP. Similarly, when Packet Tracing is disabled on the CP, it is disabled on the COP. By

default the Packet Tracing is enabled for one second. After one second, the Packet Tracing is disabled internally. While enabling the Packet Tracing, RSP selection is based on port by default—a port number is internally converted into RSP-ID and Packet Tracing is enabled on that lane. Therefore, when Packet Tracing is enabled using one port, it displays enabled on all the ports in that lane. Packet Tracing is collected on the COP and it is sent to the CP when you enter the RSP dump trace command through the CLI or NNCLI.

For more information on RSP Packet Tracing, see *Nortel Ethernet Routing Switch 8600 Troubleshooting* (NN46205-703).

ERCD Records Dump

Release 7.0 provides support for Enterprise RSP Control Driver (ERCD) Records Dump for the following:

- ARP
- IP
- IP subnet
- MAC
- MAC_VLAN
- MGID
- Protocol
- VLAN

The dump ercdRecords command dumps the specified ERCD records. The ERCD records dump is requested by the CP to the COP and then the records are obtained at the COP and replied back to the CP. The CP displays the records on the CLI or NNCLI prompt.

For more information on ERCD Record dump, see *Nortel Ethernet Routing Switch 8600 Troubleshooting* (NN46205-703).

IPv6 RSMLT

While Nortel's Routed Split Multilink Trunk (RSMLT) functionality originally provided sub-second failover for IPv4 forwarding only, Release 7.0 extends RSMLT functionality to IPv6. The overall model for IPv6 RSMLT is essentially identical to that of IPv4 RSMLT. In short, RSMLT peers exchange their IPv6 configuration and track each other's state by means of IST messages. An RSMLT node always performs IPv6 forwarding on the IPv6 packets destined to the peer's MAC addresses. When an RSMLT node detects that its RSMLT peer is down, the node also begins terminating IPv6 traffic destined to the peer's IPv6 addresses.

With RSMLT enabled, an SMLT switch performs IP forwarding on behalf of its SMLT peer – thus preventing IP traffic from being sent over the IST.

IPv6 RSMLT supports the full set of topologies and features supported by IPv4 RSMLT, including SMLT triangles, squares, and SMLT full-mesh topologies, with routing enabled on the core VLANs.

With IPv6, you must configure the RSMLT peers using the same set of IPv6 prefixes.

Supported routing protocols include the following:

- IPv6 Static Routes
- OSPFv3

Note that the Ethernet Routing Switch 8800 does not support the configuration of an IST over IPv6. IST is supported over IPv4 only.

For more information about RSMLT over IPv6, see *Nortel Ethernet Routing Switch 8600 Configuration — IPv6 Routing* (NN46205-504).

IPv6 VRRP

To provide fast failover of a default router for IPv6 LAN hosts, the Ethernet Routing Switch 8800 supports the Virtual Router Redundancy Protocol (VRRP v3) for IPv6 (defined in draft-ietf-vrrp-ipv6-spec-08.txt).

VRRPv3 for IPv6 provides a faster switchover to an alternate default router than is possible using the IPv6 Neighbor Discovery (ND) protocol. With VRRPv3, a backup router can take over for a failed default router in approximately three seconds (using VRRPv3 default parameters). This is accomplished without any interaction with the hosts and with a minimum amount of VRRPv3 traffic.

The operation of Nortel's IPv6 VRRP implementation is similar to the IPv4 VRRP operation, including support for hold-down timer, critical IP, fast advertisements, and backup master. With backup master enabled, the backup switch routes all traffic according to its routing table. It does not Layer 2-switch the traffic to the VRRP master.

New to the IPv6 implementation of VRRP, you must specify a link-local address to associate with the virtual router. Optionally, you can also assign global unicast IPv6 addresses to associate with the virtual router. Network prefixes for the virtual router are derived from the global IPv6 addresses assigned to the virtual router.

For more information about VRRP over IPv6, see *Nortel Ethernet Routing Switch 8600 Configuration — IPv6 Routing* (NN46205-504).

BGP+

Ethernet Routing Switch 8800 extends the BGPv4 process to support the exchange of IPv6 routes using BGPv4 peering. BGP+ is an extension of BGPv4 for IPV6.

Note that the Ethernet Routing Switch 8800 BGP+ support is not an implementation of BGPv6. Native BGPv6 peering uses the IPv6 Transport layer (TCPv6) for establishing the BGPv6 peering, route exchanges, and data traffic. Native BGPv6 peering is not supported in Release 7.0.

Ethernet Routing Switch 8800 supports the exchange of BGP+ reachability information over IPv4 transport. To support BGP+, the Ethernet Routing Switch supports two BGP protocol extensions, standards RFC 4760 (multi-protocol extensions to BGP) and RFC 2545 (MP-BGP for IPv6). These extensions allow BGPv4 peering to be enabled with IPv6 address family capabilities.

The Ethernet Routing Switch 8800 implementation of BGP+ uses an existing TCPv4 stack to establish a BGPv4 connection. Optional, nontransitive BGP properties are used to transfer IPv6 routes over the BGPv4 connection. Any BGP+ speaker has to maintain at least one IPv4 address to establish a BGPv4 connection.

Different from IPv4, IPv6 introduces scoped unicast addresses, identifying whether the address is global or link-local. When BGP+ is used to convey IPv6 reachability information for inter-domain routing, it is sometimes necessary to announce a next hop attribute that consists of a global address and a link-local address. For BGP+, no distinction is made between global and site-local addresses.

The BGP+ implementation includes support for BGPv6 policies, including redistributing BGPv6 into OSPFv3, and advertising OSPFv3, static, and local routes BGPv6 (through BGP+). It also supports the aggregation of global unicast IPv6 addresses, as well as confederations and partial HA.

The basic configuration of BGP+ is the same as BGPv4 with one additional parameter added and some existing commands altered to support IPv6 capabilities. You can enable and disable IPv6 route exchange by specifying the address family attribute as IPv6. Note that an IPv6 tunnel is required for the flow of IPv6 data traffic.

BGP+ is only supported on the global VRF instance.

For more information about BGP+, see *Nortel Ethernet Routing Switch 8600 Configuration – BGP Services* (NN46205-510).

IPv6 RADIUS

The Ethernet Routing Switch 8800 supports RADIUS over IPv6 networks to provide security against unauthorized access.

For more information about RADIUS over IPv6, see *Nortel Ethernet Routing Switch 8600 Security* (NN46205-601).

IPv6 DHCP Relay

The Dynamic Host Configuration Protocol (DHCP) for IPv6 (RFC 3315) enables DHCP servers to pass configuration parameters such as IPv6 network addresses to IPv6 nodes. DHCP supports automatic allocation of reusable network addresses and of additional configuration parameters.

IPv6 DHCP clients use link-local addresses to send and receive DHCP messages. To allow a DHCP client to send a message to a DHCP server that is not attached to the same link, you must configure a DHCP relay agent on the client's link to relay messages between the client and server. The operation of the relay agent is transparent to the client.

A relay agent relays messages from clients and messages from other relay agents.

For more information about DHCP Relay over IPv6, see *Nortel Ethernet Routing Switch 8600 Configuration — IPv6 Routing* (NN46205-504).

Singular Record Operations

Release 7.0 provides support to flush single MAC records, single ARP records and single IP Multicast records. For more information, see *Nortel Ethernet Routing Switch 8600 Configuration — VLANs and Spanning Tree* (NN46205-517), *Nortel Ethernet Routing Switch 8600 Configuration — IP Routing* (NN46205-523) and *Nortel Ethernet Routing Switch 8600 Configuration — IP Multicast Routing Protocols* (NN46205-501), respectively.

show debug generic

The **`show debug generic [verbose]`** command is now available for debugging purposes. This command displays information previously only available from system shell commands. For more information, see *Nortel Ethernet Routing Switch 8600 Troubleshooting* (NN46205-703).

Important notices

This section describes the supported and unsupported hardware and software features in the Ethernet Routing Switch 8800 Software Release 7.0, and provides important information for this release.

Navigation

Nonsupported hardware for Release 7.0

Release 7.0 does not support any classic modules:

- 8608GBE module
- 8608GBM module
- 8608GTE module
- 8608GTM module
- 8608SXE module
- 8616GTE module
- 8616SXE module
- 8624FXE module
- 8632TXE module
- 8632TXM module
- 8648TXE module
- 8648TXM module
- 8672ATME module
- 8672ATMM module
- 8683POSM module
- 8690 SF/CPU module
- 8691 SF/CPU module
- Web Switching Module (WSM)
- 8660 Service Delivery Module (SDM)
- 8661 SSL Acceleration Module (SAM)
- Media Dependent Adapters for the 8672ATME and 8672ATMM Modules
- Breaker Interface Panel
- 8001AC power supply

- 8002DC power supply
- 8003AC power supply

Finally, Release 7.0 supports the 8692 SF/CPU only if it is equipped with SuperMezz. The 8692 SF/CPU without SuperMezz is not supported with Release 7.0.

References to these modules are removed from this document.

ATTENTION
In release 7.0, the 8003 chassis is no longer supported. It is replaced by the 8003-R chassis.

Software licensing

The following table describes the license required to use specific features.

Table 1
License and features

Base License	Advanced License	Premier License
• All Layer 2 and Layer 3 features not called out under the Advanced or Premier Licenses • IPv6 management • BGPv4 for up to 10 peers • IPFIX • Must always be purchased	• all Base License features • Border Gateway Protocol version 4 (BGPv4) for more than 10 Peers • Bidirectional Forwarding Detection (BFD) • IPv6 Routing • Multicast Source Discovery Protocol (MSDP) • Packet Capture function (PCAP) • Optional purchase	• all Base License and Advanced License features • Virtual Routing and Forwarding, Lite version (VRF-Lite) • Multi-Protocol Border Gateway Protocol (MP-BGP) • IP-Virtual Private Network, Multi-Protocol Label Switching (RFC2547) (IP-VPN MPLS RFC2547) • IP-Virtual Private Network-Lite (IP-VPN-Lite – IP in IP) • Multicast virtualization for VRF-Lite (IGMP and PIM-SM/SSM) • Optional purchase

Although there are no new Premier License features in Release 7.0, all IPv6 features require the Advanced License. All other Release 7.0 features are covered under the Base License.

Ethernet Routing Switch 8800 Release 7.0 includes a Premier trial license that is valid for 60 days from the date of install. After 60 days, the license expires and configured licensed features are no longer functional after the switch is restarted or rebooted. If you want these configured features to continue to function properly, you must install a valid license.

For more information about using licenses, see *Nortel Ethernet Routing Switch 8600 Administration* (NN46205-605).

File names for this release

This section describes the Ethernet Routing Switch 8800 Software Release 7.0 software files.

Before you upgrade, Nortel recommends that you verify the MD5 signature for each new file to be used. For upgrade procedures, see *Nortel Ethernet Routing Switch 8600 Upgrades — Software Release 7.0* (NN46205-400).

Table 2
Release 7.0 software files

Module or file type	Description	File name	Size in bytes
Software tar file	Tar file of all software deliverables (includes images that also contain encryption software)	pr86_7000.tar.gz	58 624 089
Ethernet Routing Switch images			
Boot monitor image for 8692 SF/CPU	8692 CPU and switch fabric firmware	p80b7000.img	1 181 416
Boot monitor image for 8895 SF/CPU	8895 CPU and switch fabric firmware	p80be7000.img	1 250 888
Run-time image for 8692 SF/CPU	Run-time image for 8692 SF/CPU	p80a7000.img	14 196 518
Run-time image for 8895 SF/CPU	Run-time image for 8895 SF/CPU	p80ae7000.img	13 219 367
Run-time image for R modules	Image for R modules	p80j7000.dld	1 642 612
Run-time image for RS modules	Run-time image for RS modules	p80k7000.dld	1 702 332

Table 2
Release 7.0 software files (cont'd.)

Module or file type	Description	File name	Size in bytes
Run-time image for Enterprise Enhanced SF/CPU Daughter Card (SuperMezz)	Image for the SuperMezz card	p80m7000.img	14 292 167
3DES for 8692 SF/CPU	Encryption module for privacy protocol with Secure Shell (SSH)	p80c7000.des	55 928
3DES for 8895 SF/CPU	Encryption module for privacy protocol with Secure Shell (SSH)	p80ce7000.des	51 860
AES for 8692 SF/CPU	Encryption module for privacy protocol with Secure Shell (SSH)	p80c7000.aes (this image includes the 3DES image)	25 712
AES for 8895 SF/CPU	Encryption module for privacy protocol with Secure Shell (SSH)	p80ce7000.aes (this image includes the 3DES image)	21 616
MIB	MIB files	p80a7000.mib	4 877 775
MIB (zip file)	Zip file containing MIBs	p80a7000.mib.zip	766 999
MD5 checksum file	md5 checksums of all Release 7.0 software files	p80a7000.md5	1161
Firmware images			
FOQ for R modules	Feedback output queueing FPGA firmware	foq267.xsvf	5 320 469
BMC for R modules	BAP memory controller FPGA firmware	bmc776.xsvf	2 640 266
DPC for R modules	Dual port controller FPGA firmware	dpc184.xsvf	2 583 454
PIM8630GBR	Programmable I/O module FPGA firmware; for the 8630GBR only	PI_769.xsvf	2 284 578
Firmware for RS modules	Contains FOQ, BMC, DPC, mirroring, and loopback images	rs_dpm_fpga.bin	4 538 368

Table 2
Release 7.0 software files (cont'd.)

Module or file type	Description	File name	Size in bytes
PIM images for RS modules	PIM FPGA firmware required for 8612XLRS module only	pim8612XLRS.bin	60 183
	PIM FPGA firmware required for 8634XGRS module only	pim8634XGRS.bin	78 173
	PIM FPGA firmware required for 8648GBRS module only	pim8648GBRS.bin	79 891
	PIM FPGA firmware required for 8648GTRS module only	pim8648GTRS.bin	54 441
Trace files			
MPLS trace file	Trace file for MPLS. This is autogenerated and appears on the PCMCIA after upgrade.	nbpdtrc.lo0	variable
EDM Help files			
EDM help files	Help files for EDM GUI	ERS8000_70_Help.zip	2 973 741
ERS 8000 EDM plug-in for COM			
EDM plug-in for COM	EDM plug-in for COM	ers8000v7.0.0.0.war	

Important information and restrictions

This section contains important information and restrictions that you should consider before you upgrade to Release 7.0.

Fixes from previous releases

The Ethernet Routing Switch 8800 Software Release 7.0 incorporates all fixes from prior releases up to and including release 5.1.2.0.

Important information and restrictions navigation

- "SuperMezz, SF/CPU memory, and upgrades" (page 35)
- "Compact flash card display on 8895 SF/CPU" (page 35)
- "Proper care of external compact flash and PCMCIA cards" (page 36)
- "EDM considerations" (page 36)
- "Installing EDM help files" (page 40)

SuperMezz, SF/CPU memory, and upgrades

To support Release 7.0, the 8692 SF/CPU must be equipped with SuperMezz. 8692 SF/CPU without SuperMezz is not supported with Release 7.0. If the Release 7.0 software is booted with a non-SuperMezz 8692 SF/CPU, the line cards do not come online.

For Release 7.0, Nortel recommends that the PCMCIA card for the 8692 SF/CPU with SuperMezz be at least 256 MB. 256 MB is the current size of the shipping PCMCIA card. The 8692 SF/CPU with Supermezz does support PCMCIA cards larger than 256 MB.

The 8895 SF/CPU comes with a 2 GB compact flash card.

Compact flash card display on 8895 SF/CPU

The 8692 SF/CPU with SuperMezz displays the external PCMCIA card as `/pcmcia`. The 8895 SF/CPU has an external compact flash card installed rather than a PCMCIA card, and also displays this flash card as `/pcmcia`.

The internal flash memory (64 MB) is displayed as `/flash` for both the 8692 SF/CPU with SuperMezz and the 8895 SF/CPU.

Proper care of external compact flash and PCMCIA cards

To guarantee the external compact flash card or the PCMCIA card is in a consistent state before you remove it, use one of the following commands.

- **`pcmcia-stop`** (on 8692 SF/CPU)
- **`dos-stop /pcmcia`** (on 8895 SF/CPU)

Do not remove the external memory card without first entering one of the preceding commands.

Be sure to back up all configurations, as all files can be lost if the card becomes corrupted.

To check and optionally repair a file system, you can use the **`dos-chkdsk <device> repair`** command.

If the file system cannot be repaired, you can attempt to reformat the device using the **`dos-format <device>`** command. Otherwise, you may need to replace the card.

Both of the above commands delete all information on the memory, so be sure to backup all information before using either of the commands.

The above commands are available in the CLI, NNCLI, or the boot monitor.

EDM considerations

The following sections list EDM considerations.

Supported browsers

For Enterprise Device Manager (EDM) to display and function correctly, use one of the following Web browsers:

- Mozilla Firefox, version 3.0+
- Microsoft Internet Explorer, version 7.0

If you connect to EDM using an unsupported browser, the switch displays an error message.

On-box and off-box EDM

EDM is a Web-based graphical user interface (GUI) for element management and configuration of the Ethernet Routing Switch 8800. EDM is an embedded application on the Ethernet Routing Switch, and the EDM Web server is the switch itself.

EDM for the Ethernet Routing Switch 8800 is also supported as a plug-in with the Configuration and Orchestration Manager (COM). Access to COM is also through a browser.

To distinguish between the embedded EDM and the EDM plug-in for COM, the following terminology is used in the Ethernet Routing Switch 8800 documentation:

- on-box EDM: EDM software that is embedded with the switch code
- off-box EDM: EDM plug-in that is available with the COM software

Double-click EDM options

In the EDM navigation tree (on-box or off-box), to select an option under any of the expanded folders, you must double-click the desired option, rather than single-click. With other Nortel products, this EDM behavior will differ and be single-click only.

Saving runtime configurations in EDM

In EDM, the option for saving runtime configuration changes is not easily seen. To save current changes, go to **Configuration > Edit > Chassis** and under ActionGroup1, click on **SaveRuntimeConfig** and click **Apply**. (Q02114591)

Unlike Java Device Manager, when you exit EDM, there is no pop dialog box prompting you to save the configuration.

EDM table display

Nortel does not recommend using EDM (on-box or off-box through COM plug-in) to display routing tables with 3000 or more entries as doing so can take a long period of time (many minutes) to formulate the display. The EDM application can become unusable until the whole table is displayed. This issue is present with all large route tables, but is more apparent with BGP route tables. Nortel recommends that you use either the CLI or NNCLI to display these type of tables. Be aware that this display scenario does not affect traffic on the switch.

This same recommendation previously applied to Java Device Manager operations. (Q02123849)

EDM functionality differences from Java Device Manager

In some cases, EDM functionality differs from that previously offered in Java Device Manager (JDM), including the following:

- **Single username and password combination for each VRF**

With EDM, you can configure only one username and password combination for each VRF.

- **Managing VRFs**

  With on-box EDM, you cannot manage multiple VRFs from the GRT instance. To manage a different VRF, you must log out of the GRT instance and log in to the desired VRF. (Q02100808)

  You can use the Configuration and Orchestration Manager (COM) to manage different VRFs with the Ethernet Routing Switch 8000 off-box EDM plug-in. The off-box EDM plug-in can be launched for a specific VRF or for the GlobalRouter. When launched for the GlobalRouter, the EDM plugin has the capability to switch the VRF context to another VRF.

  With COM, Nortel recommends that the administrator of the COM system assign appropriate device credentials along with proper VRF mapping to COM users.

  — If a COM user needs to be restricted to a particular VRF, in the device credentials, map the credentials for the COM user to that VRF.

  — If a COM user needs GlobalRouter access, in the device credentials, map the credentials for the COM user to the GlobalRouter. GlobalRouter access allows the COM user access to any and all VRFs.

  Upon launching the EDM plugin, users with restricted VRF can see the device view for that particular VRF only. Users with the GlobalRouter VRF associated have the ability to switch the VRF context to another VRF as needed.

  Users with GlobalRouter VRF access can switch the context to another VRF using the following steps:

  a. In the EDM navigation tree, open the following folders: **Configuration**, **VRF Context view**.

  b. Double-click **Set VRF Context view**.

  c. From the list of displayed VRFs, select the row of the required VRF.

  d. Click the **Launch VRF Context view** button.

     A COM tab launches, showing the switch view for the selected VRF. Be aware that if you close the existing GlobalRouter tab, then you lose the ability to switch the VRF context to another VRF.

  Also be aware that online help for the Set VRF tab is not available in this release. (Q02132825)

ATTENTION
In COM, the VRF Manager allows you to further restrict access to a device to a particular VRF. When you launch the EDM plugin, the displayed VRF is the one specified by the VRF Manager (assuming the appropriate user credentials are also configured). However, in the case where your user credentials are mapped to the GlobalRouter, and the VRF Manager maps the device to a specific VRF, the EDM plugin launches the specified non-GlobalRouter VRF rather than the GlobalRouter VRF. Furthermore, in this scenario, you cannot switch the VRF context to another VRF using the EDM plugin.

As a result, to switch the VRF context, Nortel recommends that you not use the VRF Manager to map the VRF to a non-GlobalRouter VRF. Instead, map the VRF to the GlobalRouter in the VRF Manager, and use the Set VRF menu option from within the EDM off-box plugin (described above) to switch the device context to a different VRF.

If a COM user finds an unexpected behavior with an incorrect default VRF context being launched for the EDM plugin inside COM, do the following:

— Check the credentials in COM for that device. To access credentials, in the COM left panel, expand **Admin** and click **Device Credentials**. Verify that the COM user is assigned the correct VRF (to allow the user to switch between multiple VRF contexts, they must be assigned to VRF 0 or GlobalRouter).

— If the credentials are correct, check the VRF manager in COM. In the COM left panel, expand **Managers** and click the **Virtual Routing Manager** icon. Make sure that the device has the correct VRF associated with it (VRF 0 or GlobalRouter to allow the user to switch between multiple VRF contexts). If a device is assigned a specific VRF in the VRF Manager, all functions within COM (including EDM) use that VRF context by default.

Also be aware of the following:

— In order to modify the VRF context using the VRF Manager, the user needs GlobalRouter credentials for a device in the device credentials page.

— The VRF Manager is available in COM only if the full COM application license is purchased.

— The VRF Manager must be assigned to a particular user by the COM administrator using the Manager assignment function under the Admin/Access Control menu in the COM left navigation pane. This option exists in order to allow role-based access control for users to whom the administrator wishes to limit privileges when there are many users of the system.

- **Multiple port selection**

Multiple port selection or monitoring is not supported in on-box EDM for this release. As a workaround for monitoring multiple ports, you can select multiple ports, then undock the tabs for each port, placing the windows side-by-side. (Q02100807)

You can select multiple ports using the off-box EDM plug-in, as follows: Ctrl+click the multiple ports, or click and drag your mouse to select a group of contiguous ports. Once you have selected the multiple ports, you can edit or graph the multiple ports as required.

The maximum recommended number of ports to graph using the EDM plug-in is 24 ports.

- **RADIUS authentication**

  The on-box EDM GUI does not support login using RADIUS authentication. Login with RADIUS authentication is supported in COM. (Q02060042)

- **CLI window launch**

  The on-box EDM GUI is a browser-based solution that can run from any supported platform (Windows or Linux) and it does not offer the capability to launch a Windows-based command prompt window as was available in JDM. In the COM with off-box Ethernet Routing Switch 8800 EDM plug-in, the CLI manager exists to launch CLI windows as needed. You can also connect to a switch using your own local command prompt.

- **Supported COM release**

  For EDM plug-in support, COM release 2.0.1 or 2.1 is required. The EDM plug-in is not supported with COM 2.0.

Using the EDM plug-in with COM

The Configuration and Orchestration Manager (COM) is a Nortel off-box network management tool that supports an EDM plug-in for the Ethernet Routing Switch 8800. The EDM plug-in allows you to perform EDM functions within the off-box COM tool. For information about installing the EDM plug-in for COM, see *Nortel Configuration and Orchestration Manager Using the Product Interfaces* (NN47226-100).

To obtain the EDM plug-in software, go to the Nortel Technical Support site at www.nortel.com/support and choose **Network Management** and then **Configuration and Orchestration Manager**.

Installing EDM help files

While the EDM GUI is bundled with the Release 7.0 software, the associated EDM help files are not included. To access the help files from the EDM GUI, you must install the EDM help files on either a TFTP or FTP server in your network.

Use the following procedure to install the EDM help files on a TFTP or FTP server.

ATTENTION
Do not install the EDM help files within the `/pcmcia` or `/flash` file systems, as the help files consume too much space.

Procedure 1
Procedure steps

Step	Action
1	Retrieve the EDM help zip file from nortel.com or from the software CD.
2	On a TFTP or FTP server that is reachable from your 8800 switch, create a directory named: ERS8000_70_Help. If you are using FTP for this installation, be sure that the 8800 switch is configured with the appropriate host name and password using the **`config bootconfig host user`** and **`config bootconfig host password`** commands (or, using the NNCLI, **`boot config host user`** and **`boot config host password`**). If a host password is configured, the 8800 switch uses FTP to transfer data from the switch to the server. If no host password is configured, the switch uses TFTP for the data transfer. To clear the host password, specify a blank value using the host password command: **`config bootconfig host password ""`** (CLI) **OR** **`boot config host password ""`** (NNCLI)
3	Unzip the EDM help zip file in the new FTP or TFTP server directory.
4	Using EDM on the 8800 switch, open the following folders: **Configuration, Security, Control Path**.
5	Double-click **General**.
6	Click the **Web** tab.
7	In the **HelpTftp/Ftp_SourceDir** field, enter the FTP or TFTP server IP and the path of the online directory where the files are unzipped, in the following format: **<TFTP/FTP-server-IP-address>:ERS8000_70_Help**.
8	To test that the help is working properly, select any tab (for example, **Edit > Chassis**) and click the **Help** button. The appropriate EDM help page appears.

--End--

I/O module considerations

The 8648GTR module does not support a packet size larger than 9188 bytes at 100 Mbps. At 1000 Mbps, frames larger than 9188 bytes (up to 9600 bytes) are supported.

MLT/LAG considerations

To maintain MLT and LAG stability during failover, Nortel recommends the use of CANA: you must configure the advertised speed to be the same for all MLT/LACP links. For 10/100/1000 Mbps ports, ensure that CANA uses only one specific setting, for example, 1000-full or 100-full. Otherwise, a remote device could restart Auto-Negotiation and the link could use a different capability. In the case of LACP LAGs, ports of different speeds cannot join the same LAG.

It is important that each port uses only one speed and duplex mode. The use of CANA forces this setting. This way, all links in Up state are guaranteed to have the same capabilities. If Auto-Negotiation and CANA are not used, the same speed and duplex mode settings should be used on all ports of the MLT/LAG.

Console connection considerations

If you change the management IP setting using EDM or an SNMP device, the active console session is terminated. In this case, you must reopen the console session.

DHCP snooping considerations

On any switch configured with both DHCP Relay and DHCP snooping enabled, you must ensure that the routing interfaces where the DHCP offer is received are configured as DHCP snooping trusted ports. This applies to any and all return paths; that is, primary and backup routing interfaces.

Supported upgrade paths

The Ethernet Routing Switch 8800 Software Release 7.0 supports direct upgrades from the following earlier releases:

- 4.1.8.2 or 4.1.8.3
- 5.0.x (where x is 1 or higher)
- 5.1.x

If you want to upgrade to release 7.0 from any other release, first upgrade to one of the above releases and then upgrade to 7.0.

General upgrade considerations

The configuration file generated with Ethernet Routing Switch 8800 Software Release 7.0 contains options that are not backward-compatible with any previous Ethernet Routing Switch 8600 Software Releases.

Loading a Release 7.0 configuration file on a pre-7.0 runtime image can generate errors and cause the image to stop loading the configuration file. Under these conditions, the system will load with a default configuration.

Downgrades always require previously saved configuration files (boot.cfg and config.cfg) and may require the removal of R and RS modules prior to downgrade.

Upgrade considerations for Release 7.0

Before you upgrade, read *Nortel Ethernet Routing Switch 8600 Upgrades — Software Release 7.0* (NN46205-400) and follow the outlined procedures.

If you are upgrading from a release prior to 5.0, you must reformat the DOSFS for the PCMCIA and flash. Steps are included in the upgrade procedures. See "Upgrade considerations: DOSFS with upgrades from pre-Release 5.0" (page 45).

You must take into consideration Power Management for this release; for more information, see "Upgrade considerations: Power Management" (page 45).

Upgrading from 8692 SF/CPU with SuperMezz to 8895 CPU

Use the following steps to upgrade from 8692 SF/CPUs with SuperMezz to 8895 CPUs.

Prerequisites

- You must be local to the switch with a console connection.
- Upgrade the Ethernet Routing Switch 8600 to 7.0 code with the 8692 SF/CPU with SuperMezz as master and slave.
- Download the p80ae7000.img and p80be7000.img software images, as well as the dld files (p80j7000.dld, p80k7000.dld) to the master 8692 SF/CPU.

Procedure steps

Step	Action
1	Disable the slot for the slave SF/CPU. For example: `ERS-8010:5#` **`config slot x state dis`** (where slot x is the slot of the slave 8692 SF/CPU).
2	Remove the slave 8692 SF/CPU with SuperMezz.

3 Insert the 8895 SF/CPU into the chassis, and immediately after inserting the 8895 SF/CPU, stop the boot process at the boot monitor when prompted.

4 Copy the running configuration file (config.cfg), boot configuration file (boot.cfg), images and dld files (p80ae7000.img, p80be7000.img, p80j7000.dld, p80k7000.dld) from the current master 8692 SF/CPU to the 8895 SF/CPU using the internal IP for the copy command: 127.0.0.X, where X is the slot number of the 8692 SF/CPU. For example:

```
ERS-8010:5# copy 127.0.0.X:/flash/<name of the file> /flash/
```

5 Edit the primary image file name in the boot.cfg to load the 8895 image. For example:

```
monitor:5# choice primary image-file p80ae7000.img
monitor:5# save
```

6 Boot the 8895 SF/CPU with the correct image and wait for the login screen. For example:

```
monitor:5# boot /flash/ p80be7000.img
```

7 Perform a failover from the master 8692 SF/CPU using the following command:

```
config sys set action cpuswitchover
```

8 After the 8895 SF/CPU becomes the master, remove the slave 8692 SF/CPU with SuperMezz.

9 Insert another 8895 SF/CPU into the chassis, and immediately after inserting the 8895 SF/CPU, stop the boot process at the boot monitor when prompted.

10 Copy the running configuration file (config.cfg), boot configuration file (boot.cfg), images and dld files (p80ae7000.img, p80be7000.img, p80j7000.dld, p80k7000.dld) from the current master 8895 SF/CPU to the new 8895 SF/CPU using the internal IP for the copy command: 127.0.0.X, where X is the slot number of the master 8895 SF/CPU. For example:

```
ERS-8010:5# copy 127.0.0.X:/flash/<name of the file> /flash/.
```

11 Boot the 8895 SF/CPU with the correct images and wait for the login screen.

```
monitor:5# boot /flash/ p80be7000.img
```

--End--

Upgrade considerations: DOSFS with upgrades from pre-Release 5.0

Release 5.0 introduced a unique signature to the Disk Operating System File System (DOSFS) volume label generated during **dos-format** and **format-flash** operations. This label provides clear identification about which DOSFS devices have been formatted with the latest DOSFS source code.

When you upgrade from pre-Release 5.0 software and boot an image with Release 7.0, you may see boot messages like:

```
The /flash device mounted successfully, but it appears to have
been formatted with pre-Release 5.0 file system code.  Nortel
recommends backing up the files from /flash, and executing
dos-format /flash to bring the file system on the /flash device
to the latest ERS8600 baseline.
```

If you receive this message, Nortel recommends that you perform a one-time reformat of the DOSFS device (using **dos-format**) to set the DOSFS baseline. This is part of the upgrade procedures.

The one-time DOS reformat erases all files on the DOSFS device. Nortel recommends that you back up all files from the DOSFS device, reformat the device, and replace all files.

Be sure to back up hidden files as well. For information about hidden files, see *Nortel Ethernet Routing Switch 8600 Upgrades — Software Release 7.0* (NN46205-400).

Upgrade considerations: Power Management

The Power Management feature available with Release 7.0 may require you to take special steps before you upgrade.

When you upgrade to Release 7.0, Power Management is enabled by default. If Power Management detects that there are not enough power supplies in the system to successfully run the system, it shuts down the lowest-priority modules. This does not occur if you have enough available power.

You can calculate the number of power supplies required for your Ethernet Routing Switch 8800 system. To determine the number of power supplies required for your switch configuration, use the *Nortel ERS8600 Power Supply Calculator* (NN48500-519). This is available on the Nortel Technical Support Web site at www.nortel.com/documentation. Choose Routers & Routing Switches, and then Ethernet Routing Switch 8600. In the Documentation, Operations section, click the Configuration link. Navigate through the list until you find the calculator.

For Power Management configuration and conceptual information, see *Ethernet Routing Switch 8600 Administration* (NN46205-605).

Power Management operations

With Power Management, when the switch boots, users are notified if there is redundant power available in the system. This notification is based on the available power provided by the power supplies as compared to the power requirements of the installed modules.

No I/O modules are brought up if there is insufficient power available. Although there is an override capability available, this should only be used for short periods of time or in emergencies—operating a chassis in an underpowered condition can lead to unpredictable results.

The amount of system power is calculated based on the number, type, and input source voltage of the power supplies in the chassis. This system power calculation is equal to the DC wattage output (which can differ depending on AC input voltage) minus 90 W required for the fans. For 8005AC or 8005DI AC supplies, the system detects whether the supply is sourced with 110 V or 220 V and uses the corresponding output power. For 8004 series power supplies, the system power output calculation is the same (690 W), regardless of source input AC voltage. However, the actual power supply wattage output will vary depending upon the input source voltage. The system power output calculation is always based on low-voltage input. Therefore in systems using 8004 series power supplies that are running at high voltage input (220 V), the system output power calculation will actually be lower (displaying 690 W) than what the system is capable of.

By default, switch fabrics are allotted highest priority and always power up. I/O modules power up if there is sufficient power remaining to do so. If there is insufficient power to bring all I/O modules online, they are powered up based on slot priority. By default, I/O modules are powered up starting at slot 1 until there is insufficient power to bring the next module online.

You have the ability within a working system to reconfigure slot priority to your own requirements. Nortel does not recommend changing the priority for the switch fabric slots.

If a chassis boots up and there are modules that are not online due to insufficient power, adding an additional power supply does not bring the modules online automatically. To bring the modules online, the system must be rebooted, or the module must be removed and reinserted into the chassis after the additional power supply is added.

If a system boots and power supply failure occurs, one of the two following conditions result:

1. A system with redundant power continues to operate normally. The redundant power configuration compensates for a power supply failure.
2. A system with no redundant power continues to operate, however, if there is insufficient power to support all modules, an SNMP trap and syslog message are sent every five minutes notifying the user that the system is operating in an underpowered condition. Correct this situation as soon as possible.

Disabling power and cooling management

You can disable Power Management to successfully upgrade even though not enough power supplies are installed to run all I/O modules.

If you already have enough power supplies, you do not need to disable Power Management.

You can calculate the number of power supplies required for your Ethernet Routing Switch 8800 system. To determine the number of power supplies required for your switch configuration, use the *Power Supply Calculator for ERS 8600* (NN48500-519). This is available on the Nortel Technical Support Web site at www.nortel.com/documentation. Choose Routers & Routing Switches, and then Ethernet Routing Switch 8600.

ATTENTION
Nortel recommends that you do not disable Power Management, and that you instead install the required power supplies before upgrade. However, if you must disable Power Management for a short period of time, install the required supplies as quickly as possible.

By default, RS modules do not come up when the high-speed cooling module is not installed.

ATTENTION
Although you can override the fan check for the high-speed cooling module, this should only be done for short periods of time or in emergencies—operating a chassis with RS modules without the high-speed cooling module can lead to unpredictable results.

Use the following procedure in order to override the fan check for the high-speed cooling modules.

Step	Action
1	Save the pre-7.0 or current 7.0 configuration file.

```
save config.cfg
```

2 Edit the configuration file offline using an editor like VI or EMACS. You can either:

- Use the CLI to edit the file on the switch (the switch has a built-in VI-like editor). Use the **edit config.cfg** command.
- Save the file as an ASCII file and transfer to another device for editing with a text editor like Notepad.
- Transfer the file to a device and edit with VI or an EMACS-like editor, or using a text editing application such as MS Word. The configuration file is plain text only.

3 In the configuration file, add the following lines to the end of the flags section:

```
#!power power-check-enable false

#!power fan-check-enable false
```

See the following job aid for an example of correct placement of these commands.

4 Save the file and, if you edited it off-switch, transfer the file back to the switch to use in the upgrade.

5 Reboot the switch or source the configuration file.

--End--

Job aid: configuration file and command placement

```
#
# MON MAY 19 22:43:41 2008 UTC
# box type :  ERS-8010
# software version :  REL5.0.0.0_B006
# monitor version :  5.0.0.0/006
# cli mode :  8600 CLI
#
#
# Asic Info :
# SlotNum|Name |CardType |MdaType |Parts Description
#
# Slot 1 -- 0x00000001 0x00000000
# Slot 2 -- 0x00000001 0x00000000
# Slot 3 -- 0x00000001 0x00000000
# Slot 4 8630GBR 0x2432511e 0x00000000 RSP=25 CLUE=2 F2I=1 F2E=1
FTMUX=17 CC=3 FOQ=266 DPC=184 BMC=776 PIM=257 MAC=4
# Slot 5 8692SF 0x200e0100 0x00000000 CPU: CPLD=19 MEZZ=4 SFM:
OP=3 TMUX=2 SWIP=23 FAD=16 CF=56
# Slot 6 -- 0x00000001 0x00000000
# Slot 7 -- 0x00000001 0x00000000
# Slot 8 -- 0x00000001 0x00000000
# Slot 9 -- 0x00000001 0x00000000
# Slot 10 -- 0x00000001 0x00000000
#
#!flags m-mode false
#!flags enhanced-operational-mode false
#!flags vlan-optimization-mode false
#!flags global-filter-ordering false
#!flags r-mode false
#!resource-reservation max-vlan false
#!resource-reservation multicast 2048
#!flags multicast-check-packet true
#!flags system-monitor true
#!record-reservation filter 4096
#!record-reservation ipmc 500
#!record-reservation local 2000
#!record-reservation mac 2000
#!record-reservation static-route 200
#!record-reservation vrrp 500
#!system-monitor monitoring-enable true
#!system-monitor detection-time 30
#!power power-check-enable false <------- ADD THIS LINE
#!power fan-check-enable false <------- ADD THIS LINE
```

Upgrade considerations: IST

After an IST peer is upgraded and restarted, wait until the entire system is stable prior to upgrading the other IST peer. Stabilization time depends on the complexity and size of the network (for example, the number of MAC and ARP records, routes, and the protocols used). Wait for the Layer 3

protocols, especially multicast protocols, to settle before you restart the other peer. If Layer 3 protocols are not in use, wait until the FDB and ARP tables on both peers report a similar number of entries.

Pre-release 5.1 upgrades considerations: specifying license file location

If you upgrade to release 7.0 from a release prior to 5.1, you must specify the location of your license file in the boot configuration file. If you do not specify the location of your license file, you can encounter issues with your licensed features.

Procedure steps

Step	Action

1	To specify the license file location, enter the following CLI command:
	`config bootconfig choice primary license-file <file>`
	OR
	enter the following NNCLI command:
	`(config)# boot config choice primary license-file <file>`

--End--

Note: The variable '<file>' supports the following values for the source of a license file on an ERS8800 switch:

- ***/flash/<file_name>***
- ***/pcmcia/<file_name>***
- ***<a.b.c.d>:<file_name>, where <a.b.c.d> is the IP address of an FTP or TFTP server***

Considerations for upgrades from 5.0-based code releases

Users should read and reference the latest version of CSB 2008008618, Software Life-Cycle Management for the ERS 8600 product, before deciding to move to any code release.

ATTENTION
For switch cluster systems running 5.0.0.x code (where x is less than 2), intermediate upgrades first to 5.0.0.2, then to one of 5.0.1.x, or 5.1.x are required, versus a direct upgrade to 7.0.0.0. If not performed, direct console access will be required to recover the 'peer' switch cluster system still running 5.0.0.x code, after the first switch is upgraded. Refer to the 5.0.1.0 Release notes for details regarding the intermediate upgrade. Direct upgrades to release 7.0.0.0 are supported from 4.1.8.2, 4.1.8.3, 5.0.x (where x is 1 or higher), and 5.1.x.

Configuration file modifications for BGP upgrades from release 4.x code

CAUTION
Users using BGP with release 4.x code need to be aware of the following limitations regarding upgrading to 5.x or later code release. For any user using the add-as-path command in 4.x or earlier releases, a direct upgrade to 5.x or later code (including 5.0.0.x, 5.0.1.0, 5.1.0.0, or 7.0.0.0 code) will create issues with your BGP operation, as the format for this command has changed in 5.x and all future code releases. The usage of this command can be confirmed by looking at your current 4.x based configuration file (config.cfg by default) by using either CLI command **`show config`** or **`more /flash/config.cfg`**, and looking for entries under:

```
# IP AS LIST CONFIGURATION #
```

Entries such as this indicate usage of the command:

```
ip as-list 1 create ip as-list 1 add-as-path 100
permit "64521"
```

With 5.x code, the two commands have been replaced by a single command of format:

```
ip as-list <as-list id; 1-1024> create <member id
in as-path; 0-65535> permit "<as-path:  0-65535>"
```

Prior to upgrading to 5.x code, if such config entries are in a 4.x config file, those entries must be manually converted to 5.x or later format before upgrading; the upgrade to 5.x or later code does not convert this command structure properly. Since both the 4.x and 5.x code files are plain ASCII text, the 4.x config file can be copied to any text editor (or edited locally on the 8600 switch with its Unix VI editor), edited (for example with MS Word) and then copied back before upgrading.

For example, the above 4.x config example:

```
ip as-list 1 create ip as-list 1 add-as-path 100
permit "64521"
```

Must be changed to the following 5.x config format:

```
ip as-list 1 create 100 permit "64521"
```

(Q01977204)

SMLT switch cluster upgrade considerations

With SMLT switch cluster upgrades, to maintain remote Telnet access to the switches, you must follow specific upgrade steps in some scenarios when upgrading to any higher release of code.

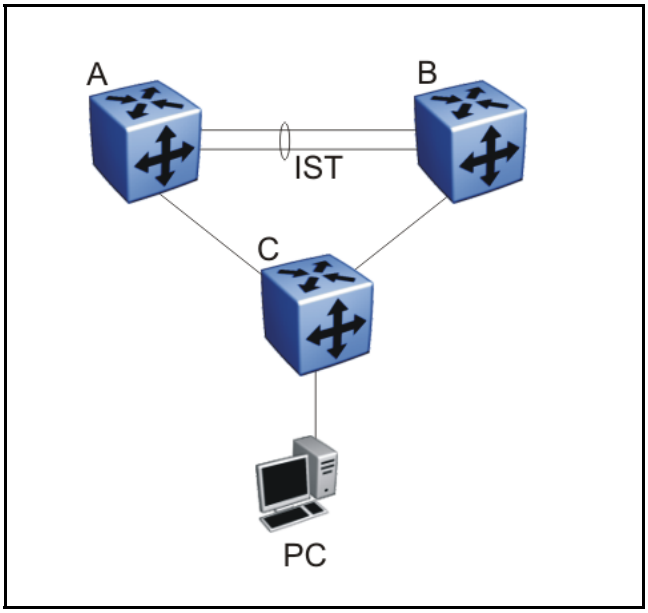
For device management during an upgrade, you can use one of the following options:

1. Direct serial console connection to the switch
2. Telnet access to the management IP
3. Telnet access to any of the in-band IP addresses on the switch

In scenarios 1 and 2, you can manage the switch effectively at all times during the upgrade, and therefore these scenarios require no additional considerations. However, in scenario 3, you can lose Telnet connectivity during the upgrade of the IST peers unless you follow the proper steps.

Consider the following figure, showing a triangle SMLT setup. In this case, the user intends to upgrade the IST peers (that are currently running 5.1.0.0) to 7.0.0.0.

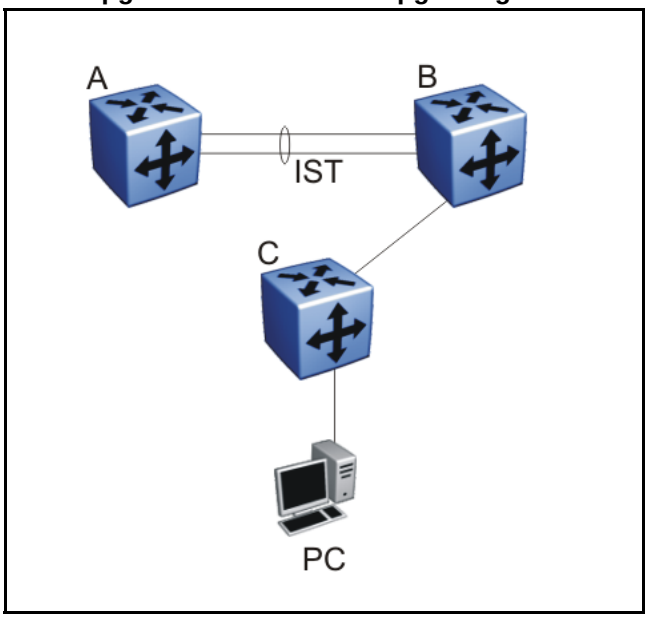
Figure 1
SMLT upgrade scenario



Assume the user Telnets from the PC to manage switch A and switch B. When the Telnet traffic generated by the PC arrives at switch C, depending on the MLT hashing algorithm, the traffic can be hashed to the link toward switch A or switch B. So, it is possible to have a situation where the Telnet management traffic destined for switch A flows through switch B and vice-versa.

Assume that the user upgrades switch A to 7.0.0.0. Due to the SMLT behavior, the network diagram now looks like the following figure.

Figure 2
SMLT upgrade scenario after upgrading switch A to 7.0.0.0



In this situation the PC cannot communicate with switch A, and as a result Telnet access to switch A is unavailable. For in-band management, you can alternatively Telnet first into switch B, and then Telnet to switch A from there.

The following are the recommended steps to perform this upgrade procedure while using Telnet in-band management:

1. Telnet to switch B from the PC
2. From switch B, Telnet to switch A
3. Upgrade switch A to 7.0.0.0, following the normal upgrade process. At this point, your Telnet session to switch A is lost, and eventually times out. After approximately a minute, Telnet to switch A again. This allows you to check the log messages on switch A. (At this point, you can possibly lose the Telnet connectivity to B in some situations depending

on the MLT hashing occurring on switch C. If this occurs, re-open a Telnet connection to switch B.)

4. Upgrade switch B to 7.0.0.0 following the normal upgrade process. At this point, your Telnet session to switch B is lost. You can open a new Telnet session to switch A. After switch B completes the upgrade, you can then establish connectivity with switch B, either via Telnet from switch A, or via Telnet from the PC.

The same procedure applies for warm standby and hot standby scenarios. You must follow the upgrade directions for warm and hot standby cases provided in the upgrade document for individual chassis.

Note that you cannot use SSH in this upgrade scenario, as you cannot open SSH connections from one Ethernet Routing Switch 8800 to another. You must use Telnet.

Note: If switch A and switch B are running 5.0.0.x (where x is less than 2), the switches MUST be upgraded to 5.0.0.2 before upgrading to 5.0.1.0 (or 5.1.0.0), and then to 7.0.0.0.

Supported software and hardware scaling capabilities

The following table lists supported software and hardware scaling capabilities in Ethernet Routing Switch 8800 Software Release 7.0. The information in this table supersedes information contained in *Nortel Ethernet Routing Switch 8600 Planning and Engineering — Network Design* (NN46205-200), or any other document in the suite.

The capabilities described in this table are supported as individual protocols, not mixtures of protocols.

Nortel supports 25 Spanning Tree Groups (STG) in this release. Although you can configure up to 64 STGs (only 63 when a Web Switching Module is present), configurations including more than 25 STGs are not supported. If you need to configure more than 25 STGs, contact your Nortel Customer Support representative for more information about the support of this feature.

MLT is statically compliant with the 802.3ad standard (no support of LACP).

Table 3
Supported scaling capabilities

	Maximum number supported 8692SF with SuperMezz (R or RS series modules)
Layer 2	

Table 3
Supported scaling capabilities (cont'd.)

	Maximum number supported 8692SF with SuperMezz (R or RS series modules)
MAC address table entries	64 000 32 000 when SMLT is used
VLANs (port- protocol-, and IEEE 802.1Q-based)	4000
IP subnet-based VLANs	800
Ports per Link Aggregation Group (LAG, MLT)	8
Aggregation groups 802.3ad aggregation groups Multi Link Trunking (MLT) group	128
SMLT links	128
SLT (single link SMLT)	382
VLANs on SMLT/IST link	With Max VLAN feature enabled: 2000
RSMLT per VLAN	32 SMLT links with RSMLT-enabled VLANs
RSTP/MSTP (number of ports)	384, with 224 active. Configure the remaining interfaces with Edge mode
MSTP instances	32
Advanced Filters	
ACLs for each system	4000
ACEs for each system	10 000
ACEs for each ACL	1000
ACEs for each port	2000: 500 inPort 500 inVLAN 500 outPort 500 outVLAN
IP, IP VPN/MPLS, IP VPN Lite, VRF Lite	
IP interfaces (VLAN- and brouter-based)	1972
VRF instances	255
ECMP routes	5000
VRRP interfaces	255
IP forwarding table (Hardware)	250 000
BGP/mBGP peers	250
iBGP instances	on GRT
eBGP instances	on 256 VRFs (including GRT)

Table 3
Supported scaling capabilities (cont'd.)

	Maximum number supported 8692SF with SuperMezz (R or RS series modules)
BGP forwarding routes BGP routing information base (RIB) BGP forwarding information base (FIB)	BGP FIB 250 000 BGP RIB 500 000
IP VPN routes (total routes for each system)	180 000
IP VPN VRF instances	255
Static ARP entries	2048 per VRF 10 000 per system
Dynamic ARP entries	32 000
DHCP relay instances (total for all VRFs)	512
Static route entries	2000 per VRF 10 000 per system
OSPF instances for each switch	on 64 VRFs (including GRT)
OSPF areas for each switch	5 per VRF 24 per system
OSPF adjacencies for each switch	80 200 per system
OSPF routes	20 000 per VRF 50 000 per system
OSPF interfaces	500 500 per system
OSPF LSA packet maximum size	6000 bytes
RIP instances	on 64 VRFs (including GRT)
RIP interfaces	200
RIP routes	2500 per VRF 10 000 per system
Multiprotocol Label Switching	
MPLS LDP sessions	200
MPLS LDP LSPs	16 000
MPLS RSVP static LSPs	200
Tunnels	2500
IP Multicast	
DVMRP passive interfaces	1200
DVMRP active interfaces/neighbors	80
DVMRP routes	2500

Table 3
Supported scaling capabilities (cont'd.)

	Maximum number supported 8692SF with SuperMezz (R or RS series modules)
PIM instances	on 64 VRFs (including GRT)
PIM active interfaces	200 (200 for all VRFs)
PIM passive interfaces	1972 (2000 for all VRFs)
PIM neighbors	80 (200 for all VRFs)
MSDP peers	20
MSDP maximum SA messages	6144
Multicast streams: with SMLT/ without SMLT	2000/4000
Multicast streams per port	1000
IGMP reports/sec	250
IPv6	
IPv6 interfaces	250
IPv6 tunnels	350
IPv6 static routes	2000
OSPFv3 areas	5
OSPFv3 adjacencies	80
OSPFv3 routes	5000
Operations, Administration, and Maintenance	
IPFIX	384 000 flows per chassis
RMON alarms with 4000K memory	2630
RMON events with 250K memory	324
RMON events with 4000K memory	5206
RMON Ethernet statistics with 250K memory	230
RMON Ethernet statistics with 4000K memory	4590

Hardware and software compatibility

The following table describes your hardware and the minimum Ethernet Routing Switch 8600 software version required to support the hardware.

Table 4
Chassis, power supply, and SF/CPU compatibility

Item			Minimum software version	Part number
Chassis				
	8010co	10-slot	3.1.2	DS1402004-E5 DS1402004-E5GS
	8010	10-slot	3.0.0	DS1402001-E5 DS1402001-E5GS
	8006	6-slot	3.0.0	DS1402002-E5 DS1402002-E5GS
	8003-R	3-slot	7.0.0.0	DS1402011-E5
Switching fabric/CPU				
	8692SFw/SuperMezz	8692SF Switch Fabric/CPU with factory-installed Enterprise Enhanced CPU Daughter Card (SuperMezz).	4.1.0	DS1404066-E5
	Enterprise Enhanced CPU Daughter Card (SuperMezz)	Optional daughter card for the 8692 SF/CPU	4.1.0	DS1411025-E5
	8895 SF/CPU	Switching fabric	7.0	DS1404120-E5
Power supplies				
	8004AC	850 W AC	3.1.2	DS1405x08
	8004DC	850 W DC	3.1.2	DS1405007
	8005AC	1462 W AC	4.0.0	DS1405012
	8005DI AC	1462 W Dual input AC	5.0	DS1405018-E6
	8005DI DC	1462 W Dual input DC	5.1	DS1405017-E5
	8005DC	1462 W DC	4.0.x	DS1405011

Table 5
Module and component compatibility

Modules and components			Minimum software version	Part number
Ethernet R modules				
	8630GBR module	30-port Gigabit Ethernet SFP	4.0.0	DS1404063
	8648GTR module	48-port 10/100/1000BASE-TX	4.0.x	DS1404092
	8683XLR module	3-port XFP (10.3125 Gb/s LAN PHY)	4.0.0	DS1404101
	8683XZR module	3-port XFP (10.3125 Gb/s LAN PHY and 9.953 Gb/s WAN PHY)	4.1.0	DS1404064
Ethernet RS modules				
	8648GTRS	48-port 10/100/1000 Mbps copper ports	5.0.0	DS1404110-E6
	8612XLRS	12-port 10 GbE LAN module	5.0.0	DS1404097-E6
	8634XGRS	24 100/1000 Mbps SFP ports 2 XFP ports 8 10/100/1000 Mbps copper ports	5.0.0	DS1404109-E6
	8648GBRS	48 100/1000 Mbps SFP ports	5.0.0	DS1404102-E6
Small form factor pluggable transceivers				
	1000BASE-SX SFP	850 nm LC connector	4.0.0	AA1419013-E5
	1000BASE-SX SFP	850 nm MT-RJ connector	4.0.0	AA1419014-E5
	1000BASE-LX SFP	1310 nm LC connector	4.0.0	AA1419015-E5
	1000BASE-XD CWDM SFP	From 1470 nm to 1610 nm LC connector	4.0	AA1419025-E5 to AA1419032-E5
	1000BASE-ZX CWDM SFP	From 1470 nm to 1610 nm LC connector	4.0	AA1419033-E5 to AA1419040-E5
	1000BASE-T SFP	Category 5 copper unshielded twisted pair (UTP), RJ-45 connector	4.0.0	AA1419043-E6
	1000BASE-SX SFP	850 nm DDI LC connector	5.0	AA1419048-E6
	1000BASE-LX SFP	1310 nm DDI LC connector	5.0	AA1419049-E6

Table 5
Module and component compatibility (cont'd.)

Modules and components			Minimum software version	Part number
	1000BASE-XD SFP	1310 nm DDI LC connector	5.0	AA1419050-E6
	1000BASE-XD SFP	1550 nm DDI LC connector	5.0	AA1419051-E6
	1000BASE-ZX SFP	1550 nm DDI LC connector	5.0	AA1419052-E6
	1000BASE-XD CWDM SFP	From 1470 nm to 1610 nm, DDI	5.0	AA1419053-E6 to AA1419060-E6
	1000BASE-ZX CWDM SFP	From 1470 nm to 1610 nm, DDI	5.0	AA1419061-E6 to AA1419068-E6
	1000BASE-BX bidirectional SFP	1310 nm, single fiber LC, up to 10 km	4.1.0	AA1419069-E6
	1000BASE-BX bidirectional SFP	1490 nm, single fiber LC, up to 10 km	4.1.0	AA1419070-E6
	1000BASE-BX bidirectional SFP	1310 nm, single fiber LC , up to 40 km	7.0	AA1419076-E6
	1000BASE-BX bidirectional SFP	1490 nm, single fiber LC, up to 40 km	7.0	AA1419077-E6
	1000BASE-EX	1550 nm, up to 120 km	5.0	AA1419071-E6
10 Gigabit Ethernet Small form factor pluggable transceivers				
	10GBASE-LR/LW XFP	1-port 1310 nm SMF, LC connector	4.0.0	AA1403001-E5
	10GBASE-ER/EW XFP	1-port 1550 nm SMF, LC connector	4.0.x	AA1403003-E5
	10GBASE-SR/SW XFP	1-port 850 nm MMF, LC connector	4.0.0	AA1403005-E5
	10GBASE-ZR/ZW XFP	1550 nm SMF LC connector	4.1.0	AA1403006-E5
	10GBASE-LRM XFP	Up to 220 m over MMF, DDI	5.0.0	AA1403007-E6

High Availability mode considerations

High Availability mode (also known as HA-CPU) permits the synchronization of configuration and protocol states between the Master and Secondary CPUs.

For Release 7.0, HA-CPU supports the following in Hot Standby mode:

- platform configuration
- Layer 2 protocols: IGMP, STP, MLT, SMLT, ARP, LACP, VLACP
- Layer 3 protocols: RIP, OSPF, VRRP, RSMLT, VRF Lite

Hot Standby mode performs hitless failover, while Warm Standby mode restarts protocols after failover.

In Warm Standby mode, configuration synchronization is supported, but protocol state synchronization is not. Therefore, after failover, the protocols are restarted. These protocol restarts can result in small expected network down time.

HA-CPU supports the following in Warm Standby mode.

- DVMRP, PIM-SM, PIM-SSM
- BGP
- MPLS
- BFD
- IPv6, and all associated IPv6 protocols

A reboot is necessary to make HA-CPU mode active.

HA-CPU does not currently support the following protocols or modules:

- PGM

Ongoing considerations

The following sections describe considerations that are not new for Release 7.0.0.0, but which still apply for 7.0.0.0.

Module and chassis compatibility and performance considerations

Release 7.0 does not support classic modules. Only R and RS line card modules are supported with release 7.0. Also, the 8003 chassis is not supported with release 7.0. The 8003-R chassis replaces the 8003 chassis.

For switch fabric modules, only the 8692 with SuperMezz and 8895 CP/SF are supported with release 7.0.

In older chassis (those shipped before 2005), there is a difference between Standard and High Performance slots. In these chassis, an R or RS module installed in a Standard slot delivers increased port density. An

R or RS module installed in a High Performance slot delivers increased port density and increased performance. Chassis manufactured in 2005 and later do not have this limitation, and have full high-performance slot support.

In older chassis, R and RS modules inserted in slots 2 to 4 and slots 7 to 9 of the 8010 10-slot chassis, and slots 2 to 4 of the 8006 6-slot chassis, always operate at high performance. R modules inserted into slot 1 and slot 10 of the 8010 chassis, and slot 1 of the 8006 chassis, can operate at high performance, but operate at standard performance depending on chassis revision (for more information about identifying chassis, see the following section). For information about relative performance per slot with two fabrics installed in existing 8010, 8010co, and 8006 chassis, see the following table.

Table 6
Pre-2005 8010, 8010co, and 8006 chassis performance

Module	Standard slot (Slots 1 and 10) full duplex	High Performance slot (Slots 2 to 4, Slots 7 to 9) full duplex
8630GBR	16 Gbps	60 Gbps
8683XLR	16 Gbps	60 Gbps
8648GTR	16 Gbps	32 Gbps
8683XZR	16 Gbps	60 Gbps
8612XLRS	16 Gbps	60 Gbps
8648GTRS	16 Gbps	40 Gbps
8648GBRS	16 Gbps	60 Gbps
8634XGRS	16 Gbps	60 Gbps

If you place an R or RS module into a Standard slot of a non-high performance chassis, you receive the following message:

```
For maximum performance, Nortel recommends placing R
modules in Slots 2 to 4 or 7 to 9 as available.  Please refer
to release notes for additional details.
```

High Performance chassis

A chassis revision with an upgraded High Performance Backplane is available. The High Performance chassis is compatible with existing R, and RS modules.

Identify the High Performance Backplane by using the CLI or NNCLI. Use the CLI command **`show sys info`** or the NNCLI command **`show sys-info`** to show the chassis revision number. The HwRev field indicates if the chassis is High Performance or Standard. The following

table provides the Hardware Revision details for each chassis model. For more information, see the Technical Tip *Identifying the new Ethernet Routing Switch 8600 Chassis* (TT-0507501A) on the Nortel Technical Support Web site.

Table 7
Chassis hardware revision

Chassis model	Hardware Revision	H/W Config
8006	05 or greater indicates high performance chassis	02 or greater
8010	06 or greater indicates high performance chassis	02 or greater
8010co	05 or greater indicates high performance chassis	02 or greater

Customers requiring High Performance Mode for all slots on an older Ethernet Routing Switch 8600 chassis can have their existing chassis exchanged and reworked. Call 1-800-4NORTEL and order service part number N0060024. The list price for this chassis re-work is US $2000.00 for each chassis, and an advanced replacement unit is provided.

Switch clustering topologies and interoperability with other products

When the Ethernet Routing Switch 8800 is used with other Ethernet Routing Switch products, the switch clustering bridging, unicast routing, and multicast routing configurations vary with switch type. Nortel recommends that you use the supported topologies and features when you perform inter-product switch clustering. For more information, see *Switch Clustering Design Best Practices* (NN48500-584) and *Large Campus Technical Solutions Guide* (NN48500-575), available on the Nortel Technical Support Web site.

SF/CPU protection and loop prevention compatibility

Nortel recommends several best-practice methods for loop prevention, especially in any Ethernet Routing Switch 8800 Switch cluster environment. For more information about loop detection and compatibility for each software release, see *Large Campus Technical Solutions Guide* (NN48500-575) and *Switch Clustering Design Best Practices* (NN48500-584).

Switch behavior during boot cycle and redundant configuration files

Nortel recommends that you take special care when providing the boot option for your production systems. The Ethernet Routing Switch 8800 provides three boot configuration file choices, as well as a backup configuration file choice for each configuration file choice.

The default boot sequence directs the switch to look for its image and configuration files first on the PCMCIA card, then in the onboard flash memory, and then from a server on the network. The switch first checks for /pcmcia/pcmboot.cfg and then checks for /flash/boot.cfg.

The PCMCIA card is the primary source for the files; the onboard flash memory is the secondary source; and the network server is the tertiary source. These source and file name definitions are in the boot configuration file. The boot source order is configurable.

The config.cfg file stores the configuration of the Ethernet Routing Switch 8800 and its modules. This is the default configuration file. You can specify a different configuration file for the switch to use for the boot process.

For more details about boot sources, see *Nortel Ethernet Routing Switch 8600 Administration* (NN46205-605).

In normal operation, Nortel recommends that the primary configuration file is saved on the /flash drive, and that the primary backup configuration file is saved on the /pcmcia drive. Using this configuration, if one file or drive gets corrupted, the switch can still boot from the other file or drive. When you change configuration files, Nortel further recommends that you save the last known good configuration using the secondary choice option.

CAUTION
Risk of network outage
If a switch cannot access a valid configuration file, it will fall into default configuration mode, which can cause a network outage.

Ensure that a valid configuration and a backup configuration file are always available.

ATTENTION
If you want to store only one simple backup configuration file, Nortel recommends that you use a default backup configuration file with the following information (only) included:

config ethernet 1/1-10/48 state disable

This ensures that all ports remain disabled if the backup configuration file is loaded for any reason.

This configuration works especially well with SMLT because of the other redundant switch in the SMLT cluster.

The information in the following table describes how the switch behaves in different boot situations. If a configuration file is unspecified, this means that the **config bootconfig choice** command was not provided for the file. The switch action column describes the expected behavior in both CLI and NNCLI modes, unless otherwise specified.

Table 8
Switch behavior during boot cycle

Parameters	Switch action
A configuration file is not specified. The config.cfg file is present on the flash drive.	The switch boots config.cfg
The primary configuration file is specified. The configuration file is present on the flash drive.	The switch boots the specified configuration file.
The primary configuration file is specified. The configuration file is not present on the flash drive.	The switch boots with factory defaults (if **config boot flags verify-config** is **true**, and a backup configuration is not specified).
The primary configuration file is specified. The configuration file on the flash drive has a bad command.	The switch boots with factory defaults (if **config boot flags verify-config** is **true**, and a backup configuration is not specified).
The primary configuration file is specified. The configuration file on the flash drive has a bad command. The backup configuration file is specified, but it has a bad command.	The switch fails the first configuration file, and boots the second configuration file, ignoring the bad command.

Parameters	Switch action
The switch is configured to boot with factory defaults.	The switch boots with factory defaults.
The boot.cfg file is corrupt.	In CLI mode: The switch fails to load the boot.cfg file and creates a new boot.cfg file with a default boot configuration. In NNCLI mode: The switch fails to load the boot.cfg file and creates a new boot.cfg file with a default boot configuration. The switch comes up in CLI mode, which is the correct behavior because the NNCLI mode flag is false by default.

Configuring primary, secondary, and tertiary boot sources

Configure the boot sources so that the switch uses proper files from which to boot.

Step	Action
1	To change the runtime configuration file locations, use the following command: **config bootconfig choice <primary|secondary|tertiary> [config-file <file>|backup-config-file <file>|image-file <file>]** For example, to specify the configuration file in flash memory as the primary, use the following command: ERS-8610:6# **config bootconfig choice primary config-file /flash/config.cfg**
2	To set the location for the I/O module driver image for the BootStrap protocol: **config bootconfig bootp image-name <image-name> <slot-number>** **config bootconfig bootp secondary-image-name <image-name> <slot-number>** For example, to specify an R module driver for slot 2 in flash memory, use the following command: ERS-8610:6#**config bootconfig bootp /flash/p80j50xx.dld 2** **ATTENTION** Nortel recommends that you store .dld files in flash memory, and that you always set the image-name to default.
3	To set the boot source location for the SuperMezz image: **config bootconfig mezz-image image-name <image-name>**

For example:

```
ERS-8610:6#config bootconfig mezz-image
image-name /flash/p80m50xx.img
```

--End--

The following example configures the primary and secondary sources as per Nortel recommendations.

Step	Action
1	Configure the primary configuration file choices: **config bootconfig choice primary config-file /flash/primaryconfig.cfg** **config bootconfig choice primary backup-config-file /pcmcia/primaryconfig.cfg**
2	Configure the secondary configuration file choices: **config bootconfig choice secondary config-file /flash/secondaryconfig.cfg** **config bootconfig choice secondary backup-config-file /pcmcia/secondaryconfig.cfg**

--End--

OSPF warning message

When you enable OSPF on a VLAN or a brouter port, if no OSPF area is associated with the interface (that is, the OSPF area for the interface is 0.0.0.0), the following warning message is displayed:

```
When enabling OSPF for a VLAN, this automatically creates area
0.0.0.0 for the switch, which once the VLAN is active (VLAN has
active ports) will result in the advertisement of area 0.0.0.0 by
this switch.  If this is not the users intent, care must be taken
to place the VLAN into some other properly configured area.  Area
0.0.0.0 will always be present for the switch, BUT this area will
only be advertised if some active VLAN exists and is assigned to
area 0.0.0.0, which is the default assignment.
```

MPLS considerations

The MPLS maximum transmission unit (MTU) is dynamically provisioned (1522 or 1950 bytes) and it supports jumbo frames (9000 bytes). Packets that exceed the MTU are dropped. The allowed data CE frame size is MTU size minus MPLS encapsulation (header) size. For control frames (for example, LDP) the frame size is 1522 or 1950 bytes.

For the Ethernet Routing Switch 8800, the MPLS RSVP LSP Retry Limit is infinite by design (a setting of zero means infinite). When the limit is infinite, should a Label Switched Path (LSP) go down, it is retried using exponential backoff. The Retry Limit is not configurable.

In scaled environments, if MPLS LDP sessions flap and CPU utilization increases, then the default Hello Hold Timer of 60 seconds may not be long enough. If this situation occurs, Nortel recommends that you increase the Hold Timer to 120 or 180 seconds.

SNMP considerations

SNMP is configured differently in the NNCLI than in the CLI. Auto-generation of several parameters and command structure changes means that several configuration procedures are no longer required in the NNCLI. These considerations only apply to upgrades from Release 4.x to 7.0 as release 5.x already implements these changes. For more information, see the following:

- For SNMP trap changes, see the NNCLI SNMP trap configuration section in *Nortel Ethernet Routing Switch 8600 Troubleshooting* (NN46205-703).
- For SNMP community-based changes, see *Nortel Ethernet Routing Switch 8600 Administration* (NN46205-605).

DVMRP considerations

For Distance Vector Multicast Routing Protocol (DVMRP) configurations of more than 1000 streams, you may have to increase protocol timeouts (for example, OSPF dead interval, and so on). Otherwise, traffic loss can occur.

SMLT considerations

Software Release 7.0 does not support PIM Multicast Border Router (MBR) functionality over SMLT.

Nortel does not support an additional redundant IST MLT between two IST peers.

To improve SMLT failover and recovery behavior for large-scale networks, Nortel has optimized the IST protocol and rearchitected the SMLT state machines. This functionality improvement is mainly targeted for large-scale SMLT networks.

For best network operation, Nortel recommends that you operate switch clusters using only the new SMLT architecture. Within an SMLT cluster, you must run the same software release on both peer IST switches (except during upgrades).

The SMLT re-architecture is supported in releases 4.1.8.2, 4.1.8.3, 5.0.x (where x is 1 or higher), 5.1.x, and 7.0.0.0.

RSMLT considerations

In an RSMLT configuration, to ensure peer forwarding when the peer is down, enter save config after the peer information is first learned by both peers, or at any later time when the peer RSMLT information changes.

Whenever the peer RSMLT information changes (for example, from adding or deleting VLANs, changing VLAN IDs, or changing VLAN IP addresses), messages appear in the log indicating a discrepancy between stored information and what the switch is receiving from the peer. For example:

```
CPU6 [03/07/09 01:25:19] IP WARNING Recvd Peer address not same as
stored address for Vlan 544.  Save config for Edge-Support to use
this info on next reboot
CPU6 [03/07/09 01:25:19] IP WARNING Recvd Peer address not same as
stored address for Vlan 536.  Save config for Edge-Support to use
this info on next reboot
CPU6 [03/07/09 01:25:19] IP WARNING Recvd Peer address not same as
stored address for Vlan 535.  Save config for Edge-Support to use
this info on next reboot
```

When the preceding messages appear in the log, if the peer goes down, the switch does not forward the traffic for its peer for the indicated VLANs. To resolve this situation, you must bring the peer back online and save the configuration on both switches.

IST considerations

In EDM (or any SNMP based tool), whenever you change the MltType of an MLT to istMLT, configure the IST PeerIp and VlanId (1..4094) before you save the configuration. If you save the configuration without configuring the PeerIp and VlanId, you create an invalid configuration that cannot load during the booting process, which results in all the cards on the switch being taken off-line. (Q02132456)

60 day trial license

You are provided a 60 day trial period of Ethernet Routing Switch 8800, during which you have access to all features. In the trial period you can configure all features without restriction. The switch logs trial period expiration messages even if no license features are used or tested during the trial period. If any valid license is loaded on the switch at any time, the trial period expiration messages cease. At the end of the trial period, a message appears notifying the user that the trial period has expired.

After the license expires, configured licensed features are no longer functional after the switch is restarted or rebooted. If you want these configured features to continue to function properly, you must install a valid license.

For additional information about trial licenses, see *Nortel Ethernet Routing Switch 8600 Administration* ((NN46205-605)).

Advanced filter guidelines

Use the following guidelines when you configure advanced Layer 2 to Layer 7 filters for R or RS module ports or for VLANs with R or RS module ports in them.

- Always use an ACT with only the proper attributes selected. If you must add ACEs with attributes that are not in the original ACT, you must create a new ACL associated with the new ACT.
- For filter optimization reasons, when you have multiple ACEs that perform the same task (for example: deny or allow IP addresses, or UDP/TCP-based ports), you can configure one ACE to perform the task with either multiple address entries, or address ranges, or a combination of both. You can use this one ACE instead of using multiple ACEs.

For R and RS module ACLs, a maximum of 500 ACEs are supported. This maximum may not be achievable depending on the type of attributes used within an ACE. Since there are millions of combinations, note that certain combinations can overextend the system. In these cases, to help ensure stable system operation, reduce the number of ACEs and follow the previous guidelines.

CAUTION

Risk of module reset or improper load of configuration file

If the following messages appear on the console or in the log file, it is likely that there is a specific problematic combination of ACEs configured within an ACL. Such combinations are very unlikely to occur, but if you see these messages, first reduce the number of ACEs within the ACL until the messages stop. Next, contact Nortel Technical Support. Support will attempt to find a combination that does not cause this situation, and will provide the required filtering capabilities.

```
CPU5 [05/23/06 10:51:08] COP-SW ERROR Slot 3:
ercdAddCollapseBin: rcdRspMalloc failed for
INGRESS RSP memory allocation

CPU5 [05/23/06 10:51:08] COP-SW ERROR Slot 3:
ercdGetCollapseNode: collapse node creation
failed.

CPU5 [05/23/06 10:51:08] COP-SW ERROR Slot 3: erc
dFilterRdxResultUpdate: ercdGetCollapseNode()
Failed !!
```

MTBF for 1 Gig SFPs

The mean time between failure (MTBF) for all 1 Gig SFPs is 807 000 hours.

Supported standards, RFCs, and MIBs

For information about supported standards, RFCs, and MIBs, see the Appendices in *Nortel Ethernet Routing Switch 8600 Planning and Engineering — Network Design* (NN46205-200).

Supported traps and notifications

For a complete list of log messages generated by Ethernet Routing Switch 8800 Software Release 7.0, see *Nortel Ethernet Routing Switch 8600 Logs Reference* (NN46205-701).

For a complete list of SNMP traps generated by Ethernet Routing Switch 8800 Software Release 7.0, see *Nortel Ethernet Routing Switch 8600 Troubleshooting* (NN46205-703).

Resolved issues

This section details all issues resolved for Release 7.0.

Platform resolved issues

Table 9
Platform resolved issues

CR references	Description
Q02004992	With an HA-enabled switch in synchronized state, if you perform a soft reset on the master CPU (boot), the standby CPU may attempt to become the master. In this case, the master CPU boots and comes up as the standby, and the standby CPU comes up as the master. At this time, the new master shows synchronized state but the standby shows two-way active state, which is wrong.
Q02116845	In an HA-enabled SMLT cluster, the SMLT peer always waits for a potential HA failover before declaring the IST down. The following informational message shows that this process is under way. `# CPU5 [02/16/10 12:19:05] MLT INFO smltIstSessionDownBody: IST socket down, reason Admin down. IST peer has HA, waiting for HA failover on peer before declare IST Session down locally.`

Switch management resolved issues

Table 10
Switch management resolved issues

CR references	Description
Q01845752-02	For the Ext-CP Limit feature, the congested time (milliseconds) should approximate to the configured system minimum congestion timer (config sys ext-cp-limit min-congestion-time). The default value for this system timer is 3000 milliseconds. Total rxDrop will indicate how many packets have been dropped due to the congestion. Note that at this time, this parameter display may be inaccurate.
Q01972504-04	Connection of the Out-of-Band Ethernet Management port to an In-Band I/O port is not recommended, as erroneous behavior on this network, such as a loop, can cause issue with the operation of the SF/CPU module (either 8895 or any 8692 model). The most common issue seen is a loss of file management, and inability to access the /pcmcia directory. A SF/CPU re-boot or reset is need

CR references	Description
	to clear the condition. The current suggestion to not see such issue is not NOT connect the OOB port to any In-band I/O port. Such a configuration actually provides no extra value to managing the network. The same functionality can be accomplished, without concern for see the above potential situation, by creating a "management" VLAN and assigning a "management" IP address to the VLAN. If OOB management is a desire, then a true OOB management network should be created, and the switches In-Band I/O ports should NOT be part of such a network design.

MLT/SMLT resolved issues

Table 11
MLT/SMLT resolved issues

CR references	Description
Q01982830	IPv6 over SMLT or RSMLT is not supported. The following 3 CRs also deal with support of IPv6 over SMLT which is considered an enhancement : Q01834803, Q01756551, 01750113.

Unicast routing resolved issues

Table 12
Unicast routing resolved issues

CR references	Description

Q02002237	At switch boot, IPv6 ND prefixes are created on the switch, but not in the config file. These ND prefixes are created with default valid-life and pref-life parameters. Modifying these values causes the following errors to display on the slave console:
	`CPU6 [03/05/09 17:53:23] RCIP6 ERROR rcIpv6PrefixTblSetBody: Failed to modify valid life`
	`CPU6 [03/05/09 17:53:23] RCIP6 ERROR rcIpv6PrefixTblSetBody: Failed to modify prefered life`
	These ND prefixes are not saved to the config file after a save config.
	As a workaround, delete and recreate any IPv6 ND prefixes created upon boot that are not in the config file.

Q01878778	In BGP update packets, the route origin community type shows the wrong value (0x01 instead of 0x03).
Q01787988	For IPv6 traffic, with an IPv6 dest-val of 2301::100 and a src-val of 1301::100, the egress port shown using **`config sys set hash-calc`** does not match the original egress port used to send traffic. The port shown by the command is different from the actual port used for traffic forwarding; traffic is forwarded correctly.
Q01449035	IPv6 addresses remain in the routing table after you disable the VLAN.

Multicast routing resolved issues

Table 13
Multicast routing resolved issues

CR references	Description
Q02013130	Traffic loss is experienced after link failure in PIM-SSM in full mesh topology, which is not supported in Release 5.1.
Q02003390	Traffic loss for new streams due to no (S,G) clean up on IST peers. When multiple senders are sending traffic for the same groups (1000 groups) in the same VRF one after another, there may be traffic loss for new streams because this exceeds 2000 (S,G) records in an SMLT/RSMLT environment, due to the (S,G) clean up issue on IST peers. Workaround: Do not send traffic immediately from senders on same groups before timeout or do not send IGMP reports from clients for that particular group for 255 seconds.

CLI and NNCLI resolved issues

Table 14
CLI and NNCLI resolved issues

CR references	Description
Q02021276	Configuration information for PIM virtual neighbours in VRF are saved under multiple headers. The general practice for saving configurations in config.cfg is to save configurations for all the VRFs under a single header. The configurations for PIM virtual neighbour do not follow the convention as a new header is created for each VRF.

Quality of Service and filters resolved issues

Table 15
Quality of service and filters resolved issues

CR references	Description
Q01904368	Unable to mirror IPv6 packets received on a port when the ACE filter action on that port is set to deny.
Q01917455	On RS modules, if you enable access-diffserv (**`enable-diffserv true`**) on ingress or egress ports, IPv6 traffic on the ports is dropped and the IPv6 neighbor state changes to INCOMPLETE.
Q01814530-02	ACE filters applied to IST ports may malfunction after the switch reboots. Workaround: Disable and enable the malfunctioning ACE.

Known issues and limitations

Use the information in this section to learn more about known issues and limitations. Where appropriate, use the workarounds provided for these.

Navigation

Release 7.0 known issues

The following sections list known issues in Ethernet Routing Switch 8800 Release 7.0. These are to be resolved in a future release.

Platform known issues

Table 16
Platform known issues

CR	Subsystem	Description
Q02056314/ Q02087372	COP software error message on reboot	After a reboot, a COP software error message similar to the following may be displayed on the switch: `CPU5 [10/30/09 11:23:06] COP-SW ERROR 27806496: LtrId = 152,LtrPrio=0,ltrStatus= 15(LTR_SYNC_MSG_SLOT_INUSE),msgId=152,msgState = 1,Slot=4` You can ignore this message as it does not cause any functional issues.
Q02081336	8895 SF/CPU error message on reboot	On reboot of the 8895 SF/CPU, the following message appears: `SWA_7000-slot6:0x51aa300 (ttNetTask): mBlkClFree -- Invalid mBlk` This is an intermittent error message that can be safely ignored.

CR	Subsystem	Description

Q02098500	Warning messages on reboot	When rebooting the master CPU, the following warning messages may appear on the 8895 SF/CPU:
		`nyhq-csbu-udb:6# 0x51bb4e0 (tNetTask): duplicate IP address 2f50ef10 sent from ethernet address f4:e3:b1:0d:14:00`
		
		In addition, the following messages may appear on either the 8692 or 8895 SF/CPU:
		
		`CPU6 [11/24/09 12:15:49] MLT WARNING smltTick: pollCount = 51 > 50. But IST Channel active and resetCount = 0 < 3. Resetting pollCount and staying active!.`
		`CPU5 [11/24/09 12:17:44] IP INFO the Rsmlt circuit of vlan 18 is existed already in slave CPU`
		No traffic issues are seen with these messages.

Q02100062	COP software error message on reboot of HA switch	After a reboot of an HA switch, the following error may appear: `CPU6 [12/10/09 02:32:53] COP-SW-IP ERROR Slot 4: ercdProcIpRecMsg: Failed to Add ECMP IP Record. IpAddr:xxx.xxx.xxx.xxx IpMask: xxx.xxx.xxx.xxx NumEcpRouteRecs: 1 retCode: 18` No traffic issues are seen with this message.
Q02107441	DDI	If you enable DDM monitoring on a switch with non-DDM GBICs installed, the switch generates a message (`HAL INFO GBIC`) every 5 seconds to the console and to the log file for each non-DDM GBIC installed.
Q02125229	Copying files to flash	Some users prefer to copy files to and from the flash using Windows instead of using TFTP or FTP. However, release 7.0 does not recognize flash files formatted with either FAT16 or FAT32. As a workaround, you can TFTP or FTP the files to the flash.
Q02126115	Pre-7.0 8600 switch connected to 8800 switch	If 8600 switches running pre-7.0 code are connected to rebranded 8800 7.0 switches, the pre-7.0 switches cannot identify the chassis type and remote port from Topology Discovery Packets from the rebranded 8800 switches. As a result, in the pre-7.0 switches, the command **`show sys topology`** displays `unknown error: 192` in the ChassisType and Rem Port fields for the 8800 switches.
Q02132373	8895 SF/CPU file copy	With the 8895 SF/CPU, to copy files from either the master or secondary SF/CPU to an external device, do not use FTP or SCP, but rather use TFTP. If you use FTP or SCP to copy files from the SF/CPU, this action can lead to switch abnormalities. To copy files from an external device onto the 8895 SF/CPU, you can use TFTP, FTP, or SCP.

CR	Subsystem	Description
Q02132410	Unrecognized power supply	For the system power supply calculation, a low inaccurate value (410 W) is associated with any power supply that displays as `unrecognized`. This can lead to a system power calculation stating the system does not have enough power, when in fact it does. Properly installed Nortel-manufactured power supplies do not display as `unrecognized`.
Q02122904	FPGA firmware upgrade	When upgrading FPGA firmware on R or RS modules, the following message can appear: **`Router-C:5#/CPU5 [03/08/10 15:04:15] COP-SW ERROR 27894800: LtrId = 152,LtrPrio=0,ltrStatus = 15 (LTR_SYNC_MSG_SLOT_INUSE),msgId=53,msgState =1,Slot=3`** This message has no negative effect on the FPGA upgrade. There are no specific FPGA upgrades required with release 7.0.
Q02135428/ Q02135429	Hang on image version mismatch	There is a potential that the ERS 8600 (8692 SF/CPU with Mezz only) can hang on boot when there is a version mismatch between the B and M images. If a switch reaches this state, a power cycle or reboot to fix the hang can lead to the **`/flash`** partition being reformatted. It is best practice to ensure that your image versions always match and that necessary files in the **`/flash`** partition are always backed up.

Switch management known issues

Table 17
Switch management known issues

CR	Subsystem	Description
Q02091999	DNS host name	The CLI can support a DNS host name of up to 256 characters; however, EDM can only support up to 64 characters. Therefore, do not configure a DNS host name greater than 64 characters.
Q02133713	Autonegotation on OOB management port	With the 8895 SF/CPU, the out-of-band management port now only operates with autonegotiation enabled. Autonegotiation cannot be disabled on the out-of-band management port. Further, for proper operation of the 8800 device, the 8895 management port must only be connected to a device that supports and is enabled for Autonegotiation and must also run in full duplex mode. Device connections that do not support autonegotiation and full duplex are not supported.

KHI known issues

Table 18
KHI known issues

CR	Subsystem	Description
Q02066194	**show khi performance**	The **show khi performance** command displays the status of any suspended tasks, but does not display a timestamp of when the task was suspended.
Q02066205	KHI and port logging	The following two issues are related to port logging and port KHI: 1. Setting the duplex value on a port that has auto-negotiate enabled results in a port up/down log message, and also produces a port up/down event in the **show khi port** command output. 2. Setting the duplex value on a port that has auto-negotiate disabled results in a port up log message, and also produces port up events in the **show khi port** command output.

Q02080990	KHI and slot reset	If you reset a slot that is passing traffic, the following KHI errors can result:
		`:5# CPU5 [11/04/09 06:52:01] KHI WARNING Port 4/2 is experiencing Packet Errors`
		`:5# CPU5 [11/04/09 06:52:01] KHI WARNING Port 4/4 is experiencing Packet Errors, Frames Long Errors`
		`:5# CPU5 [11/04/09 06:52:13] KHI WARNING Port 4/6 is experiencing Packet Errors, FCS Errors`
		`:5# CPU5 [11/04/09 06:52:24] KHI WARNING Slot 4 Middle Lane is experiencing Ingress RSP Errors - PM EME1 Parity Error`
		`:5# show bootconfig CPU5 [11/04/09 06:53:48] KHI WARNING Slot 4 Middle Lane is experiencing Ingress RSP AM Short Packets`
		`:5# CPU5 [11/04/09 06:53:48] KHI WARNING Slot 4 Middle Lane is experiencing F2X Errors - F2I Ingress SPI-4.2 Abort Received`

Q02094865	KHI messages at boot	With the new KHI enhancements, the switch produces more messages at boot up. These messages only indicate issues if they are appear concurrently with switch operational issues.
Q02102285	KHI and bad packets on 10-Gig port	KHI may report a false positive of bad packets on a 10-Gig port, even when nothing is plugged into the port. In addition, the error message refers to the lane rather than the port. For information about which ports are associated with which lanes, refer to *Nortel Ethernet Routing Switch 8600 Planning and Engineering — Network Design Guide* (NN46205-200).

Layer 2 known issues

Table 19
Layer 2 known issues

CR	Subsystem	Description
Q02053232-01	RSTP/MSTP	RSTP/MSTP log messages introduced in 4.1.3.0 code and missing in 5.0.x and 5.1.x (but added in 5.1.2.0), are also missing in 7.0.0.0.
Q02056344	RSTP statistics on MLT	If you disable a member port of an MLT that is running RSTP and then display statistics for the disabled port (for example, using the **show spanning-tree rstp port statistics <slot/port>** CLI command), the command output indicates that the port is still sending and receiving BPDUs. This is the normal display behavior for MLT ports. When the system displays the RSTP statistics for MLT ports, the statistics are taken from the designated port and displayed for all member ports. Even if a port is disabled, it is still a member of the MLT and hence the designated port's statistics are displayed for the disabled port. However, there are actually no packets going out the disabled port.
Q02133764	SLPP display	In some cases, the output of the **show slpp interface gig** command does not show anything on either IST peer even when SLPP has brought the ports down. The command should normally display some information on either one or both of the IST peers.

MLT/SMLT known issues

Table 20
MLT/SMLT known issues

CR	Subsystem	Description
Q02053131	RSMLT (dual-stack)	On a dual-stack RSMLT VLAN (that is, IPv4 and IPv6 are configured on the same VLAN), if you delete and re-create IPv4 on the VLAN, then IPv4 forwarding does not work properly. The workaround is to disable RSMLT on the VLAN before creating IPv4 on the VLAN, if it is already configured with IPv6 RSMLT. Note that if the intention is to permanently delete IPv4 from a VLAN, then there is no need to disable RSMLT. In addition, if you delete and re-create IPv6 on an IPv4 RSMLT VLAN, you do not need to disable and reenable RSMLT on the VLAN.

CR	Subsystem	Description
Q02088077	SMLT	Consider a triangle SMLT network where the edge switch is connected to each IST switch using SMLT over MLT. On either of the IST switches, if you delete and re-add the SMLT interface to the edge switch, duplicate traffic to the edge switch can result. Workaround: 1. Before re-creating the SMLT on the MLT interface, shut down the ports of the MLT, and reenable them after assigning the SMLT ID. 2. After deleting the SMLT-ID, delete and re-create the MLT.
Q02099222	IST and reboot	After rebooting an IST switch, the following error message may appear on the IST peer: `COP-SW-IPV6 ERROR Slot 7: ercdDeleteIpV6Record: Failed to lookup entry in gIpV6RadixTbl. Status: 18` There are no functional impacts from this issue.
Q02099875	SMLT full mesh	In full mesh SMLT, if a VLAN IP is changed, the IST peer is not displaying the new IP address in the topology table. Workaround: save the config file where the IP address was changed and reboot the switch with that config file. After the switch comes back up, the IST peer will learn the new IP address with topology.
Q02102162	MLT	The 8800 switch allows you to configure more than the supported maximum of 128 MLTs. Do not configure more than 128 MLTs on the switch as this is not a supported configuration.
Q02119996	RSMLT display	When you enter the **`show ip rsmlt info`** command, the same SMLT ID can display twice for some VLANs. This issue arises only for VRF-enabled VLANs running RSMLT.

Unicast routing known issues

Table 21
Unicast routing known issues

CR	Subsystem	Description
Q02053644	BGP route policies	BGP in/out route policies can be applied to IPv6 as well as IPv4, using the following command: **`config ip bgp neighbor <addr> route-policy in <policy-name> <add|del> [ipv6]`** The **`ipv6`** option is used only for route policies that are applicable for IPv6 BGP routes. When configuring IPv4 route policies, omit the **`ipv6`** option.

CR	Subsystem	Description
Q02089739	VRRP and SMLT	In a triangular SMLT setup with VRRP, if you delete the VRRP instance on the master router, the following error may appear: `*Dist-1-187:3# CPU3 [11/06/09 02:41:41] RCIP6 ERROR rcip6RpcOutChangeResEntryState: ify_arte lookup failed fe80:0:0:0:212:83ff:fe7c:2204 cid 16779277` There is no traffic impact from this issue.
Q02096944	BGP maximum routes	If BGP confederation and route reflectors are configured, the maximum number of routes is 150k; in a normal situation, the maximum is 250k.
Q02120737	Strict source route IP option	If the switch receives a packet with the strict source route IP option, the switch does not forward the packet at all.
Q02120738	Loose source route IP option	If the switch receives a packet with the loose source route IP option, the option is ignored, and the switch forwards the packet based on normal routing.

Multicast routing known issues

Table 22
Multicast routing known issues

CR	Subsystem	Description
Q02018739	IGMPv3 and version changes	If you change the IGMP version at the interface level from IGMPv3 to IGMPv2 and back to IGMPv3, this sets the operating version permanently to the default value of IGMPv2. All switches in the network revert to IGMPv2 and all IGMPv3 membership reports are discarded. This also deletes the IGMP group table information. This is in accordance with the RFC, which states that downgrade is supported but upgrading is not.
Q02054029	PIM with square SMLT	The maximum number of groups in a BSR message on square SMLT is 66.
Q02058144	MVR and VRF	If MVR is enabled on the global level for a particular VRF and a configuration save is performed, the "MVR ENABLE" command is repeated two times in the configuration file. If the MVR is disabled after being enabled for the particular VRF, the configuration file shows the "MVR DISABLE" command followed by the "MVR ENABLE" command. This is done intentionally and is required for proper functioning of MVR on the Ethernet Routing Switch. The first "MVR ENABLE" command for a particular VRF does the job of allocating memory for all the structures required by MVR to run on the concerned VRF. The subsequent "MVR DISABLE" or "MVR ENABLE" command does the job of disabling or enabling the MVR feature on the VRF. The memory for MVR structures is never de-allocated unless the VRF is deleted or the switch is rebooted.

CR	Subsystem	Description
		Please do not edit the configuration file and delete either the "MVR DISABLE" or "MVR ENABLE" command considering them duplicate or redundant.
Q02076924	PIM-SM	In a PIM-SM network, if a single-attached multicast source is removed from the network, its entries are never removed from the mroute tables and the entries continue to be displayed under **`show ip mroute info`**.
Q02088992	Anycast RP and IST	With Anycast RP enabled, multicast traffic cannot be sent over an IST even when there is an active receiver connected to the IST pair switch. Workaround: The receivers must be connected to the IST pair through edge switches on one extended VLAN. They cannot be connected directly to either of the IST pairs.
Q02090465-01	Multicast traffic	The 8800 switch drops multicast traffic with source IP address of 0.0.0.0.
Q02111397	IGMP **`stream -limit-max-streams`**	For the IGMP `stream-limit-max-streams` parameter, if the default value is changed, the new stored value appears incorrectly in the show commands and in the config.

IPv6 known issues

Table 23
IPv6 known issues

CR	Subsystem	Description
Q01943780	BGP+ tunnel-to-tunnel forwarding	IPv6 Tunnel-to-tunnel forwarding is not supported. The impact of this issue for BGP+ is as follows. Scenario-1 Host1---------8600-A ----N/W-1---- 8600-B -----N/W-2----8600-C-----Host2 here: 8600 A, B and C are Dual stack routers. N/W-1 and N/W-2 consist of single stack (IPv4 only) routers (multiple hops). In this scenario two possibilities exist for tunneling configurations: • eBGP+ between A-B and B-C (this scenario is not supported) • eBGP+ connection from A to C and eBGP connections between A-B and B-C (this is the only working solution) Scenario-2 Host1---------8600-A ----N/W-1---- 8600-B-------8600-D-----N/W-2----8600-C------Host2

CR	Subsystem	Description
		here: 8600 A, B, C and D are Dual stack routers, and the tunnels are between A-B and D-C and B-D B and D are in one AS while A and C are in two different ASs. B and D need to have synchronization enabled along with the iBGP+ connection. The requirement here would be to have the IGP install the routes in the route table so that the next hop is no longer the tunnel.
Q01981779	IPv6 neighbors	The switch cannot learn a given IPv6 neighbor's address on more than one interface (including link-locals). If the same address is learned on more than one interface, this can cause the switch to generate errors, such as: `swF:5# CPU5 [01/19/09 03:27:21] RCIP6 ERROR rcip6RpcOutChangeResEntrySubCid: || REPLACE neighbor to HW FAILED. nbr ip address:`
Q02045966	IPv6 VRRP	In a triangle SMLT, if you delete VRRP peers on the SMLT aggregation switches, the VRRP addresses on the data closet switch are not immediately cleaned up in the IPv6 neighbor table (**`show ipv6 neighbor info`**). The table shows IPv6 neighbor states as `Incomplete`. The neighbor addresses are only aged out 30 minutes after the traffic is stopped from the neighbor, in accordance with the ND RFC. In addition, the switch does not immediately delete router neighbors. Instead, it places them in the `Incomplete` state when they no longer exist. In this case, the virtual addresses are removed by the neighbor 30 minutes after deleting the VRRP virtual routers on the two switches.
Q02097283	BGPv6 route preferences	There is no way using CLI, NNCLI, or EDM to change route preferences for BGPv6 routes only. The switch provides a single option that can change route preference for BGPv4 and v6.
Q02122417	IPv6 ping	With IPv6, any ping executed with a data size above 1864 is dropped. Do not set the IPv6 ping data size above 1864.
Q02122414	NNCLI IPv6 ping	In the NNCLI, the ping datasize command supports the datasize range for IPv4 only: 16-4076. It should also support the expanded datasize range for IPv6 ping of 16-65487, as in the CLI.

CR	Subsystem	Description

Q02122887	IPv6 VLAN	If you configure IPv6 VLANs, save the configuration, and then reboot, the offset used to create the VLAN MAC addresses can change, changing the VLAN MAC addresses, and in turn, the link-local IPv6 addresses. The link-local addresses can move from one VLAN to another. This can cause errors to appear in other network nodes such as the following:
		`CPU5 [03/02/10 01:44:52] HW INFO replaceIpv6NbrRecordToBinTable: Unable to update neighbor record, a record with the same link-local address exists on a different interface`
		This error can be accompanied by RCIP6 errors such as the following:
		`CPU5 [03/02/10 01:44:52] RCIP6 ERROR rcip6RpcOutChangeResEntrySubCid: REPLACE neighbor to HW FAILED. nbr ip address: fe80:0:0:0:214:dff:fe52:265:, HAL error code = -1`
		Workaround: Administratively disabling and reenabling IPv6 on all of the VLANs on the node reporting errors clears the condition. Alternately, disabling and reenabling all the VLAN ports in IPv6 VLANs accomplishes the same. If it is known on which VLAN the link-local address was previously present and which VLAN it moved to, it is sufficient to disable and reenable IPv6 on these VLANs only.

Q02125173	IPv6 and MLT with MSTP	In NNCLI mode, if you configure an IPv6 interface on a VLAN and then add the VLAN member ports to an MLT, the IPv6 interface goes down. This issue occurs only if the box is booted in MSTP mode RSTP. The issue does not happen if the box is booted in MSTP mode Default. As a workaround, after you add ports to the MLT, disable and reenable IPv6 on the VLAN.

CLI and NNCLI known issues

Table 24
CLI and NNCLI known issues

CR	Subsystem	Description
Q02033342	CLI display	In the output from the `show ipv6 route info` CLI command, the last 4 columns can appear to be shifted too far to the right. The space is allocated for completely addressed IPv6 addresses. The display of 80 characters is the standard for each line.

CR	Subsystem	Description

Q02057757	NNCLI	In the CLI, entering "!" allows the commands in the history to be run again as follows:
		
		`Usage: history`
		`history commands substitution syntax`
		`!! : run last command`
		`!<number> : run command <number>`
		`!<str> : run last command that matches <str>`
		`!?<substr> : run last command that matches <substr>`
		`^<sstr>^<rstr> : replace <sstr> with <rstr> in last command`
		
		However, this functionality is not supported in the NNCLI.

Q02087492	CLI and protocol-ID based VLANs	With protocol-ID based VLANs, the DSAP/SSAP entry must be a four-digit hexadecimal number in the range 0x0 to 0xffff. If the first letter in the four-digit hexadecimal format entered is an invalid digit, an 'out of range' error is displayed. However, the CLI can accept four-digit numbers that include nonhexadecimal letters (for example: bbhh, 3dhj, abzz, and so on). If the trailing digits are invalid digits, the value is accepted and the valid part of the given number is extracted (for example: if bhhh is entered, the switch extracts a value of 0x000b).
Q02098992	CLI and Ethernet port configuration	The **`config ethernet <slot/port> fc-pause-0 <enable|disable>`** command for configuring Ethernet ports does not apply to R/RS modules. This command will be removed in a future release.
Q02100377	CLI and DNS host names	In the CLI, you can configure a DNS host name of up to 256 characters. The CLI should limit the DNS host name to 64 characters.
Q02100686	NNCLI and SMLT	In a certain case, SMLT entries can occur twice in the NNCLI config file. First, the switch must be in STP mode. Then, you must save the config to NNCLI and then boot that config. Finally, if you configure an SLT port and add the SMLT ID to that port, the port will have two SMLT entries. The additional lines in the config file have no effect on normal switch operations.
Q02101603	CLI timeout	When running in HA mode, the login prompt may scroll on the console screen. This issue does not appear if the CLI timeout is set to the default value of 900. As a workaround, restore the CLI timeout to the default value of 900 (using CLI or EDM [**Security > control path > general > CLI**]).
Q02117793	NNCLI config file	Sourcing of large NNCLI config files can take several minutes, while at booting takes only 10 seconds. The issue is seen while sourcing at runtime only. Booting is normal.

CR	Subsystem	Description
Q02121585	IP-subnet VLANs in NNCLI	In the NNCLI, with IP-subnet based VLANs in MSTP mode, do not configure a name for the VLAN otherwise the saved configuration can cause issues.
Q02124930	show fulltech command	In NNCLI mode, the **`show fulltech`** command displays the chassis type as 8810co rather than 8010co.

Enterprise Device Manager known issues

Table 25
Enterprise Device Manager known issues

CR	Subsystem	Description
Q02051417	EDM and MLT	If you use EDM to export MLT configuration data (using the **MultiLink/LACP Trunks** tab, **LACP** tab, or **IST/SMLT Stats** tab under **Configuration, VLANs, MLT/LACP**), the display of the exported data is misaligned with the table header row. Although the data display is misaligned, the data values are correct.
Q02053536	EDM and IP VPN	The work flow for creating an IP VPN route target in EDM differs from that for the CLI or NNCLI. If you want to create a route target through EDM, you must perform the following steps: 1. Select **IP > IPVPN > Route Target > Insert**. 2. Enter a valid index and IP address in the respective fields. 3. Click **Insert**. 4. Select **IP > VRF > Insert** to create a VRF. 5. Select **IP -> IPVPN > VPN > Insert** to create an IPVPN for the VRF just created. 6. For the IPVPN just created, change the importRTList or exportRTList to associate the route target (put the route target index for importRTList or exportRTList) with the IPVPN.
Q02076555	EDM and BGP	In EDM, under **IP > BGP > Aggregates**, if you modify the parameters of an existing Aggregate entry (for example AsSetGenerate, SummaryOnly, SuppressPolicy, AdvertisePolicy, and AttributePolicy) and click **Apply**, the change is not displayed accordingly in some cases. To display the correct values, refresh the EDM screen. This issue can also occur when you delete an Aggregate entry.

CR	Subsystem	Description
Q02077395	EDM and FDB entries	With EDM, if you attempt to delete forwarding database (FDB) entries using the Forwarding tab under **Configuration > VLAN > VLANs**, an error is displayed and the FDB entries are not deleted. To delete FDB entries in EDM, use the **Configuration > VLAN > VLANs > Advanced** tab. For the desired VLAN, double-click the **VlanOperationAction** table cell, select **flashMacFdb** from the drop-down menu and click **Apply**. You can also use the **config vlan <vid> fdb-entry flush** command (in the CLI) or the **vlan mac-address-entry <vid> flush** command (in the VLAN Interface Configuration mode of the NNCLI).
Q02078914	EDM and OSPF	In the Virtual If EDM tab, under **Configuration>IP>OSPF**, you can modify the hello interval to a value that is not a multiple of the dead interval, and no warning message appears to indicate that this is not a valid configuration.
Q02082668	EDM and RIP	In CLI, the RIP Domain field displayed using the **show ip rip info** command appears in decimal, while in EDM, the RIP Domain field (in the Interface tab under **Configuration > IP > RIP**) appears in hexadecimal.
Q02085265	EDM and ACEs	In the ACE Common EDM tab (under **Configuration > Security > DataPath > ACL Filters > ACL > ACE**), to configure the RedirectNextHopIpv6 parameter, you must first verify that the PktType field for the corresponding ACL (under **Configuration > Security> DataPath > ACL Filters > ACL**) shows ipv6. If the ACL is configured for ipv4, then the RedirectNextHopIpv6 configuration does not take effect. If you do configure the RedirectNextHopIPv6 field on an IPv4 ACL, while the IPv6 value is not saved, the RedirectNextHop field (for IPv4) can be populated with an erroneous IPv4 address. Be sure to delete the erroneous IPv4 address.

Q02086884	EDM and IST	In EDM, no warning or information messages are displayed on enabling or disabling an IST (under **Configuration > VLAN > MLT/LACP > MultiLink/LACP Trunks**). In the CLI, when enabling IST on the MLT, the following information message is displayed:
		
		`INFO : The spanning tree protocol is disabled on the port(s) with IST enabled!`
		
		And when disabling the IST, the following warning message is displayed:
		
		`WARNING : Disabling IST may cause loop in the network!`
		`Do you really want go DISABLE IST (y/n) ? y`

CR	Subsystem	Description
		No similar messages are displayed with EDM.

Q02087376	EDM and SSM-snoop	In EDM, if you attempt to enable SSM-snoop (under **Configuration > IP > IGMP > Interface**) without first enabling IGMP snoop, no warning message is displayed indicating that you must enable IGMP snoop. In the CLI, the following message appears:
		
		`WARNING: IGMP SNOOP should also be enabled with IGMP SSM-SNOOP`
		
		Similarly, no warning message is displayed in EDM if you disable IGMP snoop without first disabling SSM-snoop. In the CLI, the following message appears:
		`WARNING: IGMP SSM-SNOOP should also be disabled with IGMP SNOOP`

Q02088297	EDM IP configuration with VRF ports	In EDM, after a port is assigned to a VRF, the user can manage this port from the assigned VRF including creating an IP Brouter port, OSPF interface, and a RIP interface. From the GRT, the user can manage the basic functionality for the port, for example disabling and enabling the port, but cannot manage the IP functionality for the port. If the user configures an IP address on a port from the VRF, the GRT cannot display this data, and no IP functionality on this port can be managed from the GRT. Due to this problem, EDM shows no data or wrong values in the GRT from the **Edit > Port > IP** path.
Q02088725	EDM and VRRP	In EDM, if you set the VRRP FasterAdvInterval parameter (under **Configuration > IP > VRRP > Interface**) to a value that is not a multiple of 200 ms, no warning is displayed. A message similar to the following from the CLI should appear: `WARNING: Input value is not a multiple of 200ms, Fast Adv Interval adjusted to 200ms.` The warning is displayed if you modify the FasterAdvInterval under **Configuration > VLAN > VLANs > IP > VRRP**.
Q02089610	EDM and IPv6 OSPF	EDM allows you to configure the IPv6 OSPF stubmetric parameter (under **IPv6 > OSPF > Areas**) beyond the valid range of 0-65535 without producing an error.
Q02091549	EDM and DVMRP	In EDM, under **Configuration > IP > DVMRP > Interface Advance**, if you double-click the InPolicy or OutPolicy parameter and then click the Refresh button, the displayed pop-up window disappears. One workaround is to keep the lower scrollbar to the left-most position, in which case the refresh works and the popup window does not disappear.

CR	Subsystem	Description

Q02091105	EDM and STG	Under **VLAN > Spanning Tree > STG**, if you attempt to remove a port from an STG, a warning similar to the following should be displayed:
		`WARNING:Port(s) 3/13 will be removed from the VLAN(s) as well`
		`Do you want to continue (y/n) ?`

Q02091957	EDM and ACE	Under **Security > Datapath > ACL filters > ACL > ACE**, if you select an existing ACE and click **Action/Debug**, and then click the ellipsis (**...**) to select a DstMltId from the pop-up window, to remove the selected value, you must deselect the DstMlt value and also deselect either the associated DstPortList or the DstVlanId to remove it as well.
Q02092358	EDM and ACL	In EDM, under **Security > Datapath > ACL filters > ACL > ACE > IP > Source Address**, if the error message UndoFailed is returned, the value entered is illegal or improper.
Q02097130	EDM and PCAP	Under **Edit > Diagnostics > PCAP > PcapGlobal**, if you modify the BufferSize field to a value that consumes too much memory, an `UndoFailed` error is displayed. EDM should display an error similar to the following: `Possible Memory allocation failure - please refer to logs in PCAP engine`
Q02099531	EDM and Route Policies	In EDM, under the **IP > Policy > Route Policy** tab, if you double-click the MatchAsPath or MatchCommunity fields, values are duplicated in the pop-up window. If you assign one of the duplicate values to the MatchAsPath or MatchCommunity field, it gets applied. Once applied, do not attempt to assign the other duplicate value to the MatchAsPath or MatchCommunity field; otherwise an error is displayed.
Q02100726	EDM help	The current online help for many tabs opens a page with the field variable definitions. However the associated procedure for the current tab is listed on a separate HTML page which cannot be reached from the variable definitions page.
Q02109487	EDM help for Quick Start	In this release, EDM help is unavailable for the EDM Quick Start pages (**Configuration > Quick Start > Quick Start**). Therefore, in these pages, the Help button is disabled.

CR	Subsystem	Description
Q02122397	EDM port configuration for VRFs	From the EDM Device Physical View, a user that is logged into a non-GlobalRouter VRF should not be permitted to modify any parameters for ports that are used in other VRFs or the GlobalRouter. For example, the user should not be able to modify any parameters for an IST port that is used by multiple VRFs. If the user right-clicks on the port, EDM behaves as though the user can modify or disable the port. In the latter case, while the port color turns amber, in reality the port is not disabled. The port should stay green and EDM should provide feedback to the user that they do not have access to change the port from the VRF. Only users logged into the GlobalRouter can modify this type of port.
Q02122686	EDM and BGP Peers	In Release 5.1 Java Device Manager, the UpdateSourceInterface field was a configurable option under **IP > BGP > Peers**. In EDM, under the **IP > BGP > Peers** tab, the same field is unavailable. As a workaround, you can use the **`config ip bgp neighbor update-source-interface`** (CLI) or **`ip bgp neighbor update-source`** (NNCLI) commands to configure the field.
Q02124716	Double-clicking EDM options	In the EDM navigation tree, to select an option under any of the expanded folders, you must double-click the desired option, rather than single-click.
Q02127722	EDM and 8692 SF/CPU card	In the EDM Physical Device view, EDM does not display the name of the 8692 SF/CPU cards. This issue does not affect 8895 SF/CPU cards.
Q02131235	EDM graph polling interval	If you launch on-box EDM using Internet Explorer and then graph a port, you cannot change the default 5s polling interval from the drop down box. As a workaround, you can launch on-box EDM using Firefox, or use the off-box EDM plug-in.
Q02134150	EDM and BGP Peers	In EDM, if you create a BGP Peer (under **Configuration > IP > BGP > Peers > Insert**), the AdvertisementInterval value defaults to 30. This value should default to 5, which is the default route advertisement interval value for configuration using the CLI or NNCLI.

Off-box EDM plug-in known issues

Table 26
Off-box EDM plug-in known issues

CR	Subsystem	Description
Q02127403	Off-box EDM plug-in and NSNA	In the off-box EDM plug-in, the following issue can occur with multiple port configuration of NSNA. First, select multiple ports, then right click and select **Edit General**, and then click the **NSNA** tab. From the NSNA tab, if you set the mode to dynamic or uplink, and then attempt to select UplinkVlans or VoipVlans by clicking the associated ellipsis (**...**), an empty box is displayed. To work around this issue, you can configure NSNA on each port

CR	Subsystem	Description
		individually. Related to the above, if you set the mode to disabled, the UplinkVlans or VoipVlans fields should be greyed out.
Q02127410	Off-box EDM plug-in and FDB protect	In the off-box EDM plug-in, the following issue can occur with multiple port configuration of FDB protect. If you select multiple ports, then right click and select **Edit General**, then click the **Fdb Protect** tab, none of the data is displayed for this tab. To work around this issue, you can configure FDB Protect on each port individually.

Previously reported known issues

The following sections list known issues in Ethernet Routing Switch 8600 reported in pre-Release 7.0 software releases. These are to be resolved in a future release.

Platform known issues

Table 27
Platform known issues

CR references	Description
Q02025261	With multiple HA failovers, intermittent connectivity issues may occur.
Q01993610	Line RDI is not generated properly as a result of LOS on the 8683XZR module in WAN mode.
Q01993661	When an RDI-P is received on the XZR module, a "Path RDI" should be shown under the active alarm; however, a "Path AIS" appears.
Q02005338 Q02013534	With DWDW XFP AA1403001-E5, wavelength is displayed in CLI as 1307nm or 1307.5nm, but the faceplate is labelled as 1310nm. The wavelength specifications provided by the XFP manufacturer and reported by the Ethernet Routing Switch 8600 system can vary slightly because of hexadecimal to decimal (and decimal to hexadecimal) rounding.
Q01947384	Ping does not work when the source IP option is set to a circuitless IP interface.
Q01993806	Three SONET Alarms are wrongly decoded by the 8683XZR module: • Path PLM is interpreted as Path SLM • Path PDI is interpreted as Path SLM Path • TIM is interpreted as No Defect These three alarms are not supported by Ethernet Routing Switch 8600 Release 5.1.

CR references	Description
Q02013161	With an FPGA upgrade, the PCMCIA is not checked for a file before an error message is displayed. The switch does not search in PCMCIA before displaying the error message, wrongly stating that no such file exists even if the PCMCIA has that file. The switch should search in PCMCIA along with FLASH also. The issue is present for all FPGA upgrade commands.
Q02002324	When Autonegotiation is enabled on two switches that are connected to each other using RS modules, and the auto-negotiation-advertisement parameter is set to default on one switch and to 1000-half on the other switch, ping does not work.
Q02006487	When an 8683XZR module in WAN mode receives a LOF, the port correctly detects the LOF, but it does not send out a Line RDI.
Q02006504	When an 8683XZR module in WAN mode receives a P-PLM (path label mismatch), the alarm raised is path SLM. Path PLM is the SONET term and path SLM is the SDH term. To be consistent, the SONET term should be used when the port is in SONET mode.
Q02008247	With DWDM XFPs, the **show system pluggable-optical-modules** threshold status is incorrect during transition from a "High Alarm" to a "Low Alarm". When the Rx power is high (beyond the threshold), the threshold status indicator shows "High Alarm", which is correct. However, when the Rx optics is pulled, then the state remains at "High Alarm," even though the indicated power level is -38.200 dBm (which is a "Low Alarm"). The high alarm does not clear in this scenario until the Rx power level goes back to normal.
Q01991485	If two Ethernet Routing Switch 8600s are connected using two Ethernet WAN ports using SONET framing and the ports are operationally up, when one of the two ports is changed from SONET framing to SDH framing, no alarm is received. An alarm is needed for the SONET and SDH mismatched connection.
Q02023608	On 8612XLRS modules with DDM enabled, wait 3 minutes after module initialization before you enter **show sys pluggable-optical-modules** commands to avoid errors during the initialization.
Q01727720	In the output for the **show port error main port <slot/port>** command, the FRAMES LONG counter does not increment when the 8648GBRS port receives frames larger than the system MTU size. The same behavior is observed on 8648GTR ports and Gigabit ports on the 8634XGRS.
Q01877552-01	Configuring Distributed MLT on ERS8600 using 8608GBE cards could lead to a ports being put in different STP states in the MLT.
Q01927867-01	On an ERS8600 running OSPF, the command *show vlan info ports* <vlan-id> display provides inadequate spacing between the column head VLAN ID and PORT MEMBER when the ports to be displayed are OSPF passive port members.

CR references	Description
Q01986390	Force Topology CLIP (Circuitless IP) becomes unconfigured after an HA-CPU failover. Under these considerations, the user must reconfigure the parameter if configured differently than the default value.
Q01967211-01	When the remote mirroring destination/termination (RMT) port is used for both local port mirror and remote port mirror, the sniffer can't decode the mirrored traffic and report them as malformed packets. When the RMT port is either used for a remote port mirror or local port mirror, the sniffer can decode the mirrored traffic correctly. When a RMT is configured on an interface, do not configure the same interface as a local "mirroring port". This causes packet corruption on the locally mirrored traffic. In ERS 8600, an interface can be configured as either a local or a remote mirroring destination. The RMT port is exclusively used in Remote mirroring tunnel. The Remote mirroring Destination/Termination port should be disabled to perform local mirroring.
Q01832726	In a SuperMezz R mode HA-CPU system configured with a dead interval of 3 seconds, when the Master is removed, OSPF neighborship is lost for interfaces configured with low timers (for example, 1 s Hello and 3 s Dead Interval). If failover is triggered by soft-resetting the Master CPU, or the dead interval is 10 s, this issue does not occur. Workaround: Remove the Master CPU during a maintenance window or other low-traffic periods. Or, increase the dead-interval to 10 s.
Q01841910	When using High Availability mode, the Secondary SF/CPU crashes if it cannot find the backup primary configuration file, even if there is a backup configuration file. Workaround: Ensure that the configuration files on both the Master and Secondary SF/CPU have the same R mode setting (either enabled or disabled).
Q01872749	If you reset an RS module, a FATAL COP message may be logged. Reset is a maintenance command which should not be used under normal circumstances. Workaround: If you must reset an RS module that is passing traffic, first disable the slot, then reset the slot.

Switch management known issues

Table 28
Switch management known issues

CR references	Description
Q01924118	When configuring SSH on the switch, -C and -C2 compression options are accepted, but should be rejected. Subsequent SSH connection are also accepted with no message to the user. The switch should prompt the user with a message stating compression is not supported.
Q01576692-01	With RADIUS accounting of SNMP, when the switch sends start, interim, and stop requests, the packets do not contain the SNMP community string value.

CR references	Description
Q01576083	You can connect through HTTP to an Ethernet Routing Switch 8600 interface that has an IPv4 address, but not to an interface that has an IPv6 address.
Q01831409	Using the CLI, when you configure an SNMPv3 target address with an IPv6 address in short format and a port (for example 100::2:162), the software incorrectly assigns part of the IPv6 address as the port number. Workaround: Specify the IPv6 address in long format along with the port number (for example, 1:2:3:4:5:6:7:8:162), or use Device Manager to configure the address.

Layer 2 known issues

Table 29
Layer 2 known issues

CR references	Description
Q01449886	The switch can send VLACP PDUs at the short timeout interval when the long timeout interval is configured.
Q01735063	When the Link Aggregation Control Protocol (LACP) adds a new port to a link aggregation group (LAG), it brings all the ports of the LAG down, which brings the entire interface down. As a result, the multilink trunk is deleted and the VLAN interface is deleted. This causes OSPF to go down.
Q01750113	If you disable RSMLT on a VLAN of a full-mesh triangle SMLT network that carries IPv6 traffic, up to 50% of the IPv6 traffic can be lost. Workaround: Do not disable RSMLT.
Q01850453	When you convert a single-port MLT to a multiple-port MLT, you cannot set the LACP key for the newly-added ports and form a LAG until you change the key for all ports. You may also receive the following type of error: CPU6 [03/26/08 10:51:50] LACP INFO lacpOperDisablePort: LACP operationally disabled on port 8/23 because the port's capability doesn't match key 64's capability. Workaround: Change all ports to a different key, then change back to the old key. After setting aggregation back to true, the LAG can form.

MLT/SMLT known issues

Table 30
MLT/SMLT known issues

CR references	Description
Q2016922	For an IP VPN-lite configuration, where an edge 8600 Cluster is configured to use an SMLT configuration toward the core (most likely square or full-mesh RSMLT), SMLT fast failover cannot always be guaranteed for this portion of the network.
Q01998049	In RSMLT environments, if an IST peer is powered off for durations longer than the RSMLT holdup-timer, when the powered off peer comes back up on-line, one may see a traffic loss for up to 30 seconds. If this amount of time is unacceptable, it is recommended to perform one of the follow two actions.

CR references	Description
	The recommended action is to configure the RSMLT holdup-timer to infinity on the on-line IST peer, power up the off-line IST peer, and once the SMLT cluster is stabilized, re-configure the RSMLT holdup-timer back to the default setting of 180 seconds. The alternative action is to power up the off-line IST peer during a maintenance windows.

Unicast routing known issues

Table 31
Unicast routing known issues

CR references	Description
Q01946521	In OSPF Router LSA updates, the V-bit is not set, and is always 0.
Q02008788	In a square SMLT environment, if OSPF is disabled and reenabled while the IST is down, the OSPF adjacency to one of the non-IST peer boxes may show ExStart state for 5 to 8 minutes. The condition does clear itself in that time frame, and will go to full adjacency.

Q01976924	With high route scaling (15 000 routes) and ECMP enabled, error messages can appear on the slave CPU, including:
	`IP ERROR VRF-0: rcIpAddRoute: addIpRoute failed with -102`
	`CPU5 [01/07/09 16:04:27] IPMC ERROR ipmSysAddSession FAIL: ipmcSysHashRidAlloc failed S 125.133.180.1 G 224.9.5.0`
	`CPU5 [01/07/09 16:04:27] IPMC WARNING ipmcSysHashRidAlloc FAIL: HashRecIndex EOS 8194 S 125.128.168.1 G 224.9.8.0 InVlanid 14`

Q02010177	The routing table does not use the preference value specified for a static route if the route has a static ARP entry as the next hop, after disabling and re-enabling the port.
Q01872074	When the switch is in IP VPN Lite mode, the "Assigned Number" portion of the Route Distinguisher (RD) cannot be modified. This occurs for CLI, NNCLI, and Device Manager. Workaround: To change the assigned number, the IP Address and the Assigned Number must be changed at the same time, or the RD must be deleted and re-added (using IP VPN delete).
Q01922909-01	On an ERS running BGP and OSPF, when BGP routes are redistributed into the OSPF domain and a route-policy is used to match and permit a prefix, the more specific prefixes do not get redistributed into the OSPF domain. Care must be taken when using such a configuration, to avoid unwanted traffic loss.
Q01464501	The switch does not send an ICMP Parameter Problem message with an ICMP code value of 1.
Q01720546	When an HA failover occurs, it produces BGP errors on the new Master: "CPU5 [07/31/07 11:05:09] BGP INFO PEER_ERROR PKT EVENT(172.16.100.5) Established: remove duplicate peer". No negative effects on functionality occur.

CR references	Description
Q01867585	Configuring a BGP peer group with route-reflection causes configuration anomalies. In particular, you can configure three peers and only two come up; or you can disable route reflection and all peers stay up. Workaround: Do not use BGP route-reflection on any peer groups. BGP peer groups are not supported with route reflection enabled.
Q01878638	When a VRF with an IP VPN configuration is deleted messages of the following type are displayed on the console: RCMPLS WARNING ipVpnIlmAdd line 983: UTAL_LookupArp() failed for NextHop 30.1.30.151 vrfId 100. These messages do not affect functionality.
Q01881289	When a port is untagged and Penultimate Hop Popping (PHP) is set to implicit-null, IP VPN traffic is sent to the wrong queue. The issue occurs on the last-hop Label Switch Router (LSR) (the LSR that sends the service label). Workaround: For untagged ports, set PHP to explicit-null or disabled.

Multicast routing known issues

Table 32
Multicast routing known issues

CR references	Description
Q02011440	SSM channel set to false on receiving traffic
Q02021453	RPF checks fail with MSDP peer configured in iBGP configuration. Workaround: Use default Peer or do not use iBGP configuration.
Q01866720	The output of the **`show ip pim interface`** command indicates that the operational status (OPSTAT) is down even if the PIM interface is enabled and active. This does not impact traffic. The reason for the discrepancy is that Spanning Tree has not converged. Once the convergence completes, the table is updated properly.

CLI and NNCLI known issues

Table 33
CLI and NNCLI known issues

CR references	Description
Q02000473	After enabling Hsecure on the switch and saving the configuration, the CLI prompt should not be returned to the user until the configuration save is complete. Currently, the switch displays the following error: `Another show or save in progress. Please try the command later.`
Q01467778 Q02010136	The System Messaging Platform (SMP) command **`config log transferFile <ID> filename <str>`**, used to modify the default file name, does not function properly. The optional filename string does not work. Instead, the transferFile name is always the standard SMP log file name of xxxxxx.sss, where xxxxxx is the last three bytes of the chassis base MAC address, and sss is the SF/CPU slot number. Nortel recommends that you not use this command.

CR references	Description
Q01948346	The **copy** command does not work properly with FTP debug turned on.
Q02010142	When sending traps to an Element Manager, the switch only uses the IP address specified by the first entered **sender-ip <dest-ip> <source-ip>** command. It is possible to specify multiple sender IPs and each should use a different IP as specified in this command. The switch uses the IP address of the physical VLAN of the first entry in the target-address table.
Q01623093	In the CLI, when you enter the **config/ip/static-route# create <ipaddr/mask> next-hop ?** command, only the **vrf <value>** parameter is shown in response. In spite of this, you can still configure all parameters: **config/ip/static-route# create <ipaddr/mask> next-hop <ipaddr> cost <value> [preference <value>] [local-next-hop <value>] [next-hop-vrf <value>]**
Q01794612	Entering the CLI **reset** command for an SF/CPU module with SuperMezz should implement a cold boot on both the SF/CPU and SuperMezz, but instead incorrectly performs a warm boot on the SuperMezz and correctly performs a cold boot on the SF/CPU.

Quality of Service and filters known issues

Table 34
QoS and filters known issues

CR references	Description
Q01793851	RS modules do not support egress flow-based mirroring for IP VPN Lite traffic.
Q01868828	If you enable mirroring on an ACL-based filter whose actions re-mark the DSCP bit, the DSCP bit and QoS egress queues are incorrectly assigned.

Device Manager known issues

Table 35
Device Manager known issues

CR references	Description
Q01883183	When using Device Manager, IP VPN routes in a VRF are not flushed when the import route target (RT) is deleted. Workaround: To delete the routes, before you delete the RT, in the IP-VPN, VPN tab, ensure that the import RT field is not selected.

Previously reported known limitations

Use the information in this section to learn more about known limitations. These CRs are classified as operation not to be changed.

Platform limitations

Table 36
Platform limitations

CR references	Description
Q01279047-01	Disabling Auto-negotiation on 1000BASE-T ports with speed of 1000 Mbps can result in inconsistent behavior. Auto-negotiation cannot be disabled on the 8648GTR module, but can be disabled on an 8630GBR with an SFP. Workaround: Nortel recommends that you enable Auto-negotiation on all 1000BASE-T ports when they operate at 1000 Mbps.
Q01347146-01	Single Fiber Fault Detection is supported on the ERS 8600 but should a user run into any issues with its operation, it is recommended that the user uses VLACP to achieve the same functionality. Workaround: Disable SFFD and instead use VLACP.
Q01464922	An 8630GBR module using Single Fiber Fault Detection (SFFD) connected to an Ethernet Switch 470 does not recognize a single-fiber fault. SFFD is not supported when an Ethernet Routing Switch 8600 is connected to an Ethernet Switch 470. Workaround: Disable SFFD and instead use VLACP.
Q01971595	Pasting configurations, either via console or telnet/SSH, is not recommended and if performed should only be done one line at a time, versus larger text files. This is independent of any control the user may have over how 'slow' their actual input maybe. The reason for is that neither the console or telnet/SSH functions are high priority, and the switch could be servicing some other task and therefore miss lines in the config paste. Optionally, use TFTP/FTP and 'source' the file.
Q01938504	When VLACP is configured, the log message "LACP WARNING Received MAC-mismatched PDUs on port <port number>, MAC <mac address>, Please check your VLACP configuration." is sometimes observed. In the event of a VLACP misconfiguration, this message will be logged continuously in the log file, and the configuration should be corrected. If VLACP is not misconfigured and the message is observed sporadically, it should be disregarded as there is no impact to traffic.
Q01774929	The event of discontinuing logging to PCMCIA by the executing the CLI command pcmcia-stop is not logged into the log file.
Q01848350	ERS8600 could take a minimum of about 10 seconds to populate an OSPF learned route into the Route Table Manager as it does not rebuild its router LSAs immediately when the neighbor router changes to FULL state.
Q01937023	A "save config" executed from the standby CPU will result in the pcap.cfg data replacing the configuration data stored in config.cfg on the standby CPU. Changes to the standby CPU configuration should ONLY be executed from the master CPU, via either "save config" (savetostandby flag set true or "save config standby <config file name>".

CR references	Description
Q01926665-02	SLT configurations where the SLT port and all the IST_MLT ports are configured on the same physical module (non-best practice design; IST_MLT should always be a D-MLT), the switch can experience FDB entry learning issues for MAC addresses learned across the IST; this can lead to connectivity loss. This condition can occur if the module is physically swapped out during switch operation, or if the module is disabled/enabled via CLI or JDM. If seen and to resolve, FDB entries will be relearned after the fdb-ageout time, or can be manually relearned by performing an fdb-entry flush on the relevant VLANs.
Q01932414	On an ERS8600 running VLACP, if the value of VLACP timer is not set to a multiple of 10, VLACP may not function properly because the VLACP port may not be able to send out any VLACP PDUs. VLACP timers must always be set to some multiple of 10.
Q01880938-01	LACP short timers for RSMLT/SMLT configurations must be set to 550 milliseconds or higher.
Q01885138-04	Traffic loss has been observed for 1-2 seconds after a port link up occurs. This is caused by the edge box transmitting traffic immediately upon connecting to the aggregation (IST core) box. As soon as the link is enabled, it takes a while before VLACP engages and stops the traffic from flowing on that link.
Q01986615	If you have a IPVPN Lite route, with multiple IGP nexthops towards the MP-BGP network (by virtue of ECMP being enabled in VRF 0) and ECMP is also enabled in a non-zero VRF, then the VRF route is installed multiple times in Route Table Manager (RTM). The datapath will therefore use each IGP nexthop, as expected. Now, if the user disables ECMP in the VRF, the additional ECMP routes from the non-zero VRF are deleted but the IPVPN lite route is not removed. If then some network failover happens, under these circumstances, the system incorrectly thinks that the underlying route is still available. This could cause unwanted traffic interruption. Work around: Restart IPVPN if this event occurs.
Q01972028	When operating in HA mode, if the Standby and Master SF/CPUs are rebooted quickly in succession within a few seconds in that order, a race condition can occur in which R/RS line cards do not get rebooted as part of the Standby and Master reboot process. Instead they get rebooted in a delayed fashion during the new Master SF/CPU initialization. However, they would function normally after that. To avoid this delayed reboot condition and an unnecessary alarm, Nortel recommends to not reboot both the Standby and Master SF/CPUs in quick succession or simultaneously. By leaving a gap of around 10 seconds, this problem could be avoided.
Q01470456	When the Packet Capture Tool (PCAP) buffer fills up, a Standby SF/CPU exception can occur. The exception only occurs if you use a console connection to the Standby SF/CPU. This only occurs when the autosave feature is enabled and is set to transfer to a network device. The issue does not occur when you save to a PCMCIA card.

CR references	Description
Q01450708	When you create an MLT with more than one port that ends in an 8648GTR module, and the MLT is connected to a 10/100 Mbps device with Auto-negotiation enabled, the link state for the first port is 100 Mbps full duplex and state of all other MLT ports is 10 Mbps half duplex. Workaround: Adjust the speed and duplex modes manually on a per-port basis.
Q01644085	When a copper GBIC is present in an 8630GBR module port with Auto-Negotiation disabled, the port is always in an up state, even if no Ethernet cable is plugged in. Workaround: Auto-Negotiation must be enabled for GBIC ports running 1 Gigabit Ethernet. Keep Auto-Negotiation enabled.

Switch management limitations

Table 37
Switch management limitations

CR references	Description
Q01393349-01	On the ERS8600 switch, the –f option cannot be used with SSH non interactive commands.
Q01380593, Q01194685	The switch does not add standby ports to a link aggregation group (LAG) properly. Currently, the Ethernet Routing Switch 8600 supports a maximum of eight ports, active or standby, in any one LAG.
Q01436111	The switch does not display all SNMPv3 target parameters when you enter the **`show config`** command. This is the expected behavior.

Layer 2 limitations

Table 38
Layer 2 limitations

CR references	Description
Q01449886	The switch can send VLACP PDUs at the short timeout interval, even though the long timeout interval is configured. This operation has no negative affect on VLACP operation, to other ERS 8600s, or to any other Nortel ERS switches running VLACP.
Q01352932	In a pure Layer 2 point-to-point configuration, using VLACP fast timers, 100 ms convergence is not guaranteed when ECMP is implemented on top of the link. Keep the configuration as simple as possible, with routed VLANs, but without ECMP. For fast convergence, Nortel recommends that you use RSMLT rather than ECMP.
Q01453004	With HA enabled, the switch does not flush the VR ARP entry from the ARP table when you delete the VR ID from both switches.

CR references	Description
Q01454547	You can configure Link Aggregation/MLT group IDs from 1 through 256. The switch supports a total of 128 MLT groups. Nortel suggest that users start numbering S-SMLT or SLT IDs to avoid overlapping MLT IDs in the 1 through 128 range. Note: SLT IDs range from 1 through 512. If you start at 129, a switch can support the full capacity of 383 SLT ports or IDs.
Q01810668	When you install an RS module and have SMLT and LACP configured, LACP goes down, and the switch shows the message "swA:6# CPU6 [01/09/08 14:39:28] LACP INFO lacpOperDisablePort: LACP operationally disabled on port x/y because the port's capability doesn't match key z's capability". Workaround: Globally disable and enable LACP to bring the ports back to the MLT. Further, for reliable LACP operation, use CANA, or, if CANA is not supported, enforce a speed and duplex mode on all 10/100/1000 Mbps and 10/100 Mbps ports. See "MLT/LAG considerations" (page 42).

MLT/SMLT limitations

Table 39
MLT/SMLT limitations

CR references	Description
Q01971344	In the case of a full-mesh SMLT configuration between 2 Clusters running OSPF (more likely an RSMLT configuration) because of the way that MLTs work in regards to CP generated traffic, it is highly recommended that the MLT port (or ports) that form the square leg of the mesh (versus the cross connect) be placed on lowered number slot/port, than the cross connections. The reason for this is because CP generated traffic is always sent out on the lowered numbered ports when active. Using this recommendation will keep some OSPF adjancey up if all the links of the IST fail. Otherwise the switches which have a failed IST could lose complete OSPF adjancey to both switches in the other Cluster and therefore become isolated.

Unicast routing limitations

Table 40
Unicast routing limitations

CR references	Description
Q01845219-01	The QoS value of unicast packets is retained when forwarded to the CP as exception packets. If enough packets with high QoS setting are received, this could negatively affect CP handling of other packets. In general, unicast packets being sent to CP is abnormal, and the root cause of that situation should be investigated and resolved as a first step.
Q01835057	To maintain backward-compatibility with pre-5.0 releases, if the management IP address network mask is equal to the natural network mask, then the mask is not displayed in response to the **`config bootconfig net mgmt info`** command. If the configured network mask is not equal, it will be shown. This is the correct behavior.

Multicast routing limitations

Table 41
Multicast issues

CR references	Description
Q01437712	The **show ip pim mroute** command may display an incorrect incoming port after the corresponding SMLT port is disabled and re-enabled.
Q01439217-01	The switch sends no ICMP message when it receives IPv6 packets destined to an IPv6 multicast address with a destination header option type equal to 0x80.

QoS and filters limitations

Table 42
QoS and filters issues

CR references	Description
Q01443034	The CLI allows you to configure mutually-exclusive Access Control Template (ACT) properties.
Q01450812	The **show qos stats policy all** command does not display correct statistics.

Device Manager limitations

Table 43
Device Manager issues

CR references	Description
Q01374909	Device Manager does not allow all fields to be configured for PING and Trace Route. This is as designed. Trace Route does not allow the following fields: • TargetAddressType • DSField • SourceAddressType • IfIndex • MiscOptions • StorageType • CreateHopsEntries • Type PING does not allow the following fields: • TargetAddressType • StorageType

CR references	Description
	• Type • SourceAddressType • IfIndex • DSField
Q01445777	The Device Manager scroll bars on the ACL-Insert ACL-ActID interface do not function properly.

MIB limitations

Table 44
MIB issues

CR references	Description
Q01274812-01	The description for rcStgTaggedBpduVlanId is incorrect. The range -2147483648 to 2147483647 should read 1 to 1024.

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