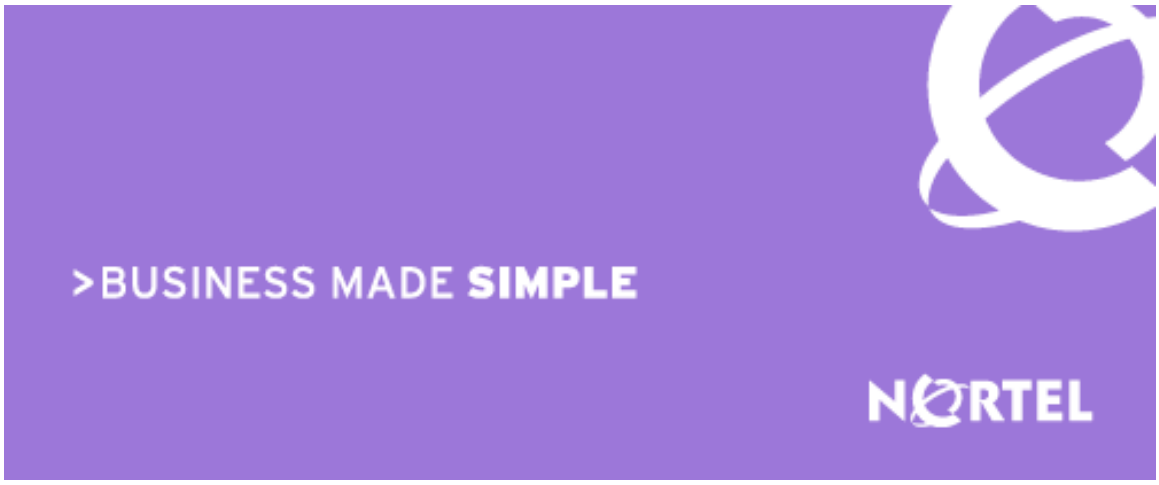

> Converged Data Networks Licensing Guide

Enterprise Solutions Engineering
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Nortel is a recognized leader in delivering communications capabilities that enhance the human experience, ignite and power global commerce, and secure and protect the world's most critical information. Serving both service provider and enterprise customers, Nortel delivers innovative technology solutions encompassing end-to-end broadband, Voice over IP, multimedia services and applications, and wireless broadband designed to help people solve the world's greatest challenges. Nortel does business in more than 150 countries. For more information, visit Nortel on the Web at www.nortel.com.

Abstract

This document serves as a guide to software feature licensing on Nortel Converged Data Networking products.

Revision Control

No	Date	Version	Revised by	Remarks
1	Feb 20th 2008	1.0	ESE	Final Version for 1st Release Externally.
2	July 15th 2008	2.0	PLM	Updated to include new ERS8300 and ERS8600 licenses.
3	Dec 15th 2008	3.0	PLM	Updated to include VSS5000 licenses and other corrections / updates.
4	Jun 24th 2009	4.0	PLM	Updates to ERS5000, ERS8300 and ERS8600 licensed features, and removal of VSS5000.

Table of Contents

Conventions:

This section describes the text, image, and command conventions used in this document.

Symbols:

Tip – Highlights a configuration or technical tip.

Note – Highlights important information to the reader.

Caution – Highlights important information about an action that may result in equipment damage, configuration or data loss.

Text:

Bold text indicates emphasis.

Italic text in a Courier New font indicates text the user must enter or select in a menu item, button or command:

ERS5520-48T# ***show running-config***

Output examples from Nortel devices are displayed in a Lucida Console font:

ERS5520-48T# ***show running-config***

```
! Embedded ASCII Configuration Generator Script
! Model = Ethernet Routing Switch 5520-24T-PWR
! Software version = v5.0.0.011
enable
configure terminal
```

1. Overview:

This document serves as a guide to acquiring and installing licenses on Nortel Converged Data Networking products. For each product covered in this guide the following information will be provided:

1. Base licenses included with the purchase of each product.
2. Features that require additional licensing.
3. License keying and methodology.
4. The process to acquire license keys.
5. The process to install a license key.
6. The process to acquire demonstration or evaluation licenses.

Additionally, section 5 provides an overview of the www.nortellicensing.com web site and describes the process for creating and managing a license bank. The following Nortel products are addressed in this document:

Converged Data

Application Accelerator	Application Switch	Mobile Client Accelerator	
			
Section 2.1	Section 2.2	Section 2.3	
Ethernet Routing Switch 2500	Ethernet Routing Switch 5000	Ethernet Routing Switch 8300	Ethernet Routing Switch 8600
			
Section 2.4	Section 2.5	Section 2.6	Section 2.7

Security

Secure Network Access	Threat Protection System	Secure Router	Switched Firewall	VPN Gateway / VPN1000 Module / 2424-SSL	VPN Router
					
Section 3.1	Section 3.2	Section 3.3	Section 3.4	Section 3.5	Section 3.6

Mobility

Wireless LAN Security Switch

Section 4.1

Wireless LAN Management

Section 4.2

2. Converged Data:

2.1 Application Accelerator:

The Nortel Application Accelerator saves money and increases user satisfaction by reducing the server and bandwidth needs and by improving the responsiveness of web-based applications. The Nortel Application Accelerator will improve application performance 5 to 20 times, and includes profiles optimized and tested for IBM WebSphere, Microsoft Outlook Web Access (OWA) and Microsoft SharePoint.

Nortel Application Accelerators may be purchased using the following order codes:

Order Code	Description
EB1639177E5	Nortel Application Accelerator 510 2x10/100/1000Base-T 2GB RAM
EB1639178E5	Nortel Application Accelerator 610 4x10/100/1000Base-T 6GB RAM includes Redundant Drives and Power.

Table 2.1 – Application Accelerator Order Codes

2.1.1 Licensing:

The Application Accelerator supports the following licensing levels:

Base	Application Acceleration
• Connection Pooling	• Adaptive Compression
• Logging	• Browser Cache Offload
• Management	• Delta Encoding
• Server Load Balancing	• Reporting
• SSL Acceleration	• Version Control

Table 2.1.1 – Application Accelerator Licensing Levels

2.1.2 Base License:

A Base Software License is included with the purchase of each Application Accelerator and provides Connection Pooling, Logging, Management, Server Load Balancing and SSL Acceleration.

2.1.3 Application Acceleration License:

An Application Accelerator license can be applied to either the Nortel Application Accelerator 510 or 610 to enable Adaptive Compression, Browser Cache Offload and Version Control, Delta Encoding and Reporting. One Application Acceleration License is required for each Nortel Application Accelerator 510 or 610 to enable these advanced features.

Table 2.1.3 provides the application accelerator license order code for the Nortel Application Accelerator:

Order Code	Description
EB1639179	Application Acceleration License: (Compression, Browser Cache Offload, Delta Encoding, Reporting)

Table 2.1.3 – Application Acceleration License Order Code

2.1.4 License Keying and Methodology:

Application Acceleration licenses are based on the MAC address of the Application Accelerator. The MAC address of each Application Accelerator must be provided to Nortel before a license key activating the Application Acceleration License can be generated.

The MAC address of an Application Accelerator may be obtained by the CLI using the following procedure:

Connect to the Application Accelerator console and issue the */info/local* command:

```
>> Main# /info/local

Released Software Fully supported Alteon iSD NAA
Hardware platform: 310
Software version: 1.0.1.0
Up time: 116 days 6 hours 47 minutes
IP address: 47.142.104.85
MAC address: 00:06:5b:3a:f2:27
```

2.1.5 High-Availability / Clustering:

An Application Acceleration license is required for each unit in the resilient configuration and/or cluster. There is no bundled discount at this time as the Nortel Application Accelerator can be deployed in an Active-Active configuration thereby allowing scalability across multiple devices.

2.1.6 License Acquisition Process:

A Nortel Application Accelerator License can be obtained using the following procedure:

1. Contact your or authorized reseller, Nortel Sales representative or Nortel Customer Support and purchase the Application Acceleration license part number EB1639179.

   In North America, Global Nortel Technical Support can be contacted at 1-800-4NORTEL (1-800-466-7835). For phone numbers outside of North America, see http://www.nortel.com/callus.

2. Once the license has been purchased, Nortel Customer Support will send a certificate that contains a unique product code and an e-mail address. Send this unique product code and the device MAC address to the e-mail address provided.

3. After the device MAC address has been verified, a license key will be returned. This license key is used to enable the licensed features.

2.1.7 License Installation:

A Nortel Application Accelerator License may be installed using the command line interface or browser based interface by performing one of the following procedures:

2.1.7.1 Using the Command Line Interface:

To install a new license key using the Command Line Interface (CLI):

1 Issue the command */cfg/sys/host <host_number>/ license*. Paste the provided license key and then press enter to create a new line. Finally enter three periods "…" (without any quotation marks) to terminate.

```
>> Main# cfg/sys/host 1/license

Paste the license, press Enter to create a new line,
and then type "..." (without the quotation marks)
to terminate.

> -----BEGIN LICENSE-----
> U2FsdGVkX1/K74AfPIfZCliqTvpNRmvoQRD0KKUS/9snWr2/0ac1M1sHJF4LVAdf
> Rs2TK88BPSIp17yq0bVnvxhtIv7gtlsZ7U3vWbuCJkqR4ACGDE181RG3MdyU7eU0
> fmNX1pRHLa0jmii0bof5u1/UzfeEFvyZrYdtsQDDBmw/Dkfa/s7amDNWP+1pz2iBr
> D1BYSuiIpj8=
> -----END LICENSE-----
> ...
License loaded
```

2 Issue the *Apply* command to save and activate the license.

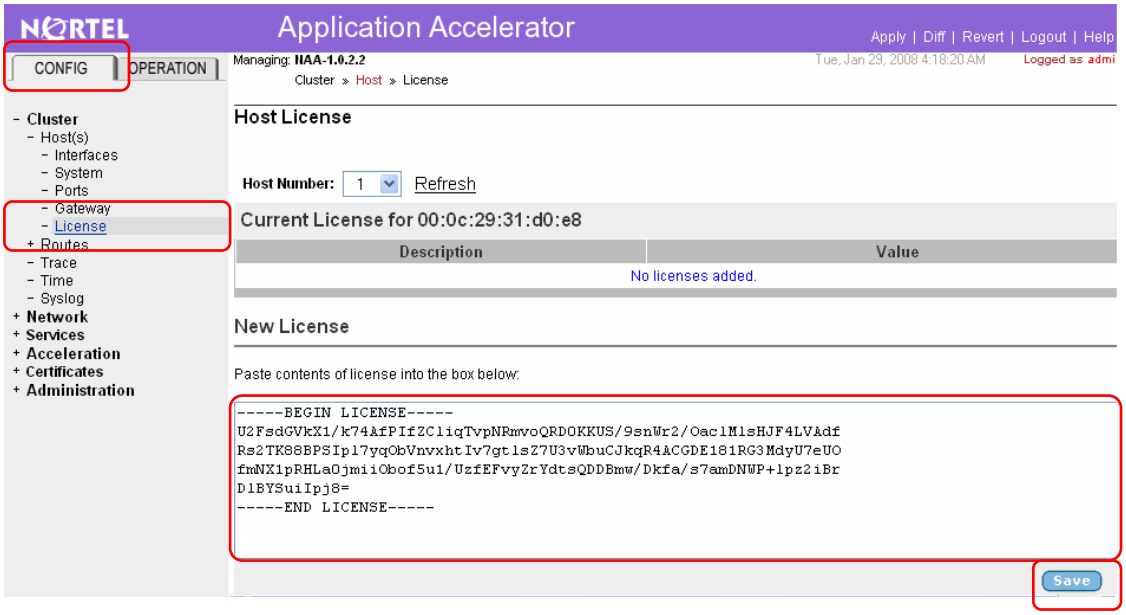
```
>> Cluster Host 1# apply
```

Installed licenses may be viewed in the CLI by issuing the ***/info/licenses*** command.

2.1.7.2 Using the Browser Based Interface:

To install a new license key using the Browser Based Interface (BBI):

1 **In the BBI click the *Config* tab and in the menu select *Cluster*, *Host* then *License*. Paste the provided license key into the field labeled *New License*. Click *Save* to apply the changes and activate the license.**



2.2 Application Switch:

Nortel Application Switches deliver application availability, performance and security by balancing and accelerating traffic and by giving IT Managers control over their network.

Nortel Application Switches integrate routing and switching by forwarding traffic at layer 2 speed using layer 4-7 information. They are designed from the ground up to optimize networks for application performance. Built around the Nortel's patented, distributed processing Virtual Matrix Architecture, these switches provide uncompromising performance and value. With virtualization support, the Nortel Application Switch allows service providers to efficiently enable differentiated services for enterprise businesses.

Nortel Application Switches may be purchased using the following order codes:

Order Code	Description
EB1412030E5	Nortel Application Switch 2208 (AC) – 1U rack-mountable – 8 x 10/100 plus 2 x GE (SFP).
EB1412029E5	Nortel Application Switch 2216 (AC) – 1U rack-mountable – 16 x 10/100 plus 2 x GE (SFP).
EB1412026E5	Nortel Application Switch 2424 (AC) – 1U rack-mountable – 24 x 10/100 plus 4 x GE (SFP)
EB1412021E5	Nortel Application Switch 2424 (DC) – 1U rack-mountable – 24 x 10/100 plus 4 x GE (SFP).
EB1412028E5	Nortel Application Switch 2424-SSL (AC) – 1U rack-mountable – 24 x 10/100 plus 4 x GE (SFP).
EB1412023E5	Nortel Application Switch 2424-SSL (DC) – 1U rack-mountable – 24 x 10/100 plus 4 x GE (SFP).
EB1412027E5	Nortel Application Switch 3408 (AC) – 1U rack-mountable – 8 x 10/100/1000 plus 4x GE (SFP).
EB1412022E5	Nortel Application Switch 3408 (DC) – 1U rack-mountable – 4 x 10/100/1000BASE-T plus 4 x GE (SFP).

Table 2.2 – Application Switch Order Codes

2.2.1 Licensing:

The Application Switches support the following licensing levels:

Base	Feature	VPN User	Third-Party
• Application Redirection • Content Filtering • Health Checking	• Advanced DoS Protection • Bandwidth Management • Intelligent Traffic	• SSL VPN / IPsec	• Symantec Intelligent Network Protection

• IP Routing • Layer 2 Switching • Server Load Balancing • SSL Acceleration	Management • Link Optimizer • Global Server Load Balancing • SSL Acceleration		

Table 2.2.1 – Application Switch Licensing Levels

2.2.2 Base License:

A base license is included with the purchase of each Application Switch which provides Application Redirection, Content Filtering, Health Checking, IP Routing, Layer 2 Switching, Server Load Balancing, SSL Acceleration (2424-SSL only) and SSL VPN (2424-SSL only).

2.2.3 Feature Licenses:

Feature licenses are required to enable advanced services on an Application Switch including Advanced DoS Protection, Bandwidth Management, Intelligent Traffic Management, WAN Link Optimization and Global Server Load Balancing and Increased SSL Acceleration transactions for the 2424-SSL.

Table 2.2.3 provides the feature license order codes available for the Application Switch:

Order Code	Models	Description
EB1411010-20.0	2000 & 3000 series	Global Server Load Balancing license. Load balance server traffic ensuring high availability across multiple geographically dispersed sites.
EB1411011-20.0	2000 & 3000 series	Bandwidth Management License. Provides the ability to provide rate limiting and/or traffic shaping. Allows classification based on physical port, VLAN, filter, VIP, service and/or URL information
EB1411013	2000 & 3000 series	Link Optimizer license. Enables inbound and outbound multi-homing without BGP for increase availability, performance, & utilization in a simplified infrastructure
EB1411014	2000 & 3000 series	Advanced Denial of Service (DoS) Protection license. Enables protection against Denial of Service attacks
EB1411015	2000 & 3000 series	Intelligent Traffic Management (ITM) license. Enables Full traffic management and policy enforcement including Bandwidth Management and Advanced Denial of Service Protection
EB1439001	2424-SSL	Nortel Application Switch – upgrade key from 300 to 1000 SSL accelerated transactions per second

Table 2.2.3 – Application Switch Feature License Order Codes

2.2.4 VPN User Licenses:

The Application Switch 2424-SSL VPN release 6.0 and higher includes support for 50 SSL and 50 IPsec VPN connections. Additional VPN User licenses available in 50, 100, 250, 500 and 1000 license kits may be added to the switch and are additive (for example purchasing a 500 VPN user license kit will increase the SSL and IPsec connections from 50 to 550 users).

Table 2.2.4 provides the VPN user license order codes available for the Application Switch 2424-SSL:

Order Code	Models	Description
EB1639096	2424-SSL	SSL VPN & IPsec - 50 user license
EB1639055	2424-SSL	SSL VPN & IPsec - 100 user license.
EB1639056	2424-SSL	SSL VPN & IPsec - 250 user license
EB1639057	2424-SSL	SSL VPN & IPsec - 500 user license.
EB1639064	2424-SSL	SSL VPN & IPsec - 1000 user license.

Table 2.2.4 – Application Switch 2424-SSL VPN Client License Order Codes

2.2.5 Third-Party Licenses:

Symantec's Intelligent Network Protection is a subscription addition to the Nortel Application Switch and is comprised of:

1. Symantec’s Network Intrusion Prevention technology
2. Threat protection updates that detect and block high profile and critical network-based threats
3. Threat protection updates and security content backed by Symantec Security Response, Symantec’s Global 24x7x365 threat research and threat prevention experts
4. Symantec LiveUpdate™ for automatic updates of threat protection updates

The subscription must be renewed annually. This 12 month subscription service ensures that the customers receive the most recent and highest severity threat protection signature updates. As part of the subscription service ordering process, the customer provides the Application Switch’s Ethernet MAC address and is provided a service activation key. Nortel will provide SKUs for both a combination of ITM and the Symantec Intelligent Network Protection and, for those who already have ITM, for the Symantec Intelligent Network Protection alone.

When customers renew the annual subscription, they order the Symantec Intelligent Network Protection part number and supply their device MAC address and are provided a new service activation key. The customer may order a subscription service renewal at any time and if ordered before the current subscription expires, the new key will activate 12 additional months of service once the current subscription expires. Existing customers will be given advance notice at around 90, 60 and 30 day intervals that their subscription will expire to remind them to renew their subscription.

Table 2.2.5 provides the third-party Symantec order code available for the Application Switch:

Order Code	Models	Description
EB1412031	2000 & 3000 series	Nortel Application Switch Symantec Intelligent Network Protection 1 YR subscription (requires ITM) provides automatically updated security signatures

Table 2.2.5 – Application Switch Third-Party License Order Codes

2.2.6 License Keying and Methodology:

License Keys are based on the MAC address of the appropriate application switch. Once a license key is accepted by the switch it is permanently installed in the EPROM on the device. SSL licenses are based on the MAC address of the SSL component of the 2424-SSL switch.

The MAC address or a Nortel Application Switch and SSL processor may be obtained using the following procedure:

Connect to the Application Switch console and issue the *info/sys/general* command:

```
>> Main# /info/sys/general

System Information at 14:00:35 Tue Nov 14, 2007
Time zone: America/Canada/Eastern-Thunder (GMT offset -5:00)

Nortel Application Switch 2424-SSL

Switch is up 61 days, 18 hours, 1 minute and 23 seconds.
Last boot: 20:00:53 Wed Sep 13, 2007 (unknown reason or power cycle)
Last apply:  7:55:49 Mon Nov 13, 2007
Last save:  7:55:52 Mon Nov 13, 2007

MAC Address: 00:01:81:2e:a2:50    IP (If 1) Address: 47.133.63.9
Internal SSL Processor MAC Address: 00:01:81:2e:bc:6f
```

As the portfolio includes a multipurpose switch, there may be multiple MAC addresses present. Use the system's MAC address for all licenses except SSL and use the Internal SSL Processors MAC address for SSL licenses.

2.2.7 License Acquisition:

A Nortel Application Switch license can be obtained using the following procedure:

1. Contact your or authorized reseller, Nortel Sales representative or Nortel Customer Support and purchase one or more licenses provided in table 2.2.3, 2.2.4 or 2.2.5.

   In North America, Global Nortel Technical Support can be contacted at 1-800-4NORTEL (1-800-466-7835). For phone numbers outside of North America, see http://www.nortel.com/callus.

2. Once the license has been purchased, Nortel Customer Support will send a certificate that contains a unique product code and an e-mail address. Send this unique product code and the device MAC address to the e-mail address provided.
3. After the device MAC address has been verified, a license key will be returned. This license key is used to enable the licensed features.

A procedure for obtaining and installing SSL and IPsec VPN user licenses is provided in Section 3.5.

2.2.8 License Installation:

A Nortel Application Switch License may be installed using the command line interface by performing one of the following procedures:

2.2.8.1 Advanced Feature Licenses:

To install a new feature license using the Command Line Interface (CLI):

1 Issue the command */oper/swkey*. Paste the provided license key and then press enter.

```
>> Main# /oper/swkey

Enter Software Key: 74727949544D
```

2 Issue the *Apply* and then *Save* command to save and activate the feature.

```
>> Main# apply
>> Main# save
```

Installed feature licenses may be viewed in the CLI by issuing the ***/info/swkey*** command.

2.2.8.2 SSL VPN Licenses:

1 Issue the command */ssl/sys/host <host_number>/ license*. Paste the provided license key and then press enter to create a new line. Finally enter three periods "…" (without any quotation marks) to terminate.

```
>> Main# cfg/sys/host 1/license

Paste the license, press Enter to create a new line,
and then type "..." (without the quotation marks)
to terminate.

> -----BEGIN LICENSE-----
> U2FsdGVkX1/K74AfPIfZCliqTvpNRmvoQRD0KKUS/9snWr2/0ac1M1sHJF4LVAdf
> Rs2TK88BPSIp17yq0bVnvxhtIv7gtlsZ7U3vWbuCJkqR4ACGDE181RG3MdyU7eU0
> fmNX1pRHLa0jmii0bof5u1/UzfeEFvyZrYdtsQDDBmw/Dkfa/s7amDNWP+1pz2iBr
```

```
> D1BYSuiIpj8=
> -----END LICENSE-----
> ...
License loaded
```

2 Issue the *Apply* command to save and activate the feature.

```
>> Operations# apply
```

Installed SSL licenses may be viewed in the CLI by issuing the ***/ssl/info/licenses <VPN_ID>*** command.

2.3 Mobile Client Accelerator:

The Mobile Client Accelerator (MCA) is a client-based WAN optimization product used to accelerate the delivery of most data applications over the Internet and across WANs. Mobile Client Accelerator allows for efficient and optimized delivery of applications to remote users, branch office users and mobile handheld devices.

The Mobile Client Accelerator delivers benefits to end-users without the need to deploy specialized equipment. By employing techniques like Advanced Data Compression, Application Proxies and Transport Optimization, the Mobile Client Accelerator reduces the overall amount of data, while significantly improving delivery times.

MCA uses symmetrical acceleration - software installed on the user side without the need to deploy specialized equipment and software installed on dedicated server in the data center without touching application servers. Customers will need to purchase servers separately that match their capacity needs.

The Mobile Client Accelerator Server software may be purchased using the following order code:

Order Code	Description
EB1621003-3.3.0	Mobile Client Accelerator Server Software

Table 2.3 – Mobile Client Accelerator Order Code

2.3.1 Licensing:

A license key which is used to enable the appropriate number of seats is applied to the Mobile Client Accelerator Server but the Mobile Client Accelerator Server itself does not require a license.

2.3.2 User Licensing:

The Mobile Client Accelerator is licensed by seat in what is called a Total User License Model. This means that each user connecting to the system must have a license.

The number of seats licensed is enabled on the Mobile Client Accelerator Server and once all seats have been consumed, no further connections are permitted.

Table 2.3.2 provides the User license order codes for the Mobile Client Accelerator:

Order Code	Description
EB1621001-3.3.0	Mobile Client Accelerator Windows PC User License
EB1621002-3.3.0	Mobile Client Accelerator Windows Mobile User License

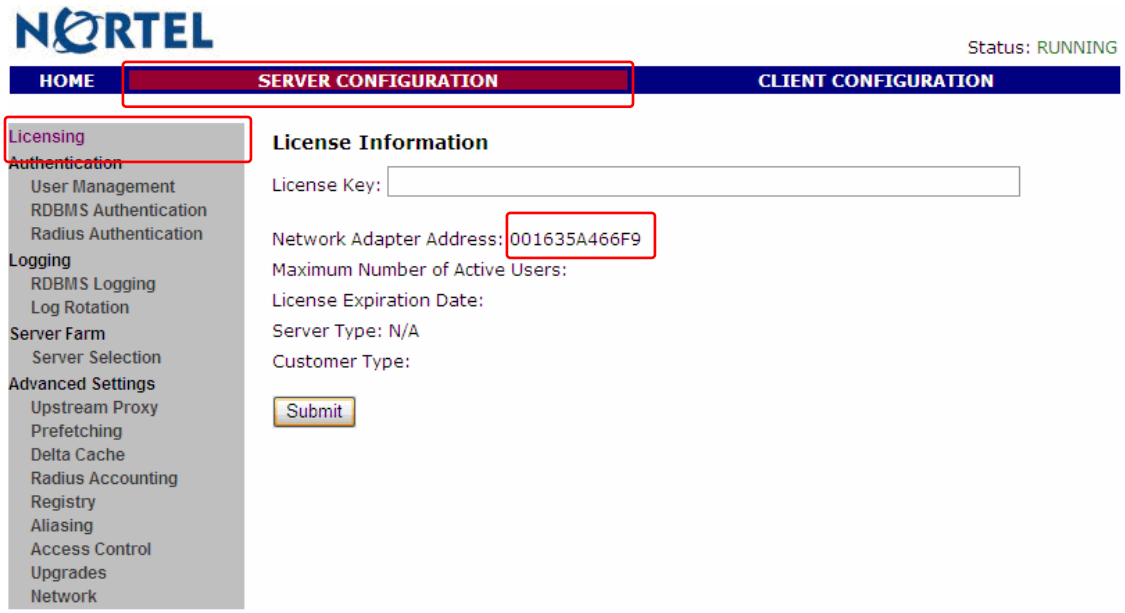
Table 2.3.2 – Mobile Client Accelerator User License Order Codes

2.3.3 License Keying and Methodology:

License Keys are based on the MAC address of the server where the Mobile Client Accelerator Server software is installed.

The MAC address of a Mobile Client Accelerator Server may be obtained by the Mobile Client Accelerator Browser Based Interface (BBI) using the following procedure:

1 **In the BBI click *SERVER CONFIGURATION* on the top menu and then in the side menu click *Licensing*.**



2.3.4 License Acquisition Process:

A Nortel Application Accelerator License can be obtained using the following procedure:

1. Contact your or authorized reseller, Nortel Sales representative or Nortel Customer Support and purchase the desired quantify of Mobile Client Accelerator licenses for the corresponding product EB1621001-3.3.0 or EB1621002-3.3.0.

   In North America, Nortel Customer Support can be contacted at 1-800-4NORTEL (1-800-466-7835). For phone numbers outside of North America, see http://www.nortel.com/callus.

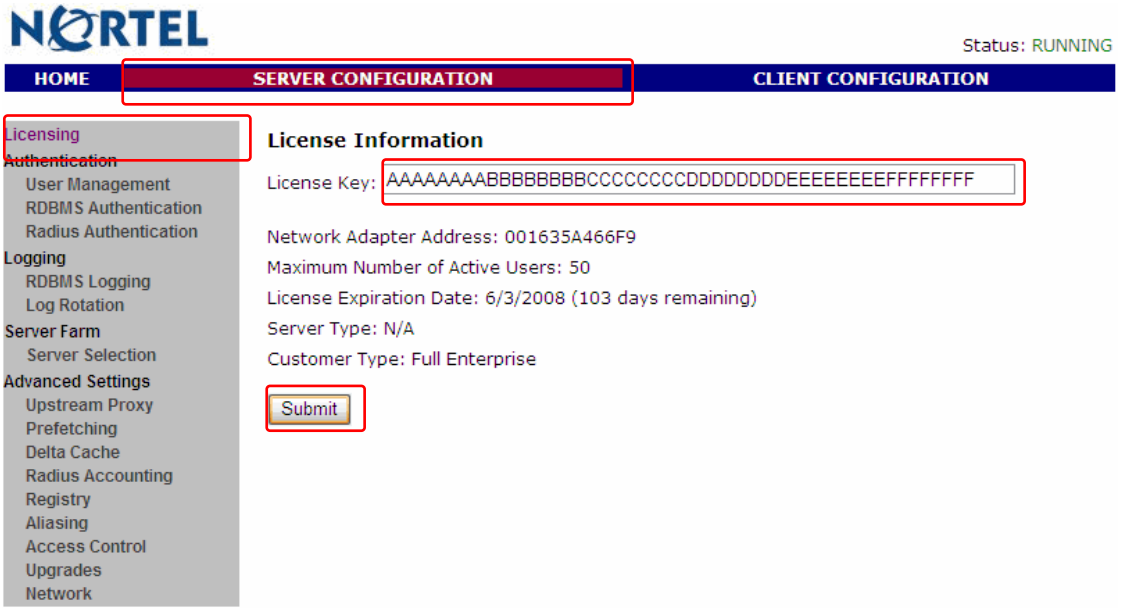
2. Once the license has been purchased, Nortel Electronic Software Delivery will acknowledge receipt of the purchase and will send an email instructing the recipient to provide the MAC address of the server where the Mobile Client Accelerator Server Software is or will be installed.

3. After the device MAC address has been received, a license key will be generated that corresponds with the number of seats purchased and the license key will be returned to the recipient. This license key can then be used to enable the licensed number of seats.

2.3.5 License Installation:

A Mobile Client Accelerator License may be installed by using the graphical MCA Manager Browser Based Interface. To install a new license key using the Browser Based Interface (BBI):

1 **In the BBI click *SERVER CONFIGURATION* on the top menu and then in the side menu click *Licensing*. Paste the license received from Nortel Electronic Software Delivery into the *License Key* space provided. Click *Submit*.**



If this is the first license to be applied OR a previous evaluation license has expired, you may need to start the server by clicking ***HOME*** on the top menu then ***Start Server***.

2.4 Ethernet Routing Switch 2500:

The Nortel Ethernet Routing Switch (ERS) 2500 series is a family of cost-effective 10/100BaseT Ethernet switching products perfectly suited for branch offices of larger enterprises, or the enterprise edge, requiring a low-cost but feature-rich solution in the wiring closet. Ideal for enterprises with big plans, but not-so-big budgets, the Ethernet Routing Switch 2500 offers convergence-ready flexibility, high-speed connectivity and cost-effective next-generation technology today - while ensuring high resiliency & performance that customers need.

Nortel Ethernet Routing Switch 2500 may be purchased using the following order codes:

Order Code	Description
AL2500?01-E6	Ethernet Routing Switch 2526T with 24 x 10/100 ports, 2 combo 10/100/1000 SFP ports, 2 x 1000BaseT rear ports & a 46cm stack cable. Includes Base Software License Kit.
AL2500?02-E6	Ethernet Routing Switch 2550T with 48 x 10/100 ports, 2 combo 10/100/1000 SFP ports, 2 x 1000BaseT rear ports & a 46cm stack cable. Includes Base Software License Kit.
AL2500?11-E6	Ethernet Routing Switch 2526T-PWR with 24 x 10/100 ports (12 ports support PoE), 2 combo 10/100/1000 SFP ports, 2 x 1000BaseT rear ports & a 46cm stack cable. Includes Base Software License Kit.
AL2500?12-E6	Ethernet Routing Switch 2550T-PWR with 48 x 10/100 ports (24 ports support PoE), 2 combo 10/100/1000 SFP ports, 2 x 1000BaseT rear ports & a 46cm stack cable. Includes Base Software License Kit.

Table 2.4 – Ethernet Routing Switch 2500 Order Codes

2.4.1 Licensing:

The Ethernet Routing Switch 2500 supports the following licensing levels:

Base (BA)	Stacking (ST)	Advanced (AD)	Premier (PR)
• Core Layer 2 Switching • Local & Static Routing • Basic QoS • Security	• Stacking	N/A	N/A

Table 2.4.1 – Ethernet Routing Switch 2500 Licensing Levels

2.4.2 Base License:

A Base Software License Kit is included with the purchase of each Ethernet Routing Switch 2500, providing core Layer 2 switching, QoS and security functionality at no additional cost.

2.4.3 Stacking License:

A Stacking License Kit is required for standalone versions of the Ethernet Routing Switch 2500 to enable stacking functionality which allows up to eight Ethernet Routing Switch 2500s to form a resilient stack. A stacking license file is required for each standalone version of the Ethernet Routing Switch 2500 and is available in kits of 1, 10, 50 and 100 licenses.

Table 2.4.2 provides the stacking license kit order codes available for the Ethernet Routing Switch 2500:

Order Code	Description
AL2515001	Ethernet Routing Switch 2500 Stacking License Kit, for 1 switch, to enable stacking functionality on ERS2500 series standalone switches. For use with AL2500xxx-E6 order codes. (one license required per switch).
AL2515002	Ethernet Routing Switch 2500 Stacking License Kit, for up to 10 switches, to enable stacking functionality on ERS2500 series standalone switches. For use with AL2500xxx-E6 order codes. (one license required per switch).
AL2515003	Ethernet Routing Switch 2500 Stacking License Kit, for up to 50 switches, to enable stacking functionality on ERS2500 series standalone switches. For use with AL2500xxx-E6 order codes. (one license required per switch).
AL2515004	Ethernet Routing Switch 2500 Stacking License Kit, for up to 100 switches, to enable stacking functionality on ERS2500 series standalone switches. For use with AL2500xxx-E6 order codes. (one license required per switch).

Table 2.4.2 – Ethernet Routing Switch 2500 Stacking License Kits

The Ethernet Routing Switch 2500 may also be purchased with stacking pre-enabled on the switch. Stack Enabled ERS2500's do not use or require a stacking license file to enable stacking functionality. Stack Enabled units rear-ports are set to Stacking Mode by default in the factory and are ready to stack on delivery to the end-user.

Table 2.4.3 lists the order codes for Stack Enabled Ethernet Routing Switch 2500's:

Order Code	Description
AL2515?01-E6	Ethernet Routing Switch 2526T with 24 10/100 ports, 2 combo 10/100/1000/SFP ports, 2 1000BaseT rear ports & 46cm stack cable, with stacking enabled.
AL2515?02-E6	Ethernet Routing Switch 2550T with 48 10/100 ports, 2 combo 10/100/1000/SFP ports, 2 1000BaseT rear ports & 46cm stack cable, with stacking enabled.
AL2515?11-E6	Ethernet Routing Switch 2526T-PWR with 24 10/100 ports (12 ports support PoE), 2 combo 10/100/1000/SFP ports, 2 1000BaseT rear ports & 46cm stack cable, with stacking enabled.
AL2515?12-E6	Ethernet Routing Switch 2550T-PWR with 48 10/100 ports (24 ports support PoE), 2 combo 10/100/1000/SFP ports, 2 1000BaseT rear ports & 46cm stack cable, with stacking enabled.

Table 2.4.3 – Stack Enabled Ethernet Routing Switch 2500 switches

2.4.4 License Keying and Methodology:

Stacking licenses are based on the MAC address of the Ethernet Routing Switch 2500 and each standalone ERS2500 switch must have a stacking license installed before a switch stack can be created. Additionally, for stacking support the Ethernet Routing Switch 2500 must be running software release v4.1 or above.

To generate a stacking license the MAC address of the Ethernet Routing Switch 2500 must be obtained and provided to www.nortellicensing.com before a license file activating the stacking feature can be generated. Once the license file has been obtained and installed on the Ethernet Routing Switch 2500, the stacking feature will be enabled.

The MAC address of an Ethernet Routing Switch 2500 may be obtained by NNCLI using the following procedure:

Using NNCLI, issue the *show sys-info* command:

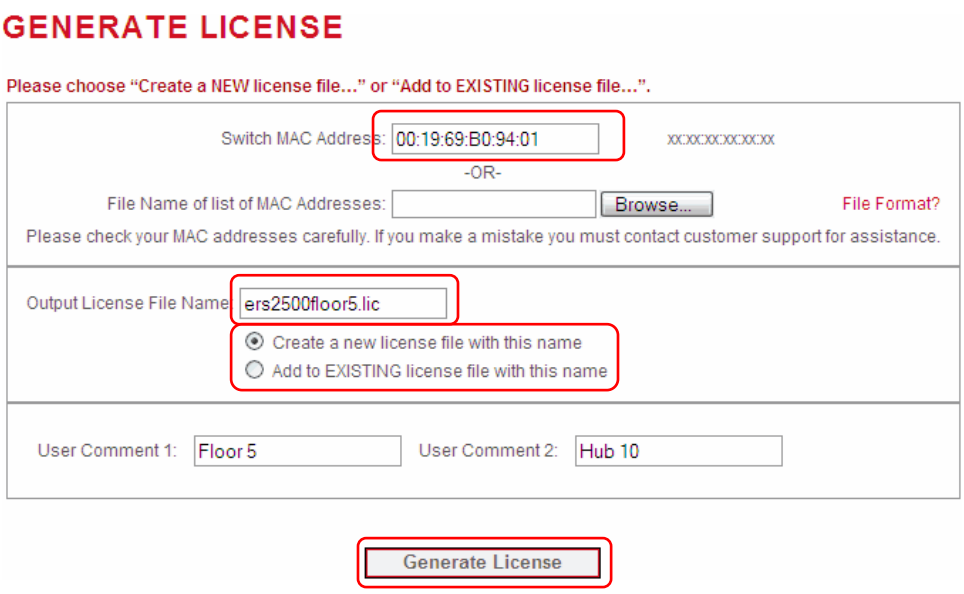
```
2526T-PWR# show sys-info

Operation Mode:          Switch
Size Of Stack:           3
Base Unit:               1
MAC Address:             00-19-69-B0-94-01
```

2.4.5 License Acquisition:

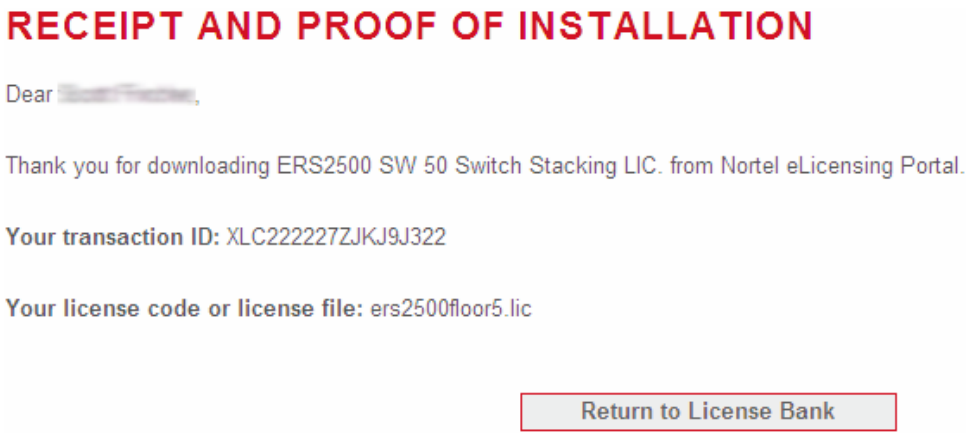
Please reference Section 5 for details on using the Nortel electronic licensing portal to create a license bank. Once the license bank has been created, the following steps are required to create and download a stacking license file.

1 Access the *License Bank* page where the Stacking License was deposited and locate the Stacking License LAC and click *Generate License*:

2	**In the *Generate License* page enter the required information to create the stacking license and then click *Generate License*:**
Switch MAC Address	Enter the MAC address of the Ethernet Routing Switch 2500 obtained using the show sys-info command.
File Name of list of MAC Addresses	An ASCII file containing multiple Ethernet Routing Switch 2500 MAC addresses which that allows a license file to be generated with multiple MACs in one transaction: • One MAC address entry per line. • MAC addresses must be capitalized with each pair of characters separated by colons (XX:XX:XX:XX:XX:XX).
Output License File Name	The name of the license file that will be emailed when the license is generated. • Maximum of 63 alphanumeric characters (lower case). • No spaces or special characters allowed. • An underscore "_" is permitted. • A period followed by a three letter extension is required.
User Comment Fields	Free form text fields that allow additional information to be entered to provide for asset tracking.



3 **A *Receipt and Proof of Installation* page will be displayed confirming the license file generation. The license file and confirmation will be sent via email.**



RECEIPT AND PROOF OF INSTALLATION

Dear [redacted],

Thank you for downloading ERS2500 SW 50 Switch Stacking LIC. from Nortel eLicensing Portal.

Your transaction ID: XLC222227ZJKJ9J322

Your license code or license file: ers2500floor5.lic

Return to License Bank

The license file is a compressed binary file. It is important that when downloading or saving this file, that your browser does not automatically decompress this file or you will receive an error when adding the license to the switch.

2.4.6 License Installation:

A license file may be installed using the command line interface or Device Manager by performing one of the following procedures:

2.4.6.1 Command Line Interface:

To install a new license file using the NNCLI:

1 **Using NNCLI enable the privExec mode and issue the *copy tftp license <tftp-server-ip> <license-file>* command where *tftp-server-ip* is the IP address of the TFTP server and *license-file* is the name of the license file:**

```
ERS2550T-PWR# copy tftp license 192.168.40.100 ers2500floor5.lic
```

After the stacking license file has been successfully installed, the operational mode of the rear-port can then be set to stacking. Note that changing the operation mode of the rear port will require a switch reset for the operational mode change to take effect.

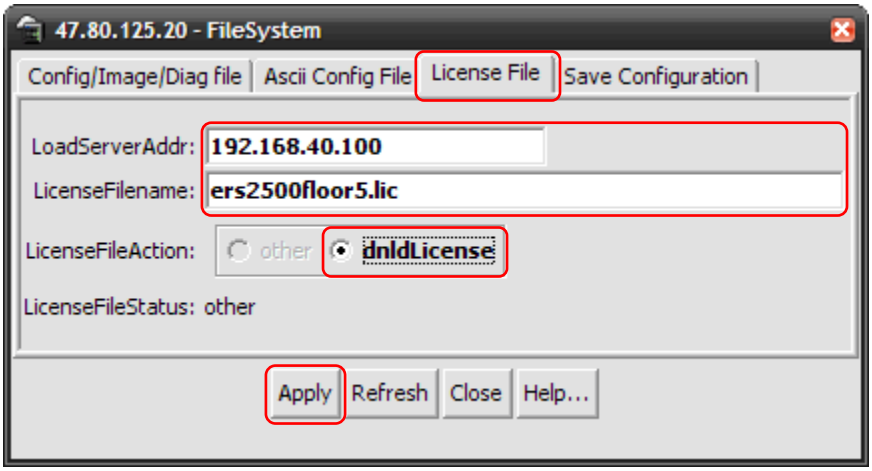
Installed licenses may be viewed in the CLI by issuing the ***show license all*** command.

To minimize download and loss of data, Nortel recommends that the system reboot be scheduled during a normal maintenance window.

2.4.6.2 Device Manager:

To install a new license file using Device Manager:

1	**In Device Manager open the switch and in the main menu select *Edit* then *File System*. Select the License File tab and in the *LoadServerAddr* field enter the IP address of the TFTP server where the license file is located. In the *LicenseFilename* field enter the name and extension of the license file. Select *dnldLicense* and click *Apply*.**



After the stacking license file has been successfully installed, the operational mode of the rear-port can then be set to stacking. Note that changing the operation mode of the rear port will require a switch reset for the operational mode change to take effect.

Installed licenses may be viewed in the CLI by issuing the ***show license all*** command.

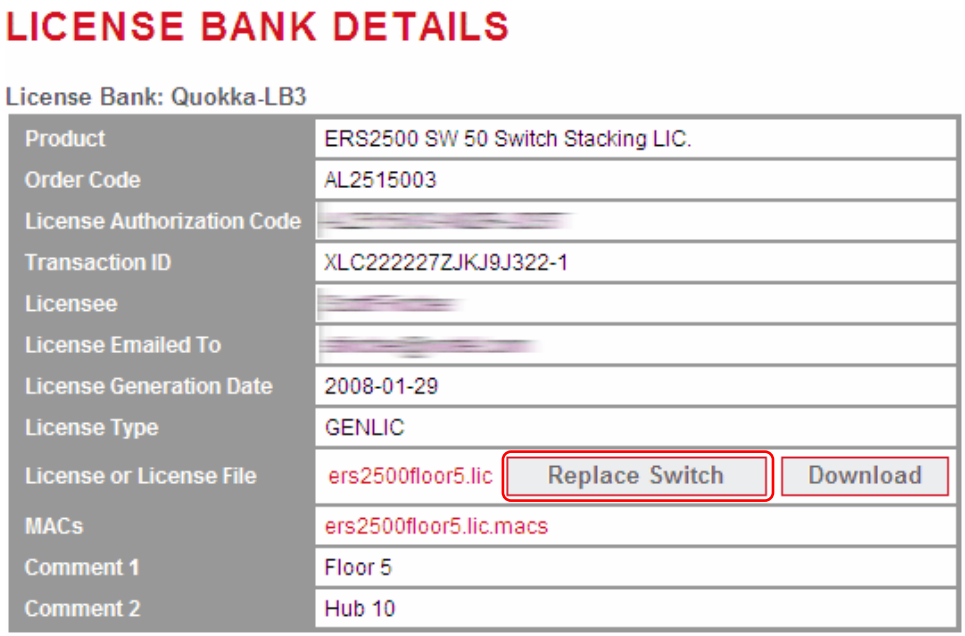
To minimize download and loss of data, Nortel recommends that the system reboot be scheduled during a normal maintenance window.

2.4.7 Replacing a Switch:

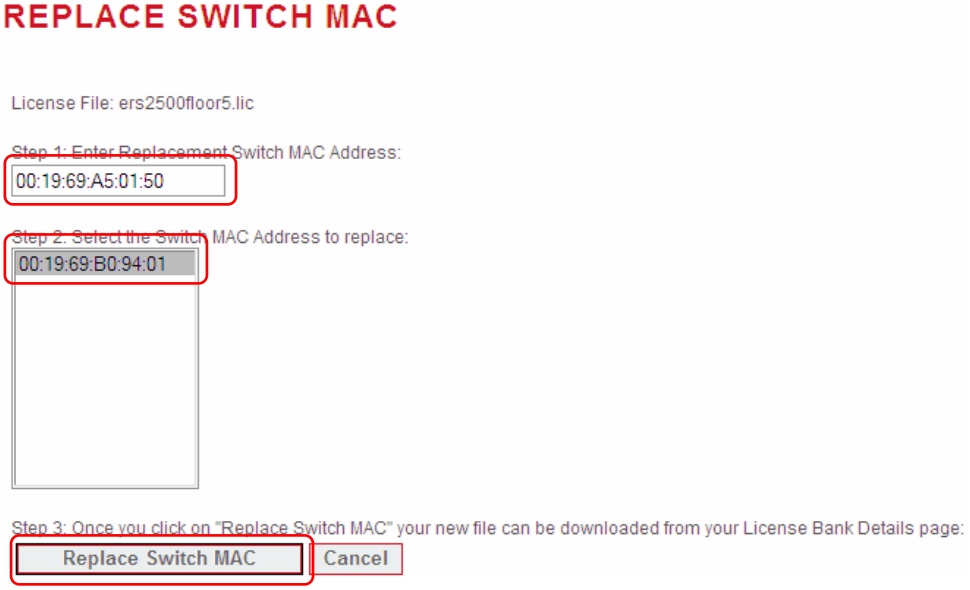
In the event of a switch failure, licenses may be transferred between Ethernet Routing Switch 2500 switches using the following procedure:

1	**Access the *License Bank* page where the stacking license was deposited. Locate the stacking license for the Ethernet Routing Switch 2500 to be transferred and click *Details*:**

2 **In the *License Bank Details* page locate the license for the Ethernet Routing Switch 2500 to be transferred and click *Replace Switch*:**



3 **In the *Replace Switch MAC* page, enter the *Replacement Switch MAC Address* and select the *Switch MAC address to replace*. Click *Replace Switch*:**



Nortel has implemented limits so that a maximum of 10% of the MAC addresses per License Authorization Code may be swapped. For 1 and 10 unit LACs one MAC address may be swapped. For 50 and 100 unit LACs 5 or 10 swaps may be performed.

If the number of MAC address swaps has been exceeded an error message will be displayed. Customers will be required to contact Nortel's Technical Support to obtain a new License Authorization Code.

2.5 Ethernet Routing Switch 5000 series:

ERS5500

ERS5600

Nortel's Ethernet Routing Switch 5000 series combines high performance, scalability and advanced Layer 3 features in one versatile solution.

Nortel's Ethernet Routing Switch (ERS) 5000 series is comprised of the 5500 family and the 5600 family of switches. The ERS5000 series switches are premier stackable 10/100/1000 Mbps & 10Gbps Ethernet Routing Switches and are available in several many models across two families

ERS 5500 and 5600 switches come in a number of port configurations from 24 to 96 ports of 10/100/1000 autosensing ports up to 24 Gigabit SFP and 8 10Gigabit XFP ports and are inter-stackable between the two families.

These switches are designed to provide high-density Gigabit to the desktop connectivity with and without Power over Ethernet capability suited for mid and large-size enterprise customers' wiring closets. The ERS5000 series is also suitable for small to medium sized core network installations and data center / top of rack solutions.

Nortel Ethernet Routing Switch 5000's can be purchased using the following order codes:

Order Code	Description
AL1001x04-E5	Ethernet Routing Switch 5510-24T with 24 x 10/100/1000 ports plus 2 SFP ports and a 1.5 foot Stacking Cable. Includes Base Software License Kit.
AL1001x03-E5	Ethernet Routing Switch 5510-48T with 48 x 10/100/1000 ports plus 2 SFP ports and a 1.5 foot Stacking Cable. Includes Base Software License Kit.
AL1001x06-E5	Ethernet Routing Switch 5520-24T-PWR with 24 x 10/100/1000 IEEE 802.3af Power over Ethernet ports plus 4 SFP ports, a 1.5 foot Stacking Cable. Includes Base Software License Kit.
AL1001x05-E5	Ethernet Routing Switch 5520-48T-PWR with 48 x 10/100/1000 IEEE 802.3af Power over Ethernet ports plus 4 SFP ports, a 1.5 foot Stacking Cable. Includes Base Software License Kit.
AL1001x07-E5	Ethernet Routing Switch 5530-24TFD Stackable Switch (24 x 10/100/1000BaseT ports, 12 shared SFP ports, 2 x XFP 10 Gig ports, and a 1.5 foot Stacking Cable. Includes Base Software License Kit.
AL1001x14-E5	Ethernet Routing Switch 5650TD with 48 10/100/1000Base-TX plus 2 XFP ports, stack ports, and 2 removable power supply slots. Includes 300w AC-DC removable power supply, Base Software License Kit and 46cm stacking cable.
AL1001x13-E5	Ethernet Routing Switch 5650TD-PWR with 48 10/100/1000Base-TX 802.3af ports plus 2 XFP ports, stack ports, and 2 removable power supply slots. Includes 600w AC-DC removable power supply, Base Software License Kit & 46cm stacking cable.

AL1001x12-E5	Ethernet Routing Switch 5698TFD with 96 10/100/1000Base-TX ports, 6 shared SFP ports, plus 2 XFP ports, stack ports, and 3 removable power supply slots. Includes 300w AC-DC removable power supply, Base Software License Kit and 46cm stacking cable.
AL1001x11-E5	Ethernet Routing Switch 5698TFD-PWR with 96 10/100/1000Base-TX 802.3af PoE ports, 6 shared SFP ports, plus 2 XFP ports, stack ports, and 3 removable power supply slots. Includes 1000w AC-DC removable power supply, Base Software License Kit and 46cm stacking cable.
AL1001x15-E5	Ethernet Routing Switch 5632FD with 24 SFP ports plus 8 XFP ports, stack ports, and 2 removable power supply slots. Includes 300w AC-DC removable power supply, Base Software License Kit and 46cm stacking cable.

Table 2.5 – Ethernet Routing Switch 5000 series Order Codes

2.5.1 Licensing:

The Ethernet Routing Switch 5000 series switches support the following licensing levels:

Base (BA)	Advanced (AD)	Premier (PR)
• Core Layer 2 Switching • Local, static & RIP Routing • QoS • Security • Stacking • IPFIX	• SMLT • OSPF • ECMP • VRRP • PIM-SM	N/A

Table 2.5.1 – Ethernet Routing Switch 5000 Series Licensing Levels

2.5.2 Base License:

A Base Software License Kit license is included with the purchase of each Ethernet Routing Switch 5000 series switch and provides core Layer 2 switching, basic IP routing, QoS, stacking and security functionality at no additional cost.

2.5.3 Advanced License:

The Ethernet Routing Switch 5000 series Release 6.1 (and above) requires an Advanced license to enable the following features: (Note: IPFIX is now part of the Base License from v6.1)

- SMLT (Split Multilink Trunking)
- OSPF (Open Shortest Path First) Routing
- ECMP (Equal Cost Multi-Path)
- VRRP (Virtual Routing Redundancy Protocol)
- PIM-SM (Protocol Independent Multicast – Sparse Mode)

An Advanced License Kit is required for a standalone or stack of Ethernet Routing Switch 5000s. Advanced License Kits are available in kits of 1, 10, 50 and 100 licenses.

Table 2.5.3 provides a list of order codes of Advanced License kits which are available for the Ethernet Routing Switch 5000 series switches:

Order Code	Description
AL1016001	Ethernet Routing Switch 5000 series Advanced License Kit, for 1 switch or stack. Enabled features: SMLT, OSPF, ECMP, VRRP, and PIM-SM. (one license required per stack or standalone unit).
AL1016002	Ethernet Routing Switch 5000 series Advanced License Kit, for up to 10 switches or stacks. Enabled features: SMLT, OSPF, ECMP, VRRP and PIM-SM. (one license required per stack or standalone unit).
AL1016003	Ethernet Routing Switch 5000 series Advanced License Kit, for up to 50 switches or stacks. Enabled features: SMLT, OSPF, ECMP, VRRP, and PIM-SM. (one license required per stack or standalone unit).
AL1016004	Ethernet Routing Switch 5000 series Advanced License Kit, for up to 100 switches or stacks. Enabled features: SMLT, OSPF, ECMP, VRRP, and PIM-SM. (one license required per stack or standalone unit).

Table 2.5.3 – Ethernet Routing Switch 5000 Series Advanced License Kits

2.5.4 License Keying and Methodology:

Ethernet Routing Switch licensing is based on a switch or stack and a single license is required for a standalone switch or for a stack of up to eight units.

For standalone units licensing is based on the MAC address of the standalone unit. The MAC address of an Ethernet Routing Switch 5000 may be obtained by NNCLI using the following procedure:

Using NNCLI, issue the *show sys-info* command:

```
5520-48T# show sys-info
Operation Mode:          Switch
Size Of Stack:           3
Base Unit:               1
MAC Address:             00-19-69-B0-94-01
```

The stacking licensing is based on the MAC address of the base unit and temporary base unit of the stack. The temporary base unit is included in the license file in case the base unit becomes inoperable. If a base unit failure occurs the temporary base unit (unit 2) will take over the stack operation and will maintain a valid license for the advanced features allowing the stack to continue to function as intended.

The MAC address of the base and temporary base units in a stack of Ethernet Routing Switch 5500/5600's may be obtained by the CLI using the following procedure:

Using NNCLI, issue the *show system verbose* command:

```
5520-24T-PWR# show system verbose
..
Unit #1 (Base Unit):
        Switch Model:          5520-24T-PWR
..
        MAC Address:           00-12-83-96-78-00
```



```
..
Unit #2:
        Switch Model:          5520-24T-PWR
..
        MAC Address:           00-12-83-2A-5B-00
```

2.5.5 License Acquisition:

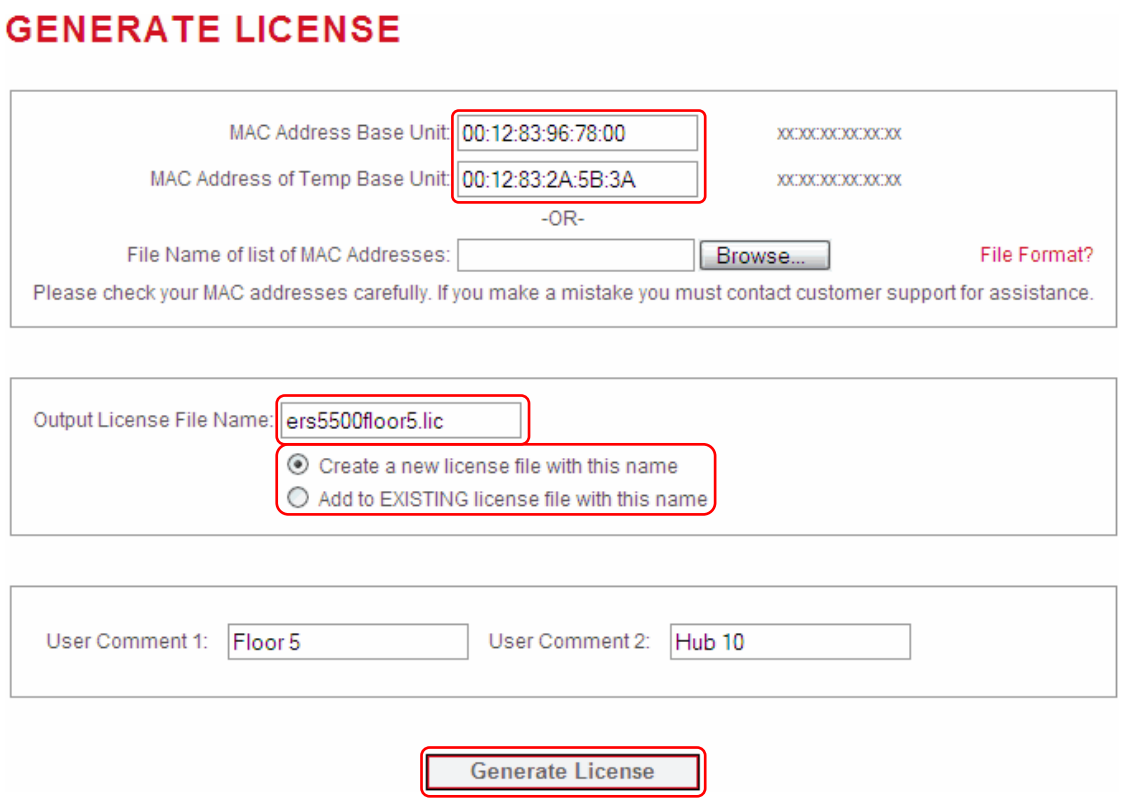
Please reference Section 5 for details on using the Nortel electronic licensing portal to create a license bank. Once the license bank has been created, the following steps are required to create and download an advanced license file.

1 **Access the *License Bank* page where the license was deposited. Locate the advanced license and click *Generate License*:**

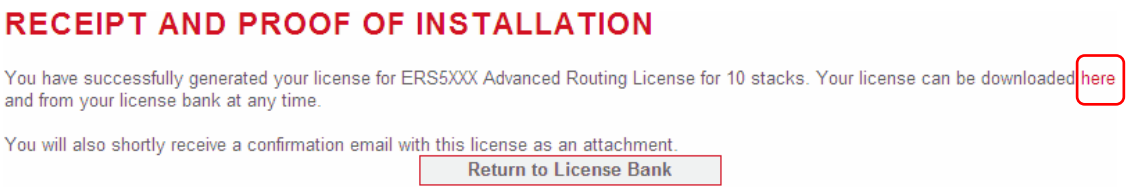
2 **In the *Generate License* page enter the required information to create the advanced license and then click *Generate License*:**

MAC Address Base Unit	Enter the MAC address of the standalone switch obtained using the ***show sys-info*** command or the Base Unit in the stack obtained using the ***show system verbose*** command.
MAC Address of Temp Base Unit	Enter the MAC address of the temporary base unit (unit 2) in the stack obtained using the ***show system verbose*** command.
File Name of list of MAC Addresses	An ASCII file containing multiple Ethernet Routing Switch 5500 MAC addresses which allows a license file to be generated with multiple MACs in one transaction: • One MAC address entry per line. • MAC addresses must be capitalized with each pair of characters separated by colons (XX:XX:XX:XX:XX:XX).
Output License File Name	The name of the license file that will be emailed when the license is generated. • Maximum of 63 alphanumeric characters. • No spaces or special characters allowed. • An underscore "_" is permitted. • A period followed by a three letter extension is required.

User Comment Fields	Free form text fields that allow additional information to be entered to provide for asset tracking.



3 **A *Receipt and Proof of Installation* page will be displayed confirming the license file generation. The license file may be downloaded directly by clicking the *here* link. The license file and confirmation will also be sent via email.**



The license file is a compressed binary file. It is important that when downloading or saving this file, that your browser does not automatically decompress this file or you will receive an error when adding the license to the switch.

2.5.6 License Installation:

A Nortel Ethernet Routing Switch license may be installed using the command line interface or Device Manager by performing one of the following procedures:

2.5.6.1 Command Line Interface:

To install a new license file using NNCLI:

1	**Using NNCLI enable the privExec mode and issue the *copy tftp license <tftp-server-ip> <license-file>* command where *tftp-server-ip* is the IP address of the TFTP server and *license-file* is the name of the license file:**

```
ERS5520-48T# copy tftp license 192.168.10.100 ers5500floor5.lic
```

After the license file has been successfully uploaded, you will need to reboot the switch for the license file to take effect.

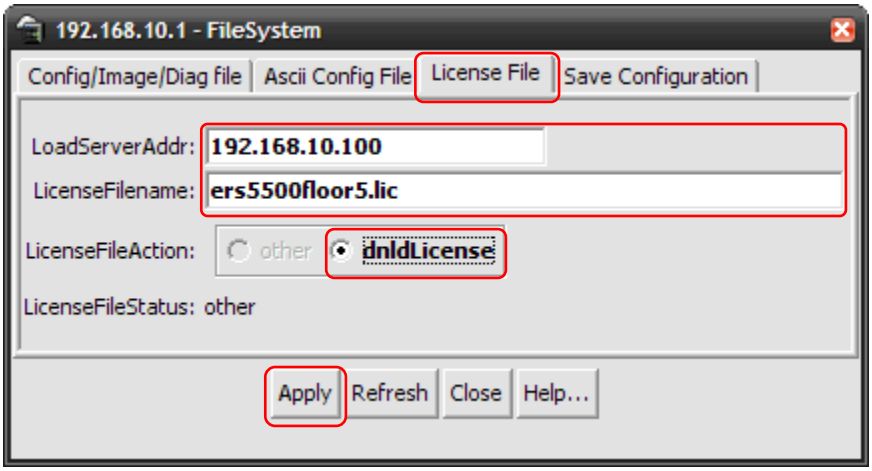
Installed licenses may be viewed in the CLI by issuing the ***show license all*** command.

To minimize download and loss of data, Nortel recommends that the system reboot be scheduled during a normal maintenance window.

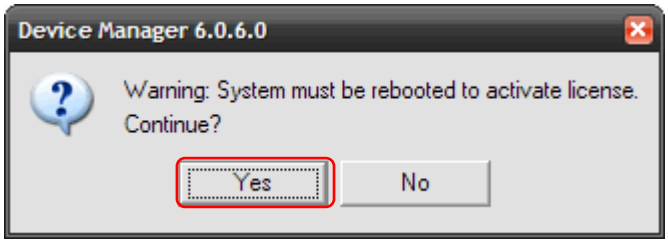
2.5.6.2 Device Manager:

To install a new license file using Device Manager:

1	**In Device Manager open the switch and in the main menu select *Edit* then *File System*. Select the License File tab and in the *LoadServerAddr* field enter the IP address of the TFTP server where the license file is located. In the *LicenseFilename* field enter the name and extension of the license file. Select *dnldLicense* and click *Apply*.**



2 A warning dialog message will appear stating that the switch / stack must be rebooted to activate the license. Click *Yes* to reset and activate the license.



After the license file has been successfully uploaded, you will need to reboot the switch for the license file to take effect.

Installed licenses may be viewed in the CLI by issuing the ***show license all*** command.

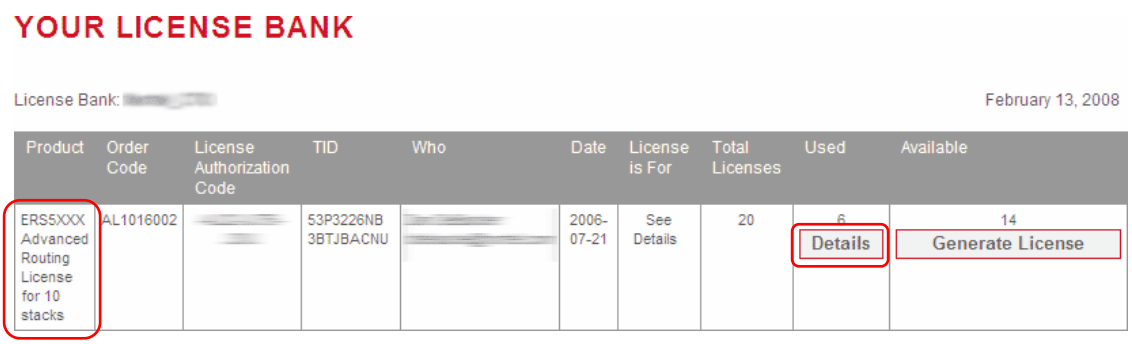
To minimize download and loss of data, Nortel recommends that the system reboot be scheduled during a normal maintenance window.

2.5.7 Replacing a Switch:

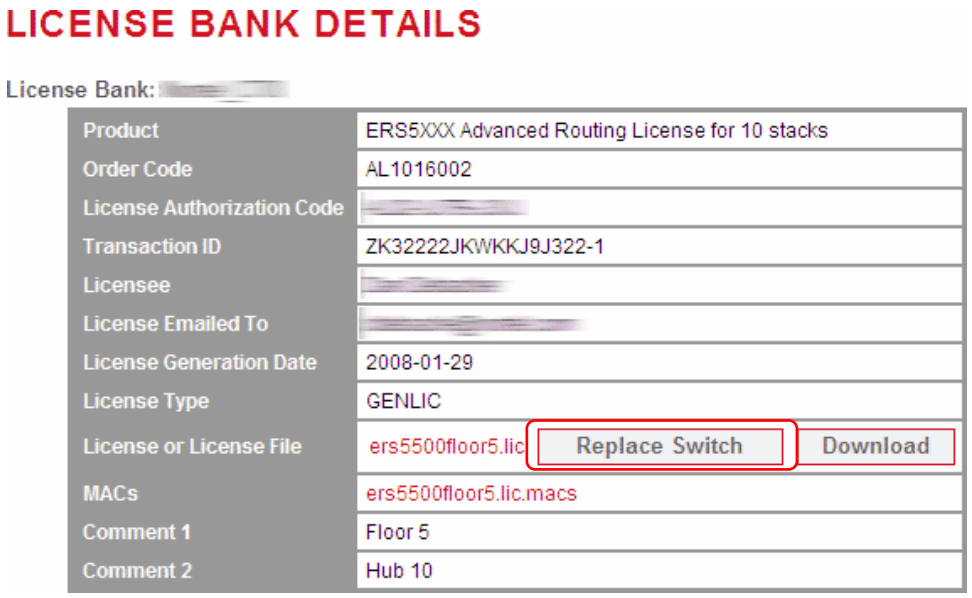
In the event of a switch failure, licenses may be transferred between Ethernet Routing Switch 5000 series switches using the following procedure:

NOTE: If you have multiple entries for the same license type, you will have to systematically check the LAC entry by clicking on the Details button and looking at the license file name in the transaction entries.

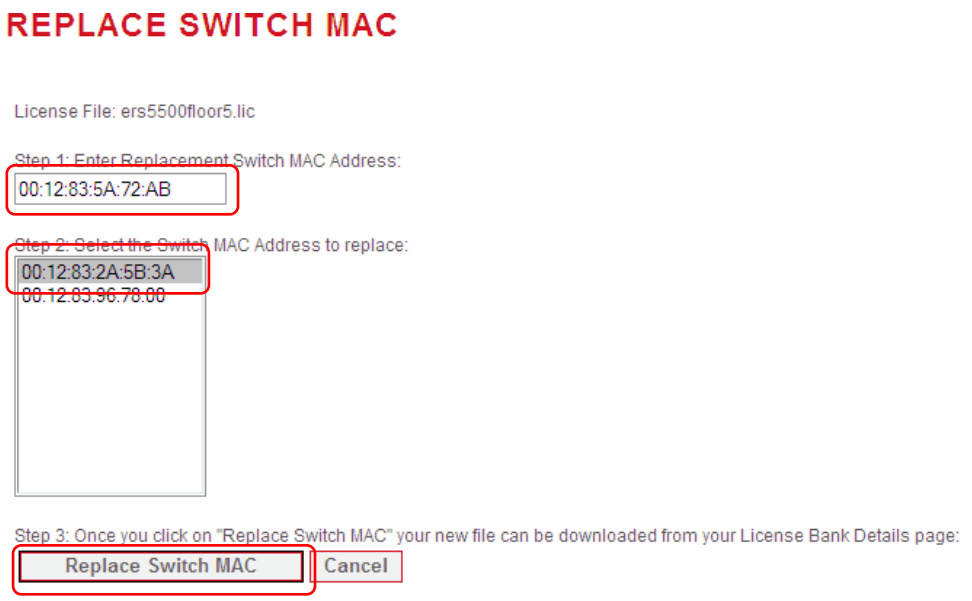
1 Access the *License Bank* page where the Advanced license was deposited. Locate the license for the Ethernet Routing Switch 5000 to be transferred and click *Details*:



2 **In the *License Bank Details* page locate the license for the Ethernet Routing Switch 5000 to be transferred and click *Replace Switch*:**



3 **In the *Replace Switch MAC* page, enter the *Replacement Switch MAC Address* and select the *Switch MAC address to replace*. Click *Replace Switch*:**



Nortel has implemented limits so that a maximum of 10% of the MAC addresses per License Authorization Code may be swapped. For 1 and 10 unit LACs one MAC address may be swapped. For 50 and 100 unit LACs 5 or 10 swaps may be performed.

If the number of MAC address swaps has been exceeded an error message will be displayed. Customers will be required to contact Nortel's Technical Support to obtain a new License Activation Code.

2.5.8 ERS 5000 License Scenarios

An ERS5000 series Advanced License can be installed on a switch or stack. The following section will detail what happens and what is required in case of a switch/stack becoming inoperable or when creating/adding units to a stack. In all cases of a switch/stack becoming inoperable, it is recommended to open a case with the Global Nortel Technical Support (GNTS) group as a first course of action.

2.5.8.1 Loss of Base Unit in a Stack

When the Advanced License file is generated on the Nortel Electronic Licensing Portal, the MAC address of the base unit and temporary base unit must be entered. If the base unit of the stack is lost, the temporary base unit will take over the stack operation and with the license file having the temporary base unit's MAC address, all features requiring a license will still be available and function normally.

If the base unit is lost due to hardware failure, the unit will need to be replaced in the stack. The switch can be RMA'd back to Nortel for repair/replacement. For the replacement license, contact Nortel GNTS to receive a License Authorization Code in order to generate a new license for the new base unit. The switch/stack can have multiple license files (up to 10) installed, so the option exists to generate a second license file for the new unit and upload this license to the stack. The other option would be to add the new unit's MAC address to the existing license file and upload that file to the switch/stack. The license file can support up to 1000 MAC addresses. In either case, the switch/stack will need to be re-booted for the license file to become active.

2.5.8.2 Loss of Temporary Base Unit in a Stack

The loss of the temporary base unit in the stack follows the same scenario as indicated in Section 5.1 Loss of Base Unit in a Stack. The only difference being that the base unit remains in control of the stack.

2.5.8.3 Adding a Unit to a Stack

When a unit is added to an existing stack, there is no change required to the Advanced License file for that stack. Since the stack already exists, the license file for that stack already contains the base unit and temporary base unit MAC addresses.

2.5.8.4 Adding a Unit to a Switch to Create a Stack

When a license file is generated for a switch, only the MAC address of that switch is entered in the Nortel Electronic Licensing Portal to create the license file. If at a later date, a second switch is now added to create a stack, go back to the Portal and add the new MAC address to the existing license file. Once this is done, upload the new license file into the stack and reboot for the license to take effect.

2.5.8.5 Upgrading from s/w release 5.x to 6.0 with an Advanced License

License files are not software release version specific. However, if upgrading an existing ERS5500 switch (or stack) from release v5.x to v6.0 that already has an Advanced license file installed, and PIM-SM (introduced in v6.0) is required, you need to go to the Nortel Licensing Portal and download the same license file again and re-install it on the switch (or stack).

This step is required for all ERS5000 series Advanced license files generated before November 2008. Existing ERS5000 Advanced license files in the Nortel License Portal database were automatically updated just prior to software release v6.0.

It is not necessary to consume another license within the License Bank by generating a new license file. Simply locate the corresponding ERS5000 Advanced license file for the switch (or stack) in question, and download it directly by clicking on the "Download" button in the transaction table within the License Bank Details screen. Remove the existing license from the corresponding

switch (or stack) using the *clear license* CLI command, then TFTP the license file re-downloaded onto the switch (or switch stack). Once the updated license file is installed, reboot the switch.

This task can be performed before or after the software upgrade to v6.0.

With the new/updated license file installed and v6.x code running on the ERS5500, PM-SIM can now be globally enabled.

2.5.8.6 30 Day Trial License

With ERS 5000 software release 5.1 and later, a 30 day trial license is available. This trial license is posted on the Nortel support web site at www.nortel.com/support with the related software images. This license can be installed one time on an ERS 5000 switch and will operate for 30 days. Once the 30 days have expired, the trial license is no longer valid and another trial license CANNOT be installed on the same switch.

2.6 Ethernet Routing Switch 8300:

The Nortel Ethernet Routing Switch 8300 is a uniquely versatile modular LAN Switch perfectly suitable for use in both the network core and edge. Supporting Nortel's proven Switch Clustering technology for always-on application availability, the ERS 8300 is the platform of choice for the mid-sized Enterprise. In addition, it boasts a complete suite of convergence- and security-friendly features ensuring that it also is optimized for the wiring closet. Delivering real-world Layer 2 and Layer 3 traffic performance, flexible connectivity options, high density interfaces, and Standards-based Power-over-Ethernet - it is the solution for Enterprises seeking to enhance and extend the intelligence of their network.

Nortel Ethernet Routing Switch 8300 may be purchased using the following order codes:

Order Code	Description
DS1402007-E5	8310 10 slot PoE chassis. Includes chassis, dual backplane, two fan trays, RS232 cable for management console, rack mount kit, and cable guide kit. Requires at least one 83XX power supply, up to three power supplies supported.
DS1402008-E5	8306 6 slot PoE chassis. Includes chassis, dual backplane, fan tray, RS232 cable for management console, rack mount kit, and cable guide kit. Requires at least one 83XX power supply, up to three power supplies supported.
DS1404118-E5	Ethernet Routing Switch 8393SF CPU/Switch Fabric module with 256MB CPU Memory and 8 Gigabit Ethernet SFP slots - One required per Ethernet Routing Switch 8300 chassis. Note: Includes PCMCIA flash memory card.
DS1404099-E5	Ethernet Routing Switch 8394SF CPU/Switch Fabric module with 2 - 10 Gigabit Ethernet XFP slots - One switch fabric module required per Ethernet Routing Switch 8300 chassis. Note: Includes PCMCIA flash memory card.
DS1404077-E5	Ethernet Routing Switch 8348TX module. 48 port 10/100 Ethernet i/f module.
DS1404098-E5	Ethernet Routing Switch 8324FX. 24 port 100BaseFX Ethernet Interface module.
DS1404093-E5	Ethernet Routing Switch 8348GTX module. 48 port autosensing 10Base-T/ 100Base-TX/1000Base-T Ethernet interface module.
DS1404094-E5	Ethernet Routing Switch 8348GTX-PWR module. 48 port 10Base-T/100Base-TX/ 1000Base-T interface module with Power over Ethernet (PoE) support on all ports.
DS1404095-E5	Ethernet Routing Switch 8348GB module. 48 port SFP interface module.
DS1404100-E5	Ethernet Routing Switch 8308XL module. 8 port XFP 10GE interface module.
DS1405x14-E5	8301AC 100-240 VAC Power Supply. At least one power supply required per 83xx chassis. (Power Cord ordered separately). Provides up to 800W of PoE.
DS1405x16-E5	8302AC 100-240 VAC Power Supply. At least one power supply required per 83xx chassis. (No power cord included). Provides up to 400W PoE.

Table 2.6 – Ethernet Routing Switch 8300 Order Codes

2.6.1 Licensing:

The Ethernet Routing Switch 8300 v4.2 supports the following licensing levels:

Base (BA)	Advanced (AD)	Premier (PR)
• Core Layer 2 Switching • Local and static routing • RIP routing • QoS • Security	• SMLT • RSMLT • OSPF • iBGP-Lite • ECMP • VRRP • SLPP • PIM-SM • Deep Packet Filtering	• Advanced features plus; • VRF-Lite

Table 2.6.1 – Ethernet Routing Switch 8300 Licensing Levels

2.6.2 Base License:

A Base Software License Kit license is required for each Ethernet Routing Switch 8300 chassis and must be purchased separately. The Base Software Licenses provides core Layer 2 switching, QoS, basic IP routing and security functionality.

Table 2.6.2 provides the Base Software License order code for the Ethernet Routing Switch 8300:

Order Code	Description
DS1421002-4.2	Ethernet Routing Switch 8300 Base Software License. Version 4.2.

Table 2.6.2 – Ethernet Routing Switch 8300 Base License Kit

2.6.3 Advanced License:

The Ethernet Routing Switch 8300 series Release 4.2 (and above) requires an Advanced license to enable the following features; (NOTE: always refer to specific software version release notes for a list of supported licensed features within that release):

- SMLT (Split Multilink Trunking)
- RSMLT (Routed Split Multilink Trunking)
- OSPF (Open Shortest Path First)
- iBGP-Lite (Border Gateway Protocol – Lite version)
- ECMP (Equal Cost Multi-path Protocol)
- VRRP (Virtual Routing Redundancy Protocol)
- SLPP (Simple Loop Prevention Protocol)
- PIM-SM (Protocol Independent Multicast - Sparse Mode)
- Deep Packet Filtering (Pattern Matching)

An Advanced License Kit is required for each Ethernet Routing Switch 8300 chassis and is available in kits of 1, 10, 50 and 100 licenses.

Table 2.6.3 provides a list of order codes of Advanced License kits which are available for the Ethernet Routing Switch 8300:

Order Code	Description
DS1421006	Ethernet Routing Switch 8300 Advanced License Kit, for 1 chassis. Enabled features: SMLT, RSMLT, OSPF, iBGP-Lite, ECMP, SLPP, VRRP, PIM-SM & Deep Packet Filtering. (one license required per chassis).
DS1421007	Ethernet Routing Switch 8300 Advanced License Kit, for up to 10 chassis. Enabled features: SMLT, RSMLT, OSPF, iBGP-Lite, ECMP, SLPP, VRRP, PIM-SM & Deep Packet Filtering. (one license required per chassis).
DS1421008	Ethernet Routing Switch 8300 Advanced License Kit, for up to 50 chassis. Enabled features: SMLT, RSMLT, OSPF, iBGP-Lite, ECMP, SLPP, VRRP, PIM-SM & Deep Packet Filtering. (one license required per chassis).
DS1421009	Ethernet Routing Switch 8300 Advanced License Kit, for up to 100 chassis. Enabled features: SMLT, RSMLT, OSPF, iBGP-Lite, ECMP, SLPP, VRRP, PIM-SM & Deep Packet Filtering. (one license required per chassis).

Table 2.6.3 – Ethernet Routing Switch 8300 Advanced License Kits

2.6.4 Premier License:

The Ethernet Routing Switch 8300 series Release 4.2 (and above) requires a Premier License to enable the following features:

- Advanced features plus;
- VRF-Lite (Virtual Routing and Forwarding – Lite version)

A Premier License Kit is required for each Ethernet Routing Switch 8300 chassis and is available in kits of 1, 10, 50 and 100 licenses.

Table 2.6.4 provides a list of order codes of Premier License kits which are available for the Ethernet Routing Switch 8300:

Order Code	Description
DS1421010	Ethernet Routing Switch 8300 Premier License Kit, for 1 chassis. Enabled features: Advanced License features, plus VRF-Lite. (one license required per chassis).
DS1421011	Ethernet Routing Switch 8300 Premier License Kit, for up to 10 chassis. Enabled features: Advanced License features, plus VRF-Lite. (one license required per chassis).
DS1421012	Ethernet Routing Switch 8300 Premier License Kit, for up to 50 chassis. Enabled features: Advanced License features, plus VRF-Lite. (one license required per chassis).
DS1421013	Ethernet Routing Switch 8300 Premier License Kit, for up to 100 chassis. Enabled features: Advanced License features, plus VRF-Lite. (one license required per chassis).

Table 2.6.4 – Ethernet Routing Switch 8300 Premier License Kits

2.6.5 License Keying and Methodology:

Licenses are based on the chassis base MAC address and a single license is required for each chassis regardless of the number of Switch Fabric Modules installed.

The base MAC address of an Ethernet Routing Switch 8300 chassis may be obtained by NNCLI using the following procedure:

Using NNCLI issue the *show sys-info* command:

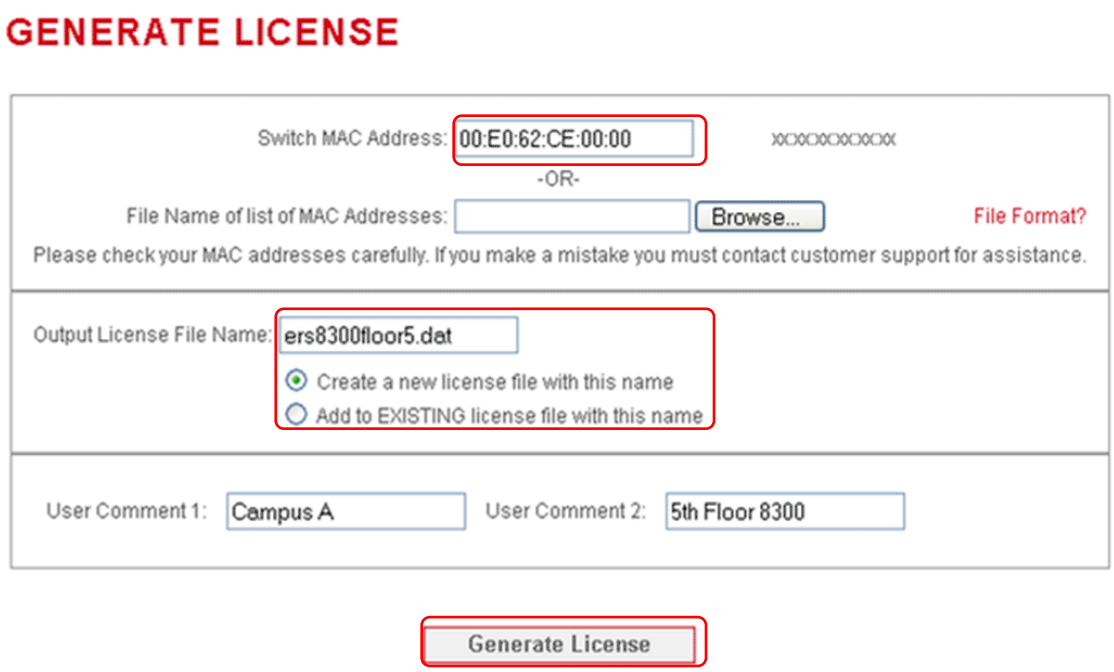
```
ERS8300-1:5# show sys-info

Chassis Info :

        Chassis     : 8310
        Serial#     : PED0064881
        HwRev       : 00
        NumSlots    : 10
        NumPorts    : 194
        BaseMacAddr : 00:0e:62:ce:00:00
        MacAddrCapacity : 4096
        Temperature : 29 C
        MgmtMacAddr : 00:0e:62:ce:03:f4
```

2.6.6 License Acquisition:

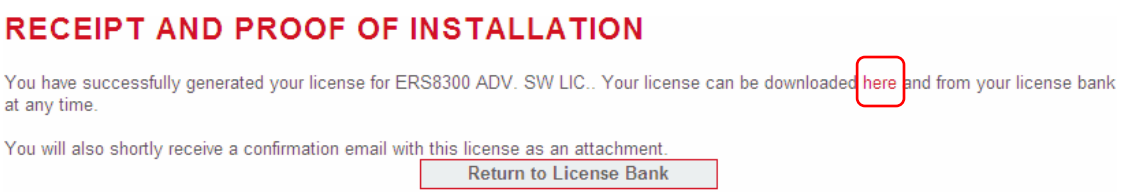
Please reference Section 5 for details on using the Nortel electronic licensing portal to create a License Bank. Once a License Bank has been created, the following steps are required to create an Advanced or Premier license file.

1 Access the *License Bank* page where the license was deposited. Locate the corresponding Advanced or Premier license LAC entry and click *Generate License*:

2	**In the *Generate License* page enter the required information to create an Advanced or Premier license file and click *Generate License*:**
Switch MAC Address	Enter the base MAC address of the Ethernet Routing Switch 8300 obtained using *show sys-info* (NNCLI) or *show sys info* (CLI) command.
File Name of list of MAC Addresses	An ASCII file containing multiple Ethernet Routing Switch 8300 base MAC addresses which that allows a license file to be generated with multiple MACs in one transaction: • One MAC address entry per line. • MAC addresses must be capitalized with each pair of characters separated by colons (XX:XX:XX:XX:XX:XX).
Output License File Name	The name of the license file that will be emailed when the license is generated. • Maximum of 63 alphanumeric characters. • No spaces or special characters allowed. • An underscore "_" is permitted. • A period followed by a three letter extension is required.
User Comment Fields	Free form text fields that allow additional information to be entered to provide for asset tracking.



3	**A *Receipt and Proof of Installation* page will be displayed confirming the license file generation. The license file may be downloaded directly by clicking the *here* link. The license file and confirmation will also be sent via email.**



An Ethernet Routing Switch 8300 license file name can use any file name or extension, however, if the filename in NOT ***license.dat***, then the *bootconfig* choice parameter must be updated with the exact license filename and location.

The license file is a compressed binary file. It is important that when downloading or saving this file, that your browser does not automatically decompress this file or you will receive an error when adding the license to the switch.

2.6.7 License Installation:

During the boot sequence, an Ethernet Routing Switch 8300 first uses the *bootconfig* information for the license file name and location. If a license file is not specified or is not found, the switch will look for a default license file name of ***license.dat***. Licensed features will be unlocked and available for configuration when a valid license file is found.

NOTE: The license filename must be in lower case when being copied to the ERS8300 switch.

A Nortel Ethernet Routing Switch 8300 license may be installed using the command line interface or Device Manager by performing one of the following procedures:

Refer to the Nortel Ethernet Routing Switch 8300 Administration Guide (*NN46200-604*), licensing fundamentals section, for more detailed license installation and configuration information.

2.6.7.1 Command Line Interface:

To install a license file using CLI:

Using CLI issue the *copy* command from config to copy the license file to the switch:

```
ERS8300-1:5(config)# copy 10.10.10.20:ers8300floor5.dat
/flash/ers8300floor5.dat
```

After the license file has been successfully uploaded, reboot the ERS8300 switch for the license file to take effect.

Installed licenses may be viewed in the CLI by issuing the ***show license*** command.

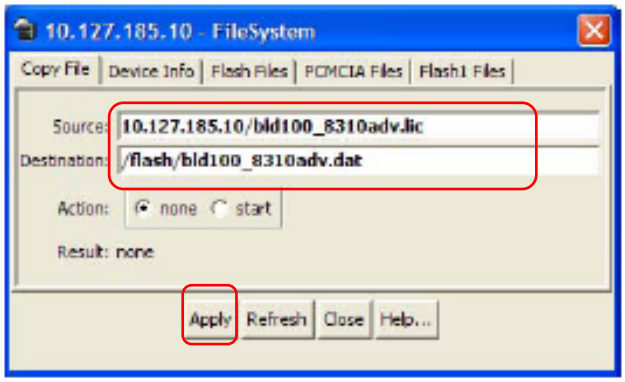
To minimize download and loss of data, Nortel recommends that the system reboot be scheduled during a normal maintenance window.

NOTE: Ensure the license filename uses lower case characters when being copied and issue a ***save config*** command to save the system configuration.

2.6.7.2 Device Manager:

To install a new license file using Device Manager:

Open the switch in Device Manager & select the Master SF/CPU module. In the main menu select *Edit* then *FileSystem*. Enter tftp server IP address & source filename in the *Source* field, then destination location and license file name in the *Destination* field. Click *Apply*.



After the license file has been successfully uploaded, you will need to reboot the switch for the license file to take effect.

Installed licenses may be viewed in the CLI by issuing the ***show license all*** command.

To minimize download and loss of data, Nortel recommends that the system reboot be scheduled during a normal maintenance window.

2.6.8 License Configuration:

2.6.8.1 Command Line Interface:

To update the license file name and path information within *bootconfig* using NNCLI (this is not necessary if the license file name is ***license.dat*** and is located in the ***/flash*** directory):

Using NNCLI enable the privExec and configuration mode and issue the *bootconfig choice <boot-choice> license-file <file>* command specify the source of the license file:

choice <boot-choice>	Specifies the order in which the specified boot path is accessed when the switch is rebooted: • primary • secondary • tertiary
license-file <file>	The source can be Flash, PCMCIA, or a remote TFTP server: • /flash/<file_name> • /pcmcia/<file_name> • <a.b.c.d>:<file_name>

ERS8300-1:5(config)# ***bootconfig choice primary license-file /flash/ers8300floor5.dat***

After the license file has been successfully uploaded, you will need to reboot the switch for the license file to take effect.

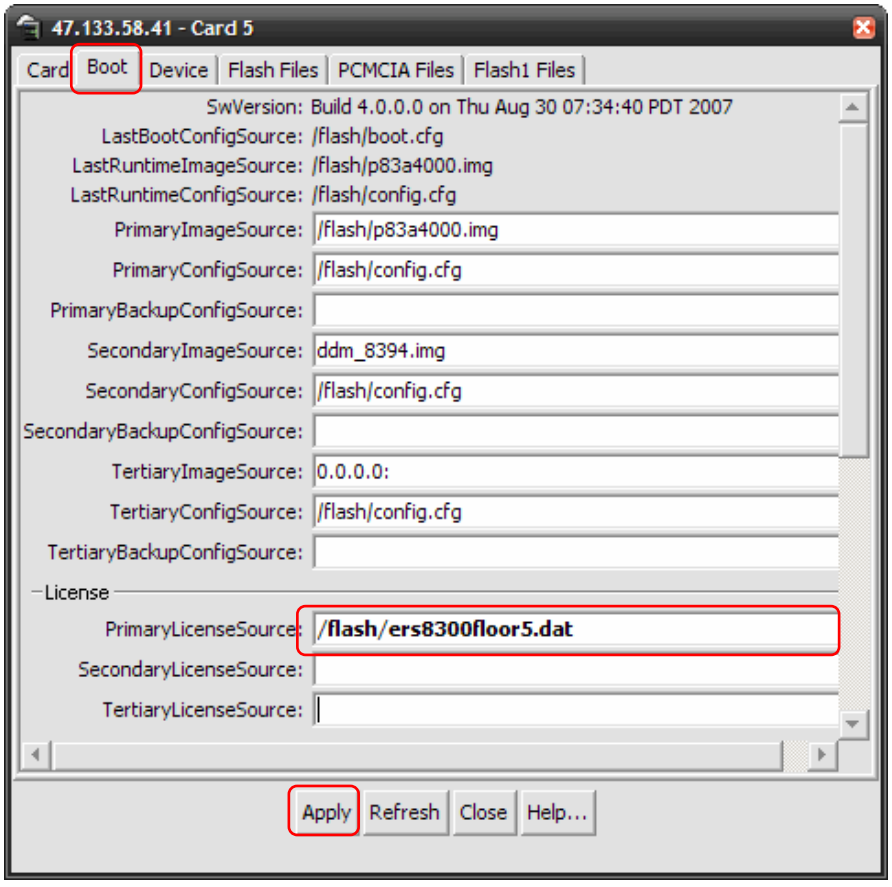
Installed licenses may be viewed in the CLI by issuing the ***show license all*** command.

To minimize download and loss of data, Nortel recommends that the system reboot be scheduled during a normal maintenance window.

2.6.8.2 Device Manager:

To define the location of a License file on an ERS8300 using Device Manager:

In Device Manager open the switch and select the master switch fabric. In the main menu select *Edit* then *Card*. Click the *Boot* tab and in the *PrimaryLicenseSource* field enter the path and name of the license file. Click *Apply*.



After the license file has been successfully uploaded, you will need to reboot the switch for the license file to take effect.

Installed licenses may be viewed in the CLI by issuing the ***show license all*** command.

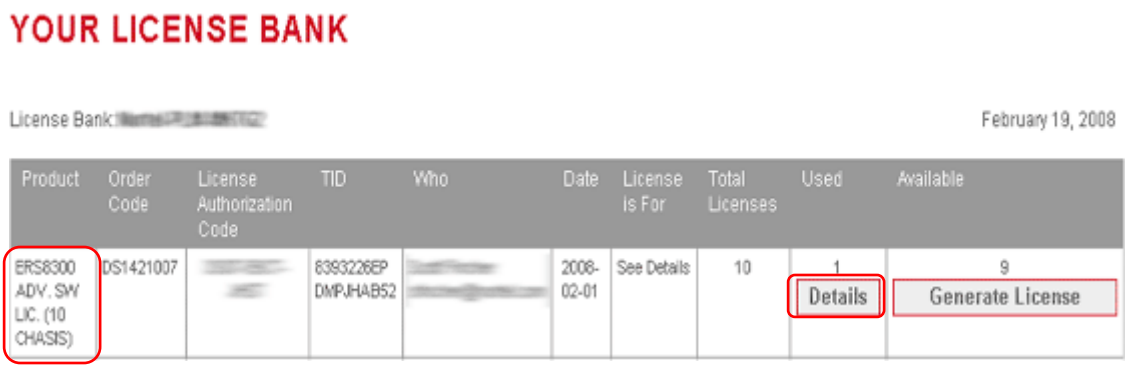
To minimize download and loss of data, Nortel recommends that the system reboot be scheduled during a normal maintenance window.

2.6.9 Replacing a Switch:

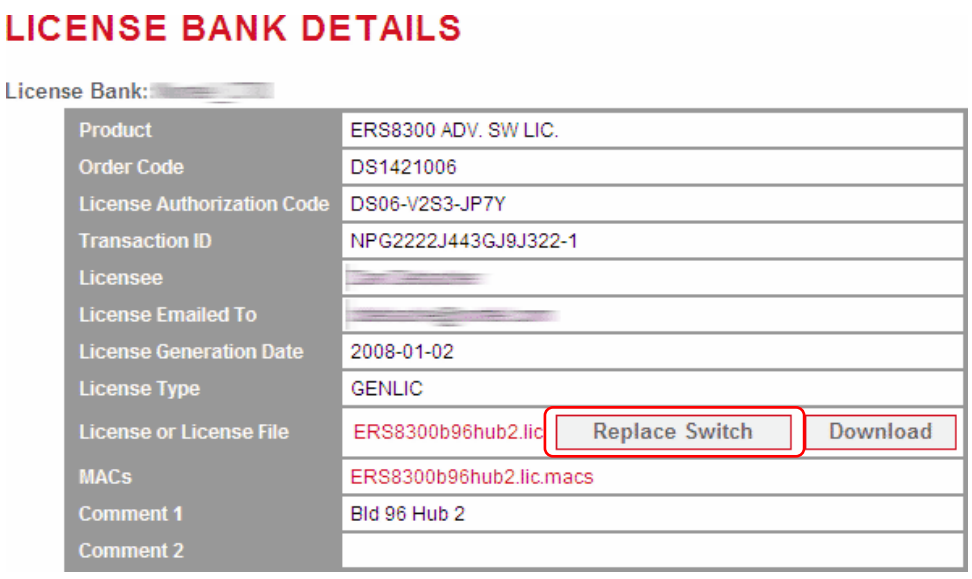
In the event of a switch failure, licenses may be transferred between Ethernet Routing Switch 8300 chassis using the following procedure:

NOTE: If you have multiple entries for the same license type, you will have to systematically check the LAC entry by clicking on the Details button and looking at the license file name in the transaction entries.

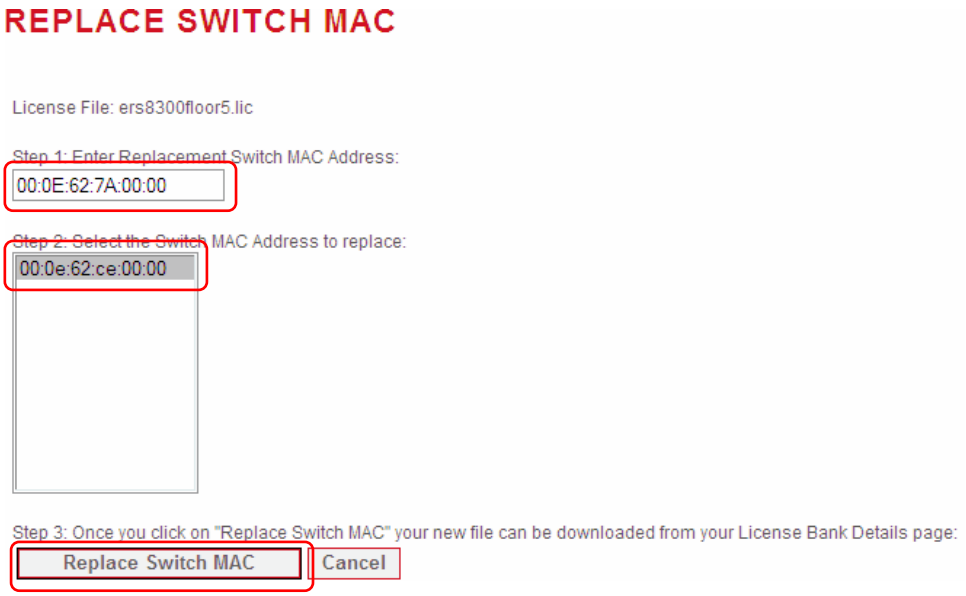
1 Access the *License Bank* page where the Advanced or Premier license was deposited. Locate the license for the Ethernet Routing Switch 8300 to be transferred and click *Details*:



2 In the *License Bank Details* page locate the license for the Ethernet Routing Switch 8300 to be transferred and click *Replace Switch*:



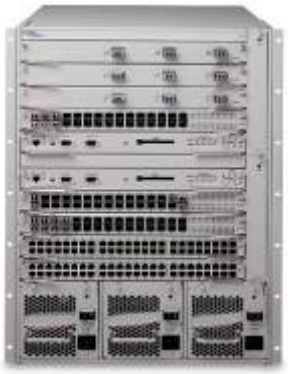
3 **In the *Replace Switch MAC* page, enter the *Replacement Switch MAC Address* and select the *Switch MAC address to replace*. Click *Replace Switch*:**



Nortel has implemented limits so that a maximum of 10% of the MAC addresses per License Authorization Code may be swapped. For 1 and 10 unit LACs one MAC address may be swapped. For 50 and 100 unit LACs 5 or 10 swaps may be performed.

If the number of MAC address swaps has been exceeded an error message will be displayed. Customers will be required to contact Nortel's Technical Support to obtain a new License Activation Code.

2.7 Ethernet Routing Switch 8600:



The Nortel Ethernet Routing Switch 8600 is a versatile modular LAN Switch positioned for use as a high performance switch for the network core. Supporting Nortel's proven Switch Clustering technology for always-on application availability; the ERS 8600 is the platform of choice for the mid to large sized Enterprise and also Service Provider environments. In addition, it boasts a complete suite of features including network virtualization ensuring that it also is optimized for the network core. Delivering real-world Layer 2, 3 through Layer 7 functionality with high traffic performance, flexible connectivity options, high-density interfaces, it is the solution for Enterprises seeking to enhance the intelligence of their business-class network.

Nortel Ethernet Routing Switch 8600 may be purchased using the following order codes:

(NOTE: most recent order codes are listed below. Refer to current Nortel Enterprise price list for full list of order codes for ERS8600 modules):

Order Code	Description
DS1402001-E5	8010 10 slot chassis. Includes chassis, dual backplane, two fan trays, RS232 cable for management console, rack mount kit, and cable guide kit. Requires at least one power supply, up to three power supplies supported. Supports 8600 & 8300 modules only.
DS1402002-E5	8006 6 slot chassis. Includes chassis, dual backplane, two fan trays, RS232 cable for management console, rack mount kit, and cable guide kit. Requires at least one power supply, up to three power supplies supported.
DS1404065-E5	Ethernet Routing Switch 8692SF Switch Fabric/CPU to enable redundant terabit core configurations. One required with R Modules, 2nd for load-sharing and redundancy. Operable with pre-E, E & M modules. Includes 256MB SDRAM and 64MB PCMCIA.
DS1404063-E5	8630GBR Routing Switch Module. 30 port SFP GBIC baseboard. (SFPs sold separately). The 8630GBR requires the use of the 8692SF.
DS1404092-E5	8648GTR Routing Switch Module. 48 port autosensing 10BASE-T/100BASE-TX/1000Base-T Ethernet Layer 3 switching interfaces. The 8648GTR is operable with the 8692SF only.
DS1404102-E6	8648GBRS Routing Switch Module. 48 port SFP baseboard. (SFPs sold separately). The 8648GBRS requires the use of the 8692SF.
DS1404110-E6	8648GTRS Routing Switch Module. 48 port autosensing 10BASE-T/100BASE-TX/1000Base-T Ethernet Layer 3 switching interfaces. The 8648GTRS is operable with the 8692SF only.
DS1404101-E5	8683XLR three-port 10GBase-X XFP Routing Switch Module baseboard (XFPs purchased separately). The 8683XLR requires use of the 8692SF.
DS1404064-E5	8683XZR three-port 10GBase-X XFP Routing Switch Module baseboard (XFPs purchased separately). Supports both LAN and WAN PHY. The 8683XZR requires use of the 8692SF.

DS1404097-E6	8612XLRS 12-port 10GBase-X XFP Routing Switch Module baseboard (XFPs purchased separately).The 8612XLRS requires use of the 8692SF.
DS1404109-E6	8634XGRS Routing Switch Module. Combination module with 2 port 10GBase-X XFP, 24 port SFP (with 100FX support) and 8 port autosensing 10BASE-T/100BASE-TX/1000Base-T baseboard (XFPs and SFPs purchased separately).The 8634XGRS requires use of the 8692SF.
DS1405012-E5	8005AC 100-240 VAC 1140W/1462W Power Supply. At least one power supply required per 8006, 8010 or 8010co chassis. Lower output at 110VAC. Cannot mix with 8004 series supplies. Power cord ordered separately-use AA00200xx series cords.
DS1405018-E6	Dual input 8005 AC 100-240 VAC 1140W/1462W Power Supply. At least one power supply required per 8006, 8010 or 8010co chassis. Lower output at 110VAC. Cannot mix with 8004 series supplies. Power cord ordered separately-use AA00200xx series cords.

Table 2.7 – Ethernet Routing Switch 8600 Order Codes

2.7.1 Licensing:

The Ethernet Routing Switch 8600 v5.1 release supports the following licensing levels & features:

Base (BA)	Advanced (AD)	Premier (PR)
• Core Layer 2 Switching, MLT, DMLT, SMLT, SLT • Local, static, RIP, OSPF Routing, BGP4 (≤10 Peers) • IPv6 Management • QoS • Security • IPFIX	• BGP4 (>10 peers) • IPv6 Routing • Bidirectional Forwarding Detection • MSDP • PCAP	• Advanced features plus; • VRF-Lite • MP-BGP • IP-VPN MPLS (RFC2547) • IP-VPN-Lite (IP in IP) • Mulicast Virtualization for VRF-Lite (IGMP & PIM-SM / SSM)

Table 2.7.1 – Ethernet Routing Switch 8600 Licensing Levels

2.7.2 Base License:

A Base Software License Kit license is required for each Ethernet Routing Switch 8600 chassis and must be purchased separately. The Base Software License provides core Layer 2 switching, MLT, Distributed MLT, SMLT, SLT, QoS, RIPv1/v2, OSPF & BGPv4 (up to 10 peers) IP routing, IPFIX and security functionality.

Table 2.7.2 provides the current Base Software License Kit order code for the Ethernet Routing Switch 8600:

Order Code	Description
DS1410003-5.1	Ethernet Routing Switch 8600 Routing Switch Base Software Kit (Includes v5.1 SW license, Device Manager, and complete SW documentation set). One license kit required per chassis. (Support contracts must be purchased separately.) Version 5.0.

Table 2.7.2 – Ethernet Routing Switch 8600 Base Software License Kit

2.7.3 Advanced License:

The Ethernet Routing Switch 8600 series Release 5.0 (and above) requires an Advanced license to enable the following features:

- BGPv4 (Border Gateway Protocol version 4, for more than 10 peers)
- IPv6 Routing (Internet Protocol version 6)
- BFD (Bidirectional Forwarding Detection)
- MSDP (Multicast Source Discovery Protocol)
- PCAP (Packet Capture)

An Advanced License Kit is required for each Ethernet Routing Switch 8600 chassis. Advanced License Kits are available in kits of 1, 10, 50 and 100 licenses.

Table 2.7.3 provides a list of order codes of Advanced License kits which are available for the Ethernet Routing Switch 8600:

Order Code	Description
DS1410021	Ethernet Routing Switch 8600 Advanced License Kit, for 1 chassis. Enabled features: BGP4, IPv6 Routing, BFD, MSDP and PCAP. (one license required per chassis).
DS1410022	Ethernet Routing Switch 8600 Advanced License Kit, for up to 10 chassis. Enabled features: BGP4, IPv6 Routing, BFD, MSDP and PCAP. (one license required per chassis).
DS1410023	Ethernet Routing Switch 8600 Advanced License Kit, for up to 50 chassis. Enabled features: BGP4, IPv6 Routing, BFD, MSDP and PCAP. (one license required per chassis).
DS1410024	Ethernet Routing Switch 8600 Advanced License Kit, for up to 100 chassis. Enabled features: BGP4, IPv6 Routing, BFD, MSDP and PCAP. (one license required per chassis).

Table 2.7.3 – Ethernet Routing Switch 8600 Advanced License Kits

2.7.4 Premier License:

The Ethernet Routing Switch 8600 series Release 5.1 (and above) requires a Premier license to enable the following features:

- Advanced Features plus;
- VRF-Lite (Virtual Routing and Forwarding – Lite version)
- MP-BGP (Multi-Protocol Border Gateway Protocol)
- IP-VPN MPLS RFC2547 (IP-Virtual Private Network, Multi-Protocol Label Switching RFC2547)
- IP-VPN-Lite (IP-in-IP) (IP-Virtual Private Network-Lite)
- Multicast Virtualization for VRF-Lite (IGMP and PIM-SM / SSM)

A Premier License Kit is required for each Ethernet Routing Switch 8600 chassis and is available in kits of 1, 10, 50 and 100 licenses.

Table 2.7.4 provides a list of order codes of Premier License kits which are available for the Ethernet Routing Switch 8600:

Order Code	Description
DS1410026	Ethernet Routing Switch 8600 Premier License kit, for 1 Chassis. Enabled features: Advanced License features, plus, VRF-Lite, MP-BGP, IP-VPN MPLS RFC2547, IP-VPN-Lite (IP-in-IP) & MCast Virtualization for VRF-Lite. (one license required per chassis).
DS1410027	Ethernet Routing Switch 8600 Premier License Kit, for up to 10 chassis. Enabled features: Advanced License features, plus, VRF-Lite, MP-BGP, IP-VPN MPLS RFC2547, IP-VPN-Lite (IP-in-IP) &) & MCast Virtualization for VRF-Lite. (one license required per chassis).
DS1410028	Ethernet Routing Switch 8600 Premier License Kit, for up to 50 chassis. Enabled features: Advanced License features, plus, VRF-Lite, MP-BGP, IP-VPN MPLS RFC2547,IP-VPN-Lite (IP-in-IP) & MCast Virtualization for VRF-Lite. (one license required per chassis).
DS1410029	Ethernet Routing Switch 8600 Premier License Kit, for up to 100 chassis. Enabled features: Advanced License features, plus, VRF-Lite, MP-BGP, IP-VPN MPLS RFC2547, IP-VPN-Lite (IP-in-IP) & MCast Virtualization for VRF-Lite. (one license required per chassis).

Table 2.7.4 – Ethernet Routing Switch 8600 Premier License Kits

2.7.5 License Keying and Methodology:

Licenses are based on the chassis base MAC address and a single license is required for each chassis regardless of the number of Switch Fabric Modules installed.

The base MAC address of an Ethernet Routing Switch 8600 chassis may be obtained via CLI using the following procedure (NNCLI command version is "*show sys-info*"):

Using CLI issue the *show sys info* command:

ERS-8610:5# ***show sys info***

```
General Info :
        SysDescr     : ERS-8610 (5.0.0.0)
        SysName      : ERS-8610
        SysUpTime    : 24 day(s), 06:34:30
        SysContact   : support@nortel.com
        SysLocation  : 4655 Great America Parkway, Santa Clara, CA 95054

Chassis Info :
        Chassis     : 8010
        Serial#     : PED0063977
        HwRev       : A
        NumSlots          : 10
        NumPorts          : 102
       GlobalFilter       : enable
       VlanBySrcMac       : disable
       ForceTopologyIpFlag: false
```

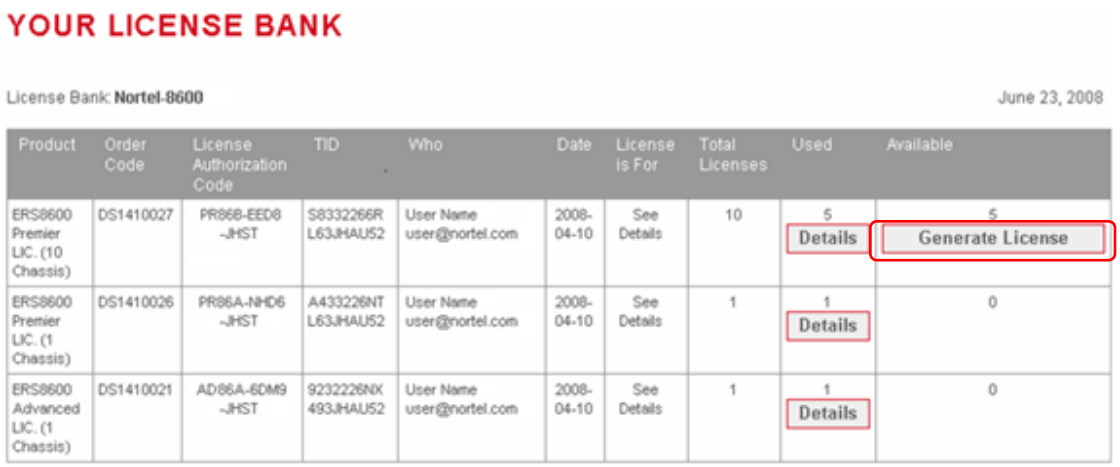


```
Ecn-Compatib      : enable
WsmDirectMode     : disable
max-vlan-resource-resevation : (disable) -> (disable)
multicast-resource-reservartion : (2048) -> (2048)
BaseMacAddr : 00:04:dc:7d:64:00
```

2.7.6 License Acquisition:

Please reference Section 5 for details on using the Nortel electronic licensing portal to create a license bank. Once the license bank has been created, the following steps are required to create the advanced license file.

1 Access the *License Bank* page where the license was deposited. Locate the associated license type and click *Generate License*:



YOUR LICENSE BANK

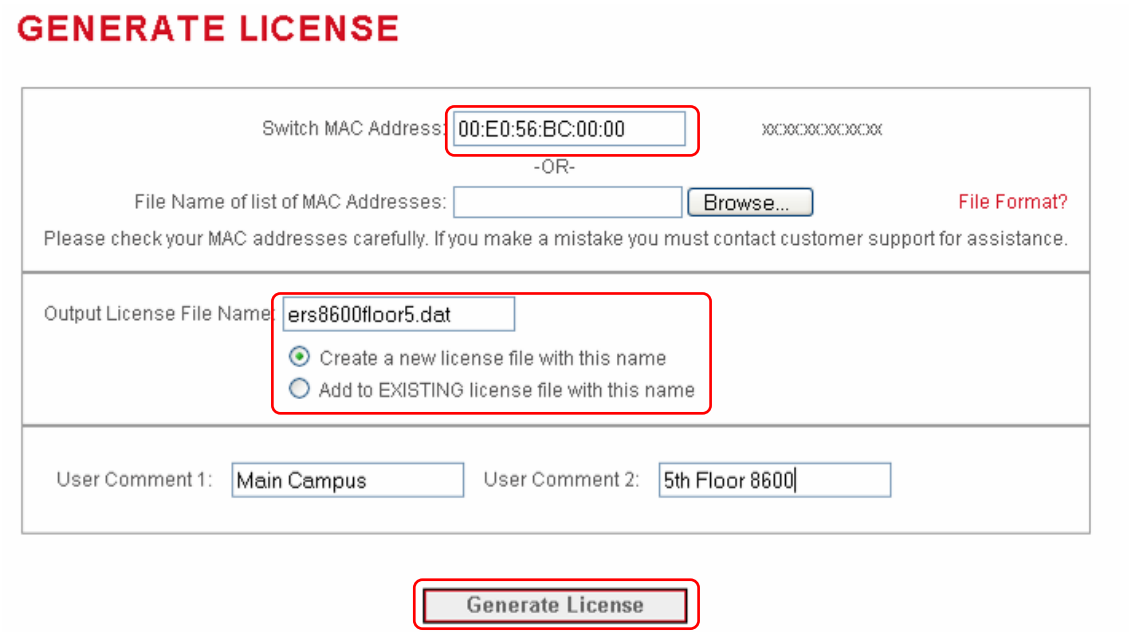
License Bank: **Nortel-8600** June 23, 2008

Product	Order Code	License Authorization Code	TID	Who	Date	License is For	Total Licenses	Used	Available
ERS8600 Premier LIC. (10 Chassis)	DS1410027	PR86B-EED8 -JHST	S8332266R L63JHAU52	User Name user@nortel.com	2008-04-10	See Details	10	5 Details	5 Generate License
ERS8600 Premier LIC. (1 Chassis)	DS1410026	PR86A-NHD6 -JHST	A433226NT L63JHAU52	User Name user@nortel.com	2008-04-10	See Details	1	1 Details	0
ERS8600 Advanced LIC. (1 Chassis)	DS1410021	AD86A-6DM9 -JHST	9232226NX 493JHAU52	User Name user@nortel.com	2008-04-10	See Details	1	1 Details	0

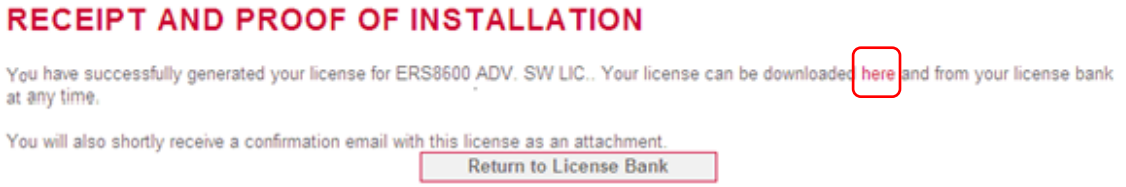
2 In the *Generate License* page enter the required information to create the advanced license and click *Generate License*:

Switch MAC Address	Enter the base MAC address of the Ethernet Routing Switch 8600 obtained using *show sys info* (CLI) or *show sys-info* (NNCLI) command.
File Name of list of MAC Addresses	An ASCII file containing multiple Ethernet Routing Switch 8600 base MAC addresses which that allows a license file to be generated with multiple MACs in one transaction: • One MAC address entry per line. • MAC addresses must be capitalized with each pair of characters separated by colons (XX:XX:XX:XX:XX:XX).
Output License File Name	The name of the license file that will be emailed when the license is generated. • Maximum of 63 alphanumeric characters. • No spaces or special characters allowed. • An underscore "_" is permitted. • A period followed by a three letter extension is required.

User Comment Fields	Free form text fields that allow additional information to be entered to provide for asset tracking.



3 A *Receipt and Proof of Installation* page will be displayed confirming the license file generation. The license file may be downloaded directly by clicking the *here* link. The license file and confirmation will also be sent via email.



An Ethernet Routing Switch 8600 license file name can use any file name or extension, however, if the license filename does not have an extenison of ".dat" and is not located in the "/flash" directory, the *bootconfig* choice *license* parameter must be specifed with the exact license filename and location.

The license filename must also be in lower case characters when installed on an ERS8600.

The license file is a compressed binary file. It is important that when downloading or saving this file, that your browser does not automatically decompress this file or you will receive an error when adding the license to the switch.

2.7.7 License Installation

2.7.7.1 For Software release v5.0 only

Although an ERS8600 license file can be generated using any name or extension on the Nortel electronic licensing portal, when the license file is copied (via TFTP) to the switch, it must have a file extension of ***.dat*** (for example: ers8600floor5.dat), AND be located in the **/flash** directory on the Master SF/CPU module. This is for release 5.0 software only.

NOTE: Also ensure the license filename is in lower case character format when copying the file to the ERS8600 switch.

If two SF/CPU modules are running, when the license is copied to the Master CPU module, the license file will automatically be copied to the Backup SF/CPU.

During the boot sequence, an Ethernet Routing Switch 8600 switch will look for a license file ending in ***.dat*** in the **/flash** directory. Licensed features will be unlocked and available for configuration when a valid license file is found.

A Nortel ERS8600 license may be installed using the Command Line Interface or Device Manager by performing one of the following procedures below:

2.7.7.2 For Software release v5.1 and above

ERS8600 release v5.1 supports different license file names and locations where a license file can be stored. A license file can be copied (via TFTP) to the switch and reside in the following locations: /flash, /pcmcia, or <a.b.c.d> (where a.b.c.d is the IP address of a TFTP server on the network).

If two SF/CPU modules are running, when the license is copied to the Master CPU module, the license file will automatically be copied to the Backup SF/CPU.

During the boot sequence (from v5.1), an ERS8600 will first use the *bootconfig* information for the license file name and location. If a license file name and location is not specified, by default the switch will look for a license file name ending with ***.dat*** in the **/flash** directory. Licensed features will be unlocked and available for configuration when a valid license file is found.

NOTE: If the license file does not have a file extension of ***.dat*** and it is not in the **/flash** directory, the *choice* parameter must be configured for the license file name and location in the *bootconfig* file. If you do not specify this information, you may encounter issues with your licensed features.

A Nortel ERS8600 license may be installed using the Command Line Interface or Device Manager by performing one of the following procedures below:

2.7.7.3 Command Line Interface:

To install a license file using CLI:

Using CLI issue the *copy* command from config to copy the license file to the switch:

```
ERS8600-1:5(config)# copy 10.10.10.20:ers8600floor5.dat
/flash/ers8600floor5.dat
```

After the license file has been successfully uploaded, you can issue the ***load-license*** command from CLI to activate licensed features immediately on an ERS8600 switch, or, you can reboot the switch to activate licensed features.

NOTE: An ERS8600 license file name must use lower case characters in the filename.

Installed licenses may be viewed in the CLI by issuing the ***show license*** command.

To minimize download and loss of data, Nortel recommends that the ***load-license*** command be issued from CLI to activate licensed features.

NOTE: Ensure the license filename uses lower case characters when being copied to the switch, and issue a ***save config*** command to save the system configuration.

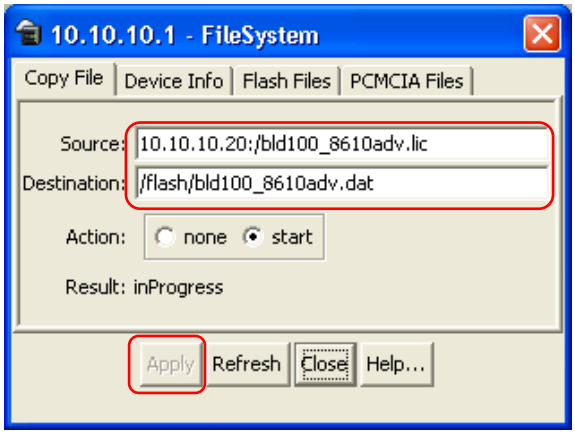
Alternatively, a system reboot can be scheduled during a normal maintenance window.

Refer to the Nortel Ethernet Routing Switch 8600 Administration Guide (*NN46205-605*), licensing fundamentals section, for more detailed license installation and configuration information.

2.7.7.4 Device Manager:

To install a new license file using Device Manager:

In Device Manager open the switch and select the Master SF/CPU module. In the main menu select *Edit* then *FileSystem*. Enter the tftp server IP address and source filename in the *Source* field and enter */flash* with license file name in the *Destination* field. Click *Apply*.



After the license file has been successfully uploaded, ensure the bootconfig file is configured with the license file name and location on the switch.

Installed licenses may be viewed in the CLI by issuing the ***show license all*** command.

2.7.8 License Configuration:

2.7.8.1 Command Line Interface:

To update the license filename and path information within *bootconfig* using CLI or NNCLI:

Using NNCLI enable the privExec and configuration mode and issue the *bootconfig choice <boot-choice> license-file <file>* command specify the source of the license file:

choice <boot-choice>	Specifies the order in which the specified boot path is accessed when the switch is rebooted: • primary • secondary • tertiary
license-file <file>	The source can be Flash, PCMCIA card, or a remote TFTP server: • /flash/<file_name> • /pcmcia/<file_name> • <a.b.c.d>:<file_name>

Native ERS8600 CLI:

ERS8600-1:5# ***config bootconfig choice primary license-file /flash/ers8600floor5.dat***

ERS8600 NNCLI:

ERS8600-1:5(config)# ***boot config choice primary license-file /flash/ers8600floor5.dat***

After the license file has been successfully uploaded and the bootconfig choice for the license file has been set, you can issue the "***load-license***" command from CLI for the licensed features to be immediately available on an ERS8600 switch, or, you can reboot the switch for the licensed features to be unlocked.

Installed licenses may be viewed in the CLI by issuing the ***show license all*** command.

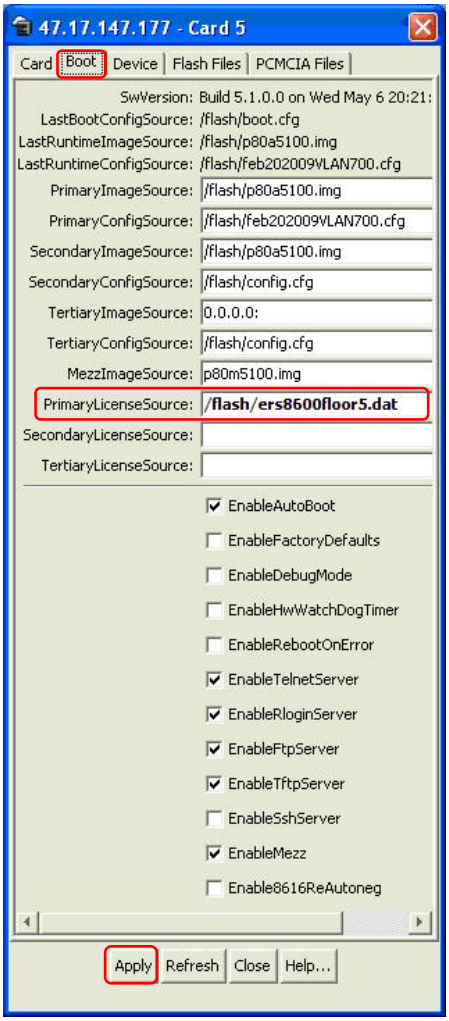
To minimize download and loss of data, Nortel recommends that the ***load-license*** command be issued from CLI to activate licensed features. NOTE: issue a ***save config*** command to save the system configuration.

Alternatively, a system reboot can be scheduled during a normal maintenance window.

2.7.8.2 Device Manager:

To define the location of a License file on an ERS8600 using Device Manager:

In Device Manager open the switch and select the master switch fabric. In the main menu select *Edit* then *Card*. Click the *Boot* tab and in the *PrimaryLicenseSource* field enter the path and name of the license file. Click *Apply*.



After the license file has been successfully uploaded and the bootconfig choice for the license file has been set, you can issue the "***load-license***" command from CLI for the licensed features to be immediately available on an ERS8600 switch, or, you can reboot the switch for the licensed features to be unlocked.

Installed licenses may be viewed in the CLI by issuing the ***show license all*** command.

To minimize download and loss of data, Nortel recommends that the ***load-license*** command be issued from CLI to activate licensed features. NOTE: issue a ***save config*** command to save the system configuration.

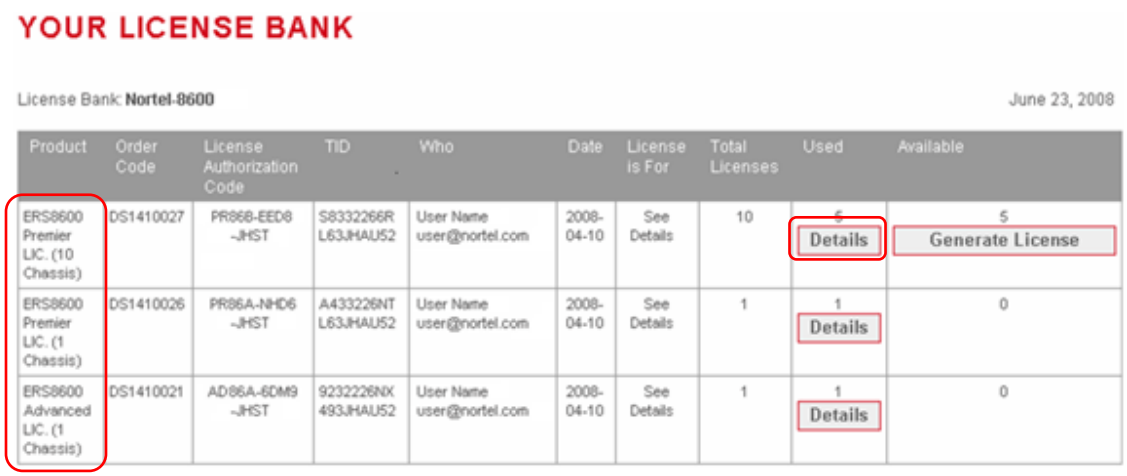
Alternatively, a system reboot can be scheduled during a normal maintenance window.

2.7.9 Replacing a Switch:

In the event of a switch failure, licenses may be transferred between Ethernet Routing Switch 8600 chassis using the following procedure:

NOTE: If you have multiple entries for the same license type, you will have to systematically check the LAC entry by clicking on the Details button and looking at the license file name in the transaction entries.

1 Access the *License Bank* page where the Advanced or Premier license was deposited. Locate the license for the Ethernet Routing Switch 8600 to be transferred and click *Details*:

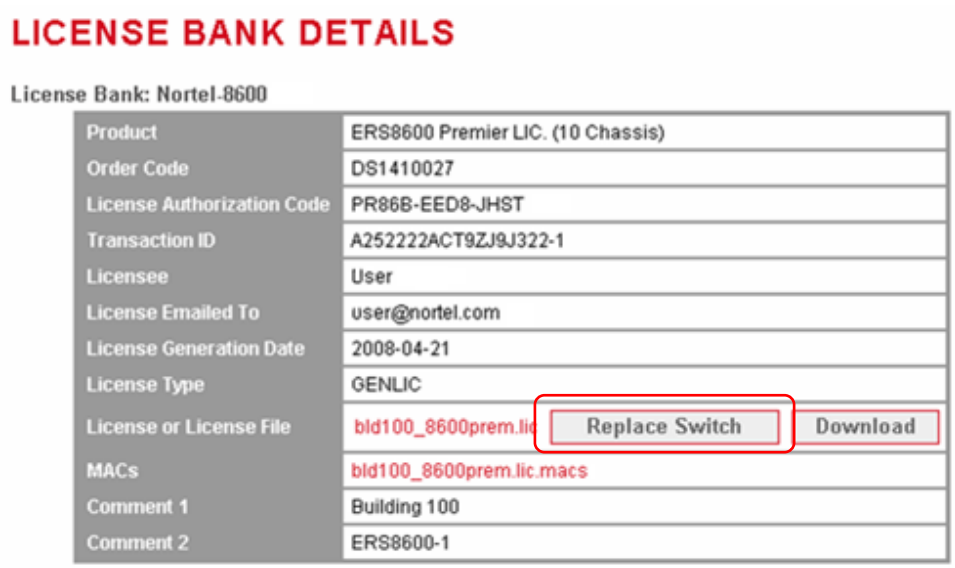


YOUR LICENSE BANK

License Bank: **Nortel-8600** June 23, 2008

Product	Order Code	License Authorization Code	TID	Who	Date	License is For	Total Licenses	Used	Available
ERS8600 Premier LIC. (10 Chassis)	DS1410027	PR86B-EED8-JHST	S8332266R L63JHAU52	User Name user@nortel.com	2008-04-10	See Details	10	5 Details	5 Generate License
ERS8600 Premier LIC. (1 Chassis)	DS1410026	PR86A-NHD6-JHST	A433226NT L63JHAU52	User Name user@nortel.com	2008-04-10	See Details	1	1 Details	0
ERS8600 Advanced LIC. (1 Chassis)	DS1410021	AD86A-6DM9-JHST	9232226NX 493JHAU52	User Name user@nortel.com	2008-04-10	See Details	1	1 Details	0

2 In the *License Bank Details* page, locate the license file for the Ethernet Routing Switch 8600 base MAC address to be transferred and click *Replace Switch*:

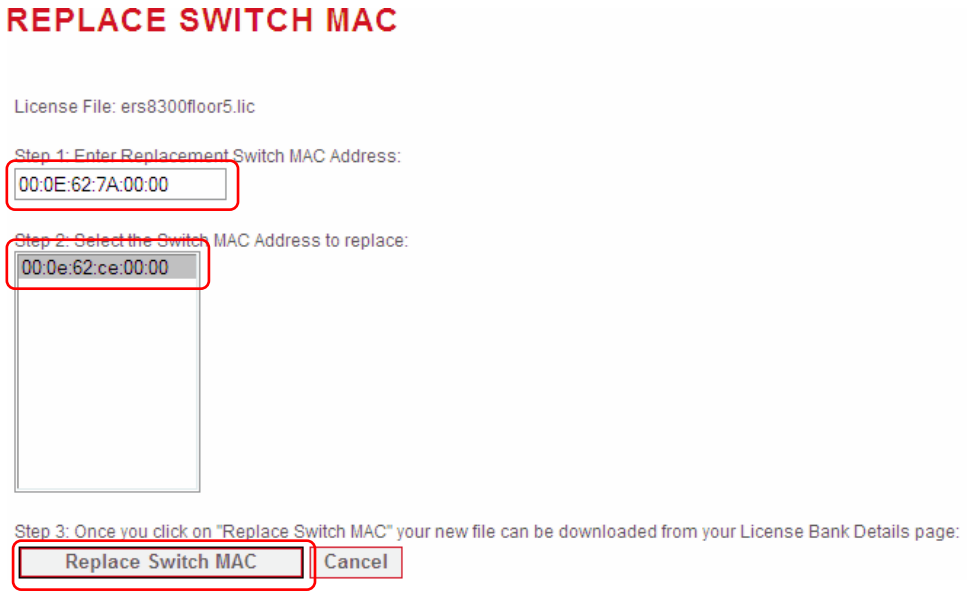


LICENSE BANK DETAILS

License Bank: Nortel-8600

Product	ERS8600 Premier LIC. (10 Chassis)
Order Code	DS1410027
License Authorization Code	PR86B-EED8-JHST
Transaction ID	A252222ACT9ZJ9J322-1
Licensee	User
License Emailed To	user@nortel.com
License Generation Date	2008-04-21
License Type	GENLIC
License or License File	bld100_8600prem.lic Replace Switch Download
MACs	bld100_8600prem.lic.macs
Comment 1	Building 100
Comment 2	ERS8600-1

3 **In the *Replace Switch MAC* page, enter the *Replacement Switch MAC Address* and select the *Switch MAC address to replace*. Click *Replace Switch*:**



Nortel has implemented limits so that a maximum of 10% of the MAC addresses per License Authorization Code may be swapped. For 1 and 10 unit LACs one MAC address may be swapped. For 50 and 100 unit LACs 5 or 10 swaps may be performed.

If the number of MAC address swaps has been exceeded an error message will be displayed. Customers will be required to contact Nortel's Technical Support to obtain a new License Activation Code.

2.7.10 License Configuration Scenarios

2.7.10.1 Upgrading from ERS8600 s/w release 5.0 to 5.1 with an existing license file

License files are not software release version specific. However, if upgrading an existing ERS8600 switch from release v5.0 to v5.1 that already has an Advanced or Premier license file installed, and you wish to use new licensed features in the new software release, you need to go to the Nortel Licensing Portal and download the same license file again and re-install it on the switch.

This step is required for all ERS8600 series Advanced or Premier license files generated before May 2009. Existing ERS8600 Advanced or Premier license files in the Nortel License Portal database were automatically updated just prior to software release v5.1.

It is not necessary to consume another license within the License Bank by generating a new license file. Simply locate the corresponding ERS8600 license file for the switch in question, and download it directly by clicking on the "Download" button in the transaction table within the License Bank Details screen. Remove the existing license from the corresponding switch using the *clear license* CLI command, then TFTP the license file re-downloaded onto the switch. Once the updated license file is installed, use the *load-license* CLI command or reboot the switch to activate the new features.

NOTE: Removing the license file will not de-activate license features on the switch, only after a rebooting the switch without a license file will licensed features be unavailable.

This task can be performed before or after the software upgrade to ERS8600 v5.1.

2.7.11 Trial License:

The Ethernet Routing Switch 8600 automatically provides a trial period of 60 days in which you can use all Advanced and Premier features from the time software release v5.1 is installed.

During the trial period, you can configure all features without restriction. System console and log messages alert you to the expiry of this trial leading up to the end of the 60 day period.

After the trial period is complete, you can no longer make configuration changes to licensed features. You can save the current running configuration; however, this configuration will not be loaded on the next reboot. To continue to use licensed features, you must purchase and install the appropriate license.

3. Security / VPN / WAN:

3.1 Secure Network Access:

The Nortel Secure Network Access Switch (SNAS) 4050 delivers endpoint security through unified access policy and network access control (NAC) for wired, wireless and mobile users. Acting as a centralized controller, it controls and automates network access for both managed and unmanaged users and devices. The SNAS 4050 is tightly integrated with network access elements to provide the Nortel Secure Network Access (SNA) solution. These network elements, including Nortel Ethernet Routing Switches, WLAN controllers, VPN Gateways and other third-party edge devices, deliver flexible infrastructure enforcement options including both VLAN and/or access control list traffic filters.

Nortel Secure Network Access Switch may be purchased using the following order code:

Order Code	Description
EB1639170E5	Secure Network Access Switch 4050 (Includes license for 200 concurrent endpoints)

Table 3.1 – Secure Network Access Switch Order Code

3.1.1 Licensing:

The Application Switches supports the following licensing levels:

Base	Access License
• 200 Concurrent Endpoints	• 100 Concurrent Endpoints • 250 Concurrent Endpoints • 500 Concurrent Endpoints • 1000 Concurrent Endpoints • 2000 Concurrent Endpoints • 5000 Concurrent Endpoints

Table 3.3.1 – Switch Network Access Switch Licensing Levels

3.1.2 Base Licensing:

The primary purpose of this solution is to provide role based network access based on user authentication and device compliance status. Concurrent authenticated device licenses can be purchased and installed. Examples of authenticated devices are:

- Personal Computers (Desktops or Laptop/Notebook)
- Nortel IP Telephones
- Any device using MAC authentication (printers, IP cameras etc.)

3.1.3 Access Licenses:

Release 1.6 ships with included user licenses for 200 authenticated devices. Additional device licenses are additive to these included licenses and each other.

Example: Purchasing a 500 user license will extend the total license count to 700 concurrent authenticated devices. If an additional 200 users license is purchased and installed the total license count will be extended to 900 authenticated devices.

Table 3.1.3 provides a list of access licenses available for Secure Network Access:

Order Code	Description
EB1639171	Secure Network Access License - Add 100 concurrent endpoints
EB1639172	Secure Network Access License - Add 250 concurrent endpoints
EB1639175	Secure Network Access License - Add 500 concurrent endpoints
EB1639182	Secure Network Access License - Add 1000 concurrent endpoints
EB1639183	Secure Network Access License - Add 2000 concurrent endpoints
EB1639184	Secure Network Access License - Add 5000 concurrent endpoints

Table 3.1.3 – Secure Network Access Licenses

3.1.4 License Keying and Methodology:

Access licenses are based on the MAC address of the Secure Network Access Switch appliance. Installed licenses can be viewed for each gateway using the ***/info/sys*** command and license allocation and usage may be viewed using the ***/info/license*** command. Each authenticated device (PC, IP Phone, Printer etc.) consumes a license.

The following tables provide an overview of the various Secure Network Access license usage scenarios:

Scenario	License Available	License Not Available
User connected	License not used	License not used
User authentication failed	License not used	License not used
User authentication succeeded	License used	User remains in RED
User logged out	License freed	
Port down	License freed	
Session manually terminated	License freed	

Table 3.1.4.1 – NSNA Portal & Installed Agent Mode License Allocation

Scenario	License Available	License Not Available
Phone connected	License used	License not used
Phone disconnected	License freed	
Port down	License freed	

Table 3.1.4.2 – NSNA Phone Registration License Allocation

Notes:

1. Phone sessions cannot be manually terminated
2. As long as the phone is connected a license will be consumed
3. A phone will be able to use the network even if a licenses is not available

Scenario	License Available	License Not Available
Device connected (MAC bypass)	License used Keep session until 4 or 6	Remain in default switch port state (RED)
Device connected (MAC black-list)	License used Keep session until 4 or 6	Remain in default switch port state (RED)
Device connected (MAC isolate)	License used Keep session until 4 or 6	Remain in default switch port state (RED) We would have disabled the port, if we had a license. Here this MAC gets more access when there is no license…
Port down	License freed.	
MAC aged out	No action	
Session manually terminated	License freed	

Table 3.1.4.3 – NSNA MAC Authentication License Allocation

3.1.5 High-Availability / Clustering:

Although licenses are keyed to individual Secure Network Access Switch, the licenses are pooled and shared within a cluster. If all cluster units are up and running, the total license user count for licenses are contributed to the global pool. If a unit fails, the license contribution from that unit will be available within the cluster for 30 days to allow for unit repair or replacement.

3.1.6 License Acquisition:

To purchase the license(s) contact your Nortel sales representative, or call 1-800-4NORTEL.

3.2 Secure Router:

Nortel Secure Router Portfolio enables secure end-to-end converged solutions. The Secure Routers combine robust IP routing, flexible WAN connectivity and security in a single cost-effective device. Ideal for enterprise branch, remote or regional site environments, Nortel Secure Routers are optimized to deliver the low-latency, high packet throughput required by IP telephony and multimedia applications. Providing wire-speed performance even with advanced WAN services enabled, they are the right solution for enterprises requiring high-speed Internet or private WAN connectivity.

Secure Routers are available in the following models in a number of different configurations and bundles:

Models	Description
Secure Router 1001 – 1001S	The Nortel Secure Router 1001 is suitable for use in enterprise remote sites, branch offices or in any location needing a direct Internet connection. Featuring a single T1/E1 port, the Secure Router 1001 packs a powerful punch in a feature-packed platform that can scale from fractional T1/E1 to wire-speed T1/E1 bandwidth, even when delivering small packets and after enabling advanced services. Optional ISDN BRI backup provides high resiliency.
Secure Router 1002	Nortel Secure Router 1002 provides high performance WAN access for enterprise branch offices and remote sites. This versatile platform provides a single T1 or E1 port plus the ability to upgrade to two-port (T1/E1) capacity. The Secure Router 1002 provides unparalleled performance and advanced software functionality in a compact, highly reliable platform.
Secure Router 1004	Nortel Secure Router 1004 provides high performance WAN access for enterprise branch offices and remote sites. This versatile platform provides a single T1 or E1 port plus the ability to upgrade to four-port (T1/E1) capacity. The Secure Router 1004 provides unparalleled performance and advanced software functionality in a compact, highly reliable platform.
Secure Router 3120	The Nortel Secure Router 3120 is a powerful modular system that converges routing, security and multimedia traffic forwarding in a single cost-effective platform for enterprises. Delivering fast, secure, reliable and scalable wide area network (WAN) access, the Secure Router 3120 is perfect for enterprises requiring high-speed IP or Internet access.
Secure Router 4134	The Nortel Secure Router 4134 is the newest member of the Secure Router family delivering on the promise of the unified branch. Its modular design supports a range of advanced network services – including IPv4/IPv6 routing, high-performance WAN, high-density Ethernet switching, Power over Ethernet, Voice over IP (VoIP) and security – in a single integrated platform.

Table 3.2 – Secure Router Models

3.2.1 Licensing:

The Secure Router portfolio supports the following licensing levels:

Base	VPN	T1/E1
• BGP • IPsec VPN (Certain Bundles) • Multicast • OSPF • QoS • RIPv1/v2 • Stateful Firewall • VLAN	• Secure Router 1001/1001S – 100 VPN Tunnels • Secure Router 1002 – 100 VPN Tunnels • Secure Router 1004 – 100 VPN Tunnels • Secure Router 3120 – 1,000 VPN Tunnels • Secure Router 4134 – 1,000 VPN Tunnels	• Secure Router 1002/1004 1 T1/E1 Port Upgrade • Secure Router 1002/1004 2 T1/E1 Port Upgrade • Secure Router 1002/1004 3 T1/E1 Port Upgrade

Table 3.2.1 – Secure Router Licensing Levels

3.2.2 Base License:

A base license is included with the purchase of each Secure Router and provides BGP, Multicast, OSPF, QoS, RIP, Stateful Firewall and VLAN support at no additional cost. Additionally bundles may be purchased which include IPsec VPN support as well as a specific number of active T1/E1 ports.

3.2.3 VPN License:

The Secure Router 1001/1001S, 1002, 1004, 3120, and 4134 supports VPN license option as an upgrade to enable IPsec VPN functionality.

The Secure Router 4134 does not require a VPN License to enable VPN support but does require the VPN internal module for IPSec VPN to function.

Table 3.2.3 provides a list of VPN licenses available for the Secure Router 1001/1002/1004, 3120 and 4134:

Order Code	Description
SR2116002	Secure Router 1001/1001S VPN Upgrade for 100 VPN tunnels
SR2116003	Secure Router 1002 VPN Upgrade for 100 VPN tunnels
SR2116005	Secure Router 1004 VPN Upgrade for 100 VPN tunnels
SR2116012	Secure Router 3120 VPN Upgrade for 1,000 VPN tunnels
SR0000024E5	Secure Router 4134 High Performance IPsec VPN Encryption Module (Includes 1,000 VPN tunnels)

Table 3.2.3 – Secure Router VPN Licenses

3.2.4 T1/E1 License:

The Secure Router 1002/1004 can be ordered with a limited number of activated T1/E1 ports depending on the customer's requirement. In case the customer has a need to add additional T1/E1 port(s), a T1/E1 upgrade license may be purchased to activate the remaining available T1/E1 port(s) on the Secure Router unit.

Table 3.2.4 provides a list of T1/E1 licenses available for the Secure Router 1002/1004:

Order Code	Description
SR2116004	SR1002 Upgrade to 1 additional T1/E1 port (2 configured ports maximum)
SR2116006	SR1004 Upgrade to 1 additional T1/E1 port (4 configured ports maximum)
SR2116007	SR1004 Upgrade to 2 additional T1/E1 port (4 configured ports maximum)
SR2116008	SR1004 Upgrade to 3 additional T1/E1 port (4 configured ports maximum)

Table 3.2.4 – Secure Router T1/E1 Licenses

3.2.5 License Keying and Methodology:

Advanced licenses are based on the model and serial number of the Secure Router.

The model number and serial number for a Secure Router may be obtained by CLI using the following procedure:

Using CLI enable the configuration mode and issue the *show system configuration* command:

```
sr1001/configure > show system configuration
System Configuration:
-----------------------------------------------
Hardware Status:

DRAM quantity:          128MB
DRAM type:              SDRAM
Flash:                  16MB
Model Number:           1001
Serial Number:          10010AF3D6310183
Processor ID:           NEC VR4133
FPGA Revision Id:       17.4
HW Assembly Revision:   A
PCB Revision:           A
```


3.2.6 Third-Party Licensed Features:

Secure Router supports SafeNet VPN client which is third party software. A third-party license is necessary which can be acquired through Nortel's partner SafeNet Inc at http://www.safenet-inc.com.

3.2.7 License Acquisition Process:

A Secure Router VPN and T1/E1 port licenses can be obtained using the following procedure:

1. Contact your or authorized reseller, Nortel Sales representative or Nortel Customer Support and purchase the VPN or T1/E1 port license.

   In North America, Global Nortel Technical Support can be contacted at 1-800-4NORTEL (1-800-466-7835). For phone numbers outside of North America, see http://www.nortel.com/callus.

2. Contact Nortel by sending e-mail to nortel0118@gwsmail.com. The e-mail needs to include the following information:
   - Company name, address, contact name, phone number and email address.
   - Product order code for the software license you purchased
   - Model and serial number or the Secure Router (obtained using the ***show system configuration*** command)
   - For the T1/E1 port upgrade also indicate how many T1/E1 ports are already active in the unit.
3. Nortel will verify the validity of the request and reply to the e-mail with a license key that is unique to the provided Secure Router serial number.

The license key is directly associated with the Secure Routers serial number so be sure to provide the correct serial number in order to receive a valid license key.

3.2.8 VPN License Installation:

A VPN license may be installed using the command line interface by performing the following procedure:

1 Using CLI enable the configuration mode and issue the *system licenses advanced_vpn* command followed by the license key:

sr1001/configure > ***system licenses advanced_vpn <license-key>***

The license key is case sensitive.

After the license key has been successfully uploaded, you will need to reboot the Secure Router for the license to take effect.

Installed licenses may be viewed in the CLI by issuing the ***show system licenses*** command.

To minimize download and loss of data, Nortel recommends that the system reboot be scheduled during a normal maintenance window.

3.2.9 T1/E1 License Installation:

A T1/E1 license may be installed on a SR1002/1004 using the command line interface by performing the following procedure:

1 Using CLI enable the configuration mode and issue the *system licenses enable_X_ports* command followed by the license key where *X* is the number of T1/E1 ports to be activated:

sr1001/configure > ***system licenses enable_1_ports <license-key>***

The license key is case sensitive.

After the license key has been successfully uploaded, you will need to reboot the Secure Router for the license to take effect.

Installed licenses may be viewed in the CLI by issuing the ***show system licenses*** command.

To minimize download and loss of data, Nortel recommends that the system reboot be scheduled during a normal maintenance window.

3.3 Switched Firewall:

The Switched Firewall Portfolio provides enterprise class stateful firewall protection. This portfolio is made up of the Switched Firewall products which protect network applications, services and multimedia (VoIP and video) applications from hackers, attacks, worms and viruses in IT data centers, service provider networks and hosting infrastructures.

The Switched Firewall, based on Check Point Firewall-1 technology, also leverages Check Point Secure XL technology for high performance acceleration. This is ideal for voice and multimedia environments. The Switched Firewall delivers excellent price/performance, 99.999% availability and world-class expertise and support for deployment into business critical, next-generation networks.

The Nortel Switched Firewall is available in the following series:

- Switched Firewall 5100 Series – The Nortel Switched Firewall 5100 series is ideal for standalone deployments at small or medium sized sites, and provides a platform that is network-based, highly reliable, and able to grow to support increased demand and new services.

Switched Firewall 6000 Series – The Switched Firewall 6000 Series performs accelerated deep-packet inspection and is ideal for large enterprise, data center and service provider deployment.

3.3.1 Licensing Information:

The Nortel Switched Firewall (NSF) family uses licenses provided by CheckPoint. For complete details please see the CheckPoint R61 Licensing Guide for Nortel Switched Firewall available on the Security and Application Intelligence VTEAM site here:

- http://cdnlive.ca.nortel.com/livelink/livelink.exe/open/3261887

Note that Nortel does not sell the CheckPoint licenses required for NSF deployment. This must be purchased from a CheckPoint partner. A Partner locator is available at:

- http://partners.us.checkpoint.com/partnerlocator/

3.4 Threat Protection System:

The Intrusion Prevention portfolio provides enterprise class intrusion detection and prevention (IDS/IPS), protecting networks against hackers, vulnerabilities, worms and viruses. This portfolio is made up of the Threat Protection System (TPS) which incorporates key technology from Sourcefire. As a recognized world leader in real-time threat defense solutions, Sourcefire technology utilizes Snort, the open source intrusion detection engine.

The Threat Protection System appliances may be purchased using the following order codes:

Order Code	Description
EB1639155E5	Threat Protection System 2150-IS (Intrusion Sensor).
EB1639156E5	Threat Protection System 2170-IS (Intrusion Sensor).
EB1639158E5	Threat Protection System 2150-TI (Threat Intelligence Sensor).
EB1639159E5	Threat Protection System 2170-TI (Threat Intelligence Sensor).
EB1639142E5	Nortel Threat Protection System 2070-DC (Defense Center).

Table 3.4 – Threat Protection System Order Codes

3.4.1 Licensing:

The Threat Protection System supports the following licensing levels:

Real-Time Threat Intelligence	Real-Time User Identity	Netflow	IPS Upgrade
• 0 to 511 nodes • 512 to 1023 nodes • 1024 to 2047 nodes • 2048 to 4095 nodes • 4095 to 8191 nodes • 8192 to 16,383 nodes • 16,384 to 32,767 nodes • 32,768 plus nodes	• 0 to 511 unique ID's • 512 to 1023 unique ID's • 1024 to 2047 unique ID's • 2048 to 4095 unique ID's • 4095 to 8191 unique ID's • 8192 to 16,383 unique ID's • 16,384 to 32,767 unique ID's • 32,768 plus unique ID's	• 15 NetFlow devices • 16 to 31 NetFlow devices • 32 to 63 NetFlow devices • 64 to 127 NetFlow devices • 128 plus NetFlow devices	• 2050TI sensor • 2070TI sensor

Table 3.4.1 – Threat Protection System Licensing Levels

3.4.2 Base License:

There are no included licenses with the Threat Protection Defense Center or Intrusion Sensor and each individual component requires a base license key which must be installed to complete the installation process.

3.4.3 Real-Time Threat Intelligence License:

The Real-Time Threat Intelligence license may be installed on and Defense Center and are shared between all the Intrusion Sensors it manages. The Real-Time Threat Intelligence license enables the passive monitoring and analysis or the organization to provide a complete network profile. The Real-Time Threat Intelligence license is based on the number of nodes that are to be analyzed and requires a corresponding host license to be installed on the Defense Center.

When purchasing a Real-Time Threat Intelligence license, the base license kit (EB1639168) must also be ordered at zero cost.

Table 3.4.3 provides a list of Real-Time Threat Intelligence license kits available for the Defense Center:

Order Code	Description
EB1639168	BASE KIT TPS-RTI License for EB1639160 to EB1639167.
EB1639160	TPS-RTI-5: Real-time Threat Intelligence License - up to 511 nodes Listed price is price per node.
EB1639161	TPS-RTI-10: Real-time Threat Intelligence License - 512 to 1023 nodes Listed price is price per node.
EB1639162	TPS-RTI-20: Real-time Threat Intelligence License - 1024 to 2047 nodes. Listed price is price per node.
EB1639163	TPS-RTI-40: Real-time Threat Intelligence License - 2048 to 4095 nodes Listed price is price per node.
EB1639164	TPS-RTI-80: Real-time Threat Intelligence License - 4096 to 8191 nodes. Listed price is price per node.
EB1639165	TPS-RTI-160: Real-time Threat Intelligence License - 8192 to 16383 nodes. Listed price is price per node.
EB1639166	TPS-RTI-320: Real-time Threat Intelligence License - 16384 to 32767 nodes. Listed price is price per node.
EB1639167	TPS-RTI-Plus: Real-time Threat Intelligence License - 32768 plus nodes. Listed price is price per node.

Table 3.4.3 – Threat Protection Threat Intelligence License Kit

3.4.4 Real-Time User Identity License:

The Real-Time User Identity license may be installed on and Defense Center and are shared between all the Intrusion Sensors it manages. The Real-Time User Identity license enables the Defense Center to associate host IP addresses with security policy events. This allows the Defense Center to provide user based policies and identify users associated with an exploited host, network security events, and/or compliance violations.

The Real-Time User Identity license is based on the number of nodes that are to be analyzed and requires a corresponding host license to be installed on the Defense Center.

When purchasing a Real-Time User Identity license, the base license kit (EB1639190) must also be ordered at zero cost.

Table 3.4.4 provides a list of Real-Time User Identity license kits available for the Defense Center:

Order Code	Description
EB1639190	BASE KIT TPS-User Identity License for EB1639212 to EB1639219.
EB1639212	Real-time User Identity License for the Threat Protection System. Supports up to 511 Unique ID's.
EB1639213	Real-time User Identity License for the Threat Protection System. Supports between 512 to 1023 Unique ID's.
EB1639214	Real-time User Identity License for the Threat Protection System. Supports between 1024 to 2047 Unique ID's.
EB1639215	Real-time User Identity License for the Threat Protection System. Supports between 2048 to 4095 Unique ID's.
EB1639216	Real-time User Identity License for the Threat Protection System. Supports between 4096 to 8191 Unique ID's.
EB1639217	Real-time User Identity License for the Threat Protection System. Supports between 8192 to 16383 Unique ID's.
EB1639218	Real-time User Identity License for the Threat Protection System. Supports between 16384 to 32767 Unique ID's.
EB1639219	Real-time User Identity License for the Threat Protection System. Supports between 32768 plus unique ID's.

Table 3.4.4 – Threat Protection User Identity License Kit

3.4.5 NetFlow License:

The NetFlow license may be installed on and Defense Center and are shared between all the Intrusion Sensors it manages. The NetFlow license enables the Defense Center to collect IP traffic information from NetFlow enabled devices and uses the records to supplement the data gathered by Real-Time Threat Intelligence.

The NetFlow license is based on the number of NetFlow enabled devices that are to be analyzed and requires a corresponding host license to be installed on the Defense Center.

When purchasing a NetFlow license, the base license kit (EB1639191) must also be ordered at zero cost.

Table 3.4.5 provides a list of NetFlow license kits which are available for the Defense Center:

Order Code	Description
EB1639191	BASE KIT TPS-NetFlow License for EB1639207 to EB1639211.
EB1639207	NetFlow license for the Threat Protection System. Supports up to 15 NetFlow devices.
EB1639208	NetFlow license for the Threat Protection System. Supports between 16-31 NetFlow devices.
EB1639209	NetFlow license for the Threat Protection System. Supports between 32-63 NetFlow devices.
EB1639210	NetFlow license for the Threat Protection System. Supports between 64-127 NetFlow devices.
EB1639211	NetFlow license for the Threat Protection System. Supports 128 plus NetFlow devices.

Table 3.4.5 – Threat Protection NetFlow License Kit

3.4.6 Intrusion Prevention System Upgrade License:

In release 4.7 and above an Intrusion Prevention System Upgrade license may be installed on a 2050TI / 2070TI Sensor to enable Intrusion Sensor functionality.

Table 3.4.6 provides a list of Intrusion Prevention System license kits which are available for the 2050TI and 2070TI sensors:

Order Code	Description
EB1639223	License to add IPS functionality to a 2050TI sensor.
EB1639224	License to add IPS functionality to a 2070TI sensor.

Table 3.4.6 – Threat Protection IPS License Kit

3.4.7 License Keying and Methodology:

Defense Center and Intrusion Sensor licenses are based on the appliances MAC address. The appliance MAC address is provided in the ***License Key*** field in the ***Manage License*** page during installation but is also accessible at any time using the Browser Based Interface (BBI). The License Key consists of a two digit prefix to identify the model and MAC address of the appliance and must be provided to Nortel to obtain base and feature licenses.

Table 3.4.7.1 provides the two digit prefix for the Threat Protection Defense Center and Intrusion Sensor appliances for release 4.7 and below:

MAC Prefix	Appliance Model
33	Threat Protection System 2150-IS (Intrusion Sensor).
34	Threat Protection System 2170-IS (Intrusion Sensor).
35	Threat Protection System 2070-DC (Defense Center).
39	Threat Protection System 2150-TI (Threat Intelligence Sensor).
40	Threat Protection System 2170-TI (Threat Intelligence Sensor).
41	Service Delivery Module Card with Threat Protection System.

Table 3.4.7.1 – Release 4.7 and Below Prefixes

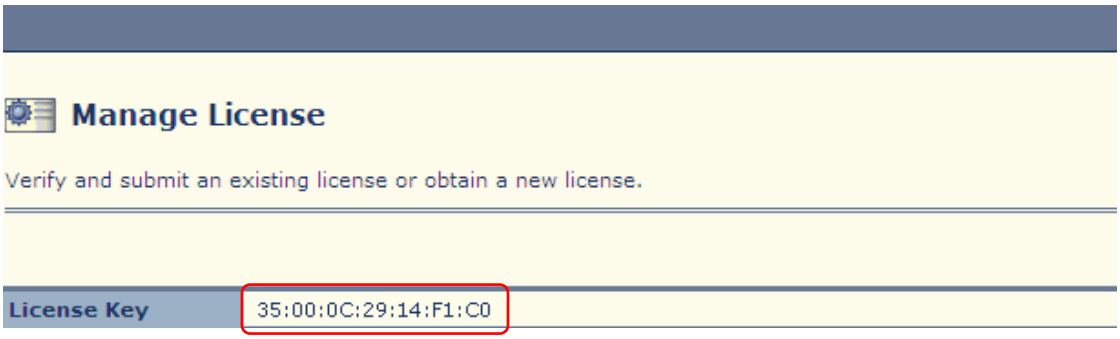
Table 3.4.7.2 provides the two digit prefix for the Threat Protection Defense Center and Intrusion Sensor appliances for release 4.7 and above:

MAC Prefix	Appliance Model
25	Threat Protection System 2150-IS (Intrusion Sensor).
03	Threat Protection System 2170-IS (Intrusion Sensor).
02	Threat Protection System 2070-DC (Defense Center).
25	Threat Protection System 2150-TI (Threat Intelligence Sensor).
03	Threat Protection System 2170-TI (Threat Intelligence Sensor).
41	Service Delivery Module Card with Threat Protection System.

Table 3.4.7.1 – Release 4.7 and Above Prefixes

The License Key of a Defense Center or Sensor may be obtained by the Browser Based Interface (BBI) using the following procedure:

Using the BBI access the *Manage License* page which is presented during the Defense Center and Sensor installation. Alternatively the License Key may be obtained at any time by clicking *Operations, System Settings, License* and modifying one of the installed licenses.



3.4.8 Base License Acquisition Process:

A Base license can be obtained for a Defense Center or Intrusion Sensor during installation using the following procedure:

1. On the Manage License page perform one of the following:
    a. Copy the License Key string and manually generate an email request to keyrequest@nortel.com with the License Key string provided in the e-mail body.
    b. Click the URL ***If your web browser supports sending e-mail, click here to send a license request to keyrequest@nortel.com***. This will automatically open the e-mail client on the host and generate a license request which includes the License Key string in the email body to keyrequest@nortel.com.
2. Nortel will email a base license key for the appliance which can be pasted into the License field to activate the appliance.

The process for obtaining the license key requires a host with a web browser and email client with access the Internet.

3.4.9 Feature License Acquisition Process:

When a Real-Time Threat Intelligence, Real-Time User Identity, NetFlow and IPS Upgrade license is purchased, a license certificate will be mailed to the customer that includes printed instructions and a 12 digit authorization code.

A Real-Time Threat Intelligence, Real-Time User Identity, NetFlow and IPS Upgrade license can be obtained using the following procedure:

1. Generate a email request to nortel0118@gwsmail.com with the following information contained within the email body:
    a. The 12 digit authorization code
    b. The License Key string of the Defense Center or Intrusion Sensor.
2. Nortel will email a base license key for the appliance which can be pasted into the License field to activate the appliance.

The process for obtaining the license key requires a host with a web browser and email client with access the Internet.

3.4.10 Base License Installation:

A base license is required for the Defense Center and Intrusion Sensor and must to be installed during the Browser Based Interface (BBI) initialization wizard. A base license can be installed on a Defense Center and Intrusion Sensor during the initialization using the following procedure:

On the *Manage License* page, paste the base license provided by Nortel into the provided *License* field and click *Submit License*:

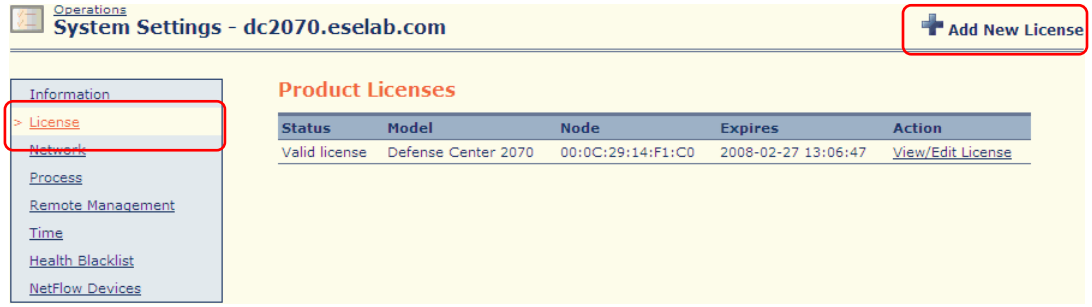
You may verify that the license is valid before submitting the by clicking Verify License.

3.4.11 Feature License Installation:

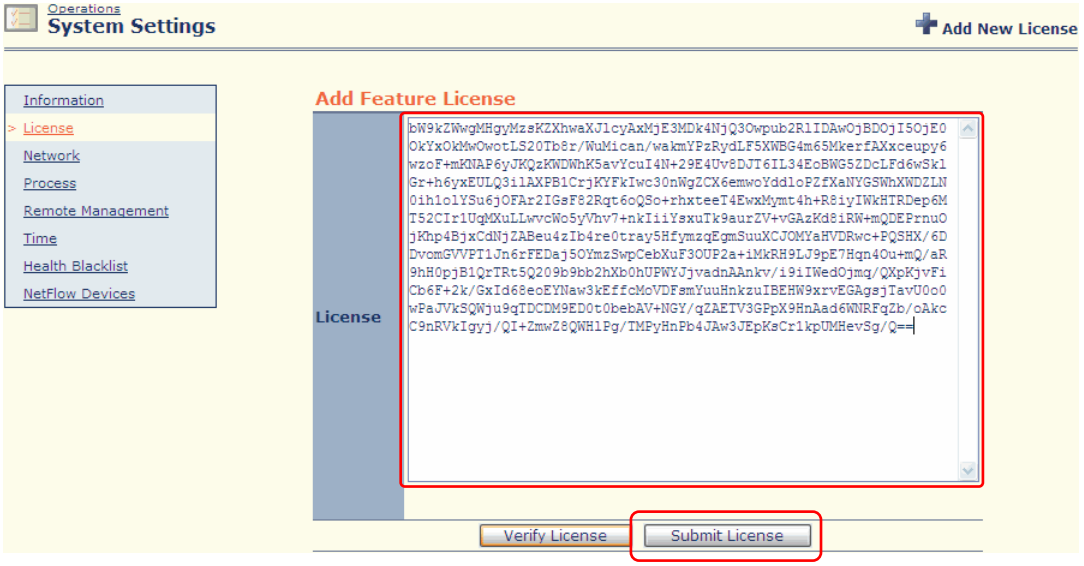
The MAC address of a Defense Center or Intrusion Sensor may be obtained by NNCLI using the following procedure:

1 **In the Defense Center / Sensor BBI select *Operations* and then *System Settings*.**

2 **In the *System Settings* page click *Licenses*. Add a new feature license by clicking *Add New License*.**



3 **In the *Add Feature License* page, paste the feature license provided by Nortel into the *License* field and click *Submit License*.**



You can verify that the license is valid before submitting the by clicking ***Verify License***.

3.5 VPN Gateway, VPN 1000 Module & 2424-SSL:

The Nortel VPN Gateway portfolio is an SSL VPN remote access security solution that extends the reach of enterprise applications to remote/mobile employees, contractors, partners and customers. VPN Gateway leverages the native capability of widely deployed SSL enabled Web browsers. It also provides flexible access options including browser based, on demand and installed SSL clients, and IPsec client support. Its comprehensive set of security features protects enterprises from malware attacks and prevents loss or theft of confidential information. With high performance, high availability, and scalability features, this product ensures business continuity. As a result, the Nortel VPN Gateway offers the most flexible and cost effective secure remote access solution on the market today.

The VPN Gateway, VPN 1000 Module & 2424-SSL may be purchased using the following order codes:

Order Code	Description
EB1639092E5	VPN Gateway 3050 - Fixed configuration-1U - Four 10/100/1000 ports. 50 User SSL VPN/IPsec license included.
EB1639121E5	VPN Gateway 3070 - Fixed configuration-1U - Four 10/100/1000 copper ports. 50 user SSL VPN/IPsec license included.
EB1639124E5	VPN Gateway 3070 - Fixed configuration-1U - Two 10/100/1000 copper ports and two gigabit fiber ports. 50 user SSL VPN/IPsec license included.
DM0011142	SSL VPN 1000 Module (FIELD INSTALL) for use in the VPN Router 1740/1750/2700/5000 only (128 bit).
DM0011143	SSL VPN 1000 Module (FACTORY INSTALL) for use in the VPN Router 1740/1750/2700/5000 only (128 bit).
EB1412028E5	Nortel Application Switch 2424-SSL (AC) – 1U rack-mountable – 24 x 10/100 plus 4 x GE (SFP). 50 user SSL VPN/IPsec license included.

Table 3.5 – VPN Gateway, VPN 1000 Module & 2424-SSL Order Codes

3.5.1 Licensing:

The VPN Gateway, VPN 1000 Module & 2424-SSL supports the following licensing levels:

Base	Feature	VPN User	SSL On Demand Protection
• 50 concurrent IPsec or SSL users • 50 IPSec only users • 50 SODP sessions (VPN Gateway Only)	• Secure Service Partitioning (VPN Gateway Only) • Portal Guard (VPN Gateway Only)	• Additional 50, 100, 250, 500, 1000, 2000 & 5000 SSL-VPN/IPsec users • Additional 50, 250 & 1000 IPSec only users	• Additional 50, 100, 250, 500, 1000, 2000 & 5000 SODP sessions

Table 3.5.1.1 – VPN Gateway, VPN 1000 Module & 2424-SSL Licensing Levels

Table 3.5.1.2 provides a summary of platform support for each of the licensed features:

	SSL / IPSec VPN	Secure Service Partitioning	Portal Guard	SSL On Demand Protection
VPN Gateway 3050 / 3070	X	X	X	X
VPN 1000 Module	X			X
2424-SSL	X			X

Table 3.5.1.2 – Licensed Feature Support Matrix

3.5.2 Base Licensing:

A base license is included with the purchase of each VPN Gateway, VPN 1000 module and Application Switch 2424-SSL and includes support for 50 SSL-VPN/IPsec and 50 IPsec-only connections. SSL-VPN/IPsec licenses can be used for either access method, therefore the base licenses allows for 50 SSL-VPN and 50 IPsec users or up to 100 IPsec users. Customers planning to migrate from IPsec to SSL-VPN access should purchase the SSL-VPN/IPsec user licenses. If SSL-VPN is not required, lower-cost IPsec-only licenses can be used. Additional user licenses are additive to these included licenses and each other.

3.5.3 Feature Licensing

The VPN Gateway, VPN 1000 Module and 2424-SSL requires an advanced license to enable the following features:

- Secure Service Partitioning: Provides the ability to partition a cluster of VPN Gateways into separate VPNs. This allows service providers to host multiple VPN end-customers on a shared Remote Access Services (RAS) platform. The Secure Service Provisioning feature is only supported on the VPN Router 3050 / 3070 platforms.
- Portal Guard: Used to "convert" an existing HTTP site to generate HTTPS links, secure cookies etc. The VPN Gateway will not only handle the SSL processing but also see to it that all existing web links are rewritten to HTTPS. This eliminates the need to rewrite each link manually. The Portal Guard feature is only supported on the VPN Router 3050 / 3070 platforms.

Feature licenses much be installed on each unit in a VPN Gateway cluster.

Table 3.5.3 provides a list of Feature licenses which are available for the VPN Gateway, VPN 1000 Module and 2424-SSL:

Order Code	Description
EB1639126	Secure Service Partitioning – Gateway Virtualization and Management
EB1639150	Portal Guard – Secures Enterprise web portals and improves performance

Table 3.5.3 – Feature License Kits

3.5.4 VPN User Licenses:

The VPN Gateway, VPN 1000 Module and Application Switch 2424-SSL ships with 50 SSL and 50 IPsec licenses. Additional SSL and IPsec licenses may be purchased and are additive. For example purchasing a 1000 user SSL & IPsec license will extend the total SSL & IPsec VPN license count to 1050 concurrent users.

Table 3.5.4 provides a list of VPN license kits which are available for the VPN Gateway, VPN 1000 Module and 2424-SSL:

Order Code	Description
EB1639096	SSL VPN & IPsec – 50 User License.
EB1639055	SSL VPN & IPsec – 100 User License.
EB1639056	SSL VPN & IPsec – 250 User License.
EB1639057	SSL VPN & IPsec – 500 User License.
EB1639064	SSL VPN & IPsec – 1000 User License.
EB0016001	SSL VPN & IPsec – 2000 User License.
EB0016002	SSL VPN & IPsec – 5000 User License.
EB1639125	IPsec License – 250 User License.
EB1639122	IPsec License – 500 User License.
EB1639123	IPsec License – 1000 User License.

Table 3.5.4 – VPN License Kits

Licenses may be used for either SSL or IPsec users. If there are no available IPsec licenses, an available SSL user license will be used to admit the IPsec user.

3.5.5 Emergency Remote Access Licenses:

As of release 6.0.5 and higher, Emergency Remote Access licensing is available to provide licensing for a larger number of users than normally required such as in the event of a natural disaster, pandemic or other emergency. These Emergency Remote Access licenses provide additional capacity for temporary use at a significant discount. The Emergency Remote Access licenses provide the higher concurrent user capacity for 60 days and then must be reset using the RMA process.

The capacity of the base platform cannot be exceeded. The VPN Gateway 3050 supports up to 2000 users and the VPN Gateway 3070 supports up to 5000 users. See section 3.5.8 for additional details on this type of deployment.

Table 3.5.5 provides a list of Emergency Remote Access licenses which are available for the VPN Gateway, VPN 1000 Module and 2424-SSL:

Order Code	Description

EB0016010	ERA License: SSL and IPsec VPN Emergency Remote Access - 500 Users
EB0016011	ERA License: SSL and IPsec VPN Emergency Remote Access - 1000 Users
EB0016012	ERA License: SSL and IPsec VPN Emergency Remote Access - 2000 Users
EB0016013	ERA License: SSL and IPsec VPN Emergency Remote Access - 5000 Users

Table 3.5.5 – Emergency Remote Access License Kits

3.5.6 SSL On Demand Protection Licenses:

Nortel VPN Gateway SSL On Demand Protection prevents confidential information from being stored on unmanaged PCs after the VPN session is ended. Since all information stored on PCs during a session is encrypted on the hard drive, files cannot be accessed even if the user is disconnected in the middle of a session. SODP can also prevent unauthorized printing or saving of information to attached storage or flash memory devices.

SSL On Demand Protection is integrated on the VPN Gateway and is licensed on a concurrent user basis. No backend servers or per-seat licensing are required. A license for 50 concurrent users is included free with new VPN Gateway platforms.

Table 3.5.6 provides a list of Symantec On Demand licenses which are available for the VPN Gateway, VPN 1000 Module and 2424-SSL:

Order Code	Description
EB0016003	SSL VPN On Demand Protection 50 User License.
EB0016004	SSL VPN On Demand Protection 100 User License.
EB0016005	SSL VPN On Demand Protection 250 User License.
EB0016006	SSL VPN On Demand Protection 500 User License.
EB0016007	SSL VPN On Demand Protection 1,000 User License.
EB0016008	SSL VPN On Demand Protection 2,000 User License.
EB0016009	SSL VPN On Demand Protection 5,000 User License.

Table 3.5.6 – VPN License Kits

3.5.7 License Keying and Methodology:

License keys are based on the MAC address of the VPN Gateway, VPN 1000 Module and the MAC address of the Internal SSL processor on the Application Switch 2424-SSL.

The MAC address or a VPN Gateway and VPN 1000 Module may be obtained using the following procedure:

Connect to the VPN Gateway, VPN 1000 Module and issue the */info/local* command:

```
>> Main# info/local

Nortel VPN Gateway
```



```
Hardware platform: 3070
Software version 7.0.1
Up time: 22 days 4 hours 6 minutes
IP address: 192.168.128.185
MAC address: 00:01:02:b1:0d:14
```

The MAC address or the Internal SSL Processor on the Application Switch 2424-SSL may be obtained using the following procedure:

Connect to the Application Switch 2424-SSL console and issue the *info/sys/general* command:

```
>> Main# /info/sys/general

System Information at 14:00:35 Tue Nov 14, 2007
Time zone: America/Canada/Eastern-Thunder (GMT offset -5:00)

Nortel Application Switch 2424-SSL

Switch is up 61 days, 18 hours, 1 minute and 23 seconds.
Last boot: 20:00:53 Wed Sep 13, 2007 (unknown reason or power cycle)
Last apply:  7:55:49 Mon Nov 13, 2007
Last save:  7:55:52 Mon Nov 13, 2007

MAC Address: 00:01:81:2e:a2:50    IP (If 1) Address: 47.133.63.9
Internal SSL Processor MAC Address: 00:01:81:2e:bc:6f
```

3.5.8 High-Availability / Clustering:

Although licenses are keyed to individual gateways, the user licenses are pooled and shared within a cluster. If all cluster units are up and running, the total license user count for SSL-VPN and IPsec licenses are contributed to the global pool. If a unit fails, the license contribution from that unit will be available within the cluster for 30 days to allow for unit repair or replacement.

3.5.9 License Acquisition:

A Nortel Application Switch license can be obtained using the following procedure:

1. Contact your or authorized reseller, Nortel Sales representative or Nortel Customer Support and purchase one or more licenses provided in tables 3.5.3, 3.5.4, 3.5.5 and 3.5.6.

   In North America, Global Nortel Technical Support can be contacted at 1-800-4NORTEL (1-800-466-7835). For phone numbers outside of North America, see http://www.nortel.com/callus.

2. Once the license has been purchased, Nortel Customer Support will send a certificate that contains a unique product code and an e-mail address. Send this unique product code and the device MAC address to the e-mail address provided.

3. After the device MAC address has been verified, a license key will be returned. This license key is used to enable the licensed features.

3.5.10 License Installation:

A new license may be installed using the command line interface or browser based interface by performing one of the following procedures:

3.5.10.1 Using the Command Line Interface:

To install a new license key using the Command Line Interface (CLI):

1 Issue the command */cfg/sys/host <host_number>/ license*. Paste the provided license key and then press enter to create a new line. Finally enter three periods "…" (without any quotation marks) to terminate.

```
>> Main# cfg/sys/host 1/license

Paste the license, press Enter to create a new line,
and then type "..." (without the quotation marks)
to terminate.

> -----BEGIN LICENSE-----
> U2FsdGVkX1/K74AfPIfZCliqTvpNRmvoQRD0KKUS/9snWr2/0ac1M1sHJF4LVAdf
> Rs2TK88BPSIp17yq0bVnvxhtIv7gtlsZ7U3vWbuCJkqR4ACGDE181RG3MdyU7eU0
> fmNX1pRHLa0jmii0bof5u1/UzfeEFvyZrYdtsQDDBmw/Dkfa/s7amDNWP+1pz2iBr
> D1BYSuiIpj8=
> -----END LICENSE-----
> ...
License loaded
```

2 Issue the *Apply* command to save and activate the license.

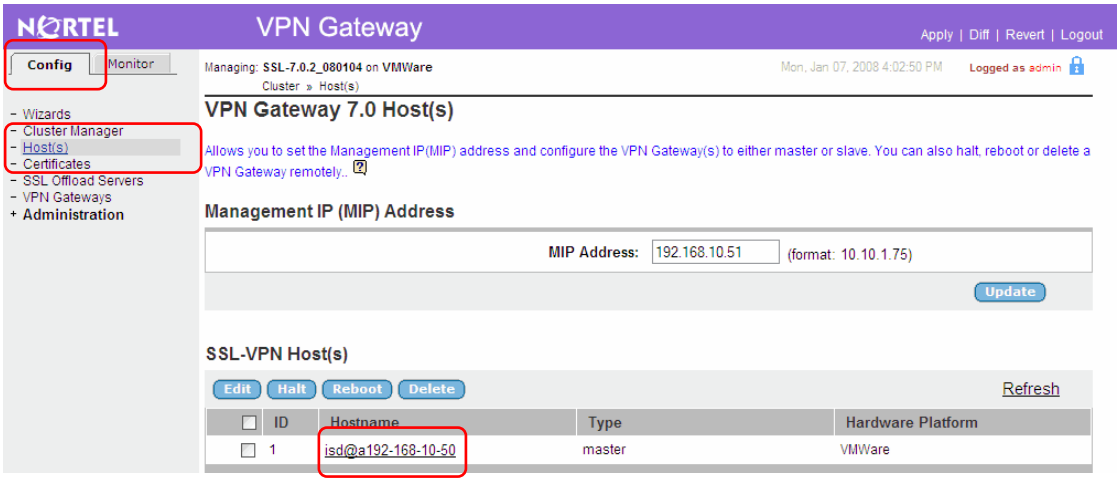
```
>> Cluster Host 1# apply
```

Installed licenses may be viewed in the CLI by issuing the ***/info/licenses*** command.

3.5.10.2 Using the Browser Based Interface:

To install a new license key using the Browser Based Interface (BBI):

1 **In the BBI click on the *Config* tab and in the menu select *Host*. In the *SSL-VPN Host(s)* list double click on the hostname of the VPN Gateway, VPN 1000 Module and 2424-SSL processor to add the new license to.**



2 **Click the *Licenses* tab. In the *Host License* page paste the provided license key into the field labeled *New License*. Click *Save* to apply the changes and activate the license.**

3.6 VPN Router:

Nortel VPN Routers provide routing, IPsec and SSL VPN, firewall, bandwidth management, encryption, authentication, and data integrity for secure connectivity across managed IP networks and the Internet. Nortel VPN Routers connect remote users, branch offices, suppliers, and customers with the cost and performance advantages of public IP networks and the security and control found in private networks.

VPN Routers are available in the following models in a number of different configurations and bundles:

Models	Description
VPN Router 200 Series	Nortel VPN Routers 200 Series are customer-premise devices that provide a low-cost VPN and stateful firewall for small offices and teleworkers providing up to five VPN tunnels. The VPN Router 200 is intended for the remote side of branch to branch tunnels. The VPN Router 200 does not support in bound IPsec client connections.
VPN Router 600	The Nortel VPN Router 600 adapts to several roles in secure VPNs: customer-premise device to connect branch offices with each other and with headquarters, basis for small hub-and-spoke or mesh extranet or branch-to-branch applications, or small-business headquarters hub.
VPN Router 1000 Series	Nortel VPN Routers 1000 Series adapt to several roles in enterprise and carrier networks: basic IP access router, dedicated VPN switch, or firewall. A Nortel VPN Router platform can evolve from one to another by licensing a software key. Supporting up to 30 tunnels, Nortel VPN Routers 1000 Series is ideal for bringing branch office and partner locations into a secure corporate network.
VPN Router 1750	The Nortel VPN Router 1750 serves several roles in enterprise and carrier IP networks: basic IP access router, dedicated VPN switch, or firewall and can evolve from one to another through a simple license key.
VPN Router 2700	The Nortel VPN Router 2700 provides up to 2,000 tunnels to securely connect remote workers and branch offices to large branch offices or headquarters sites.
VPN Router 5000	The Nortel VPN Router 5000 is a next generation platform, providing up to 5,000 VPN tunnels to securely connect branch offices and remote workers to enterprise headquarters and large regional sites.

Table 3.6 – VPN Router Models

3.6.1 Licensing:

The VPN Router supports the following licensing levels:

Base	Feature	VPN Tunnels
• Accounting • Data Compression • Encryption (3DES / AES / DES / RC4) • End Point Security (Tunnel Guard) • IP Filtering • IP Routing (Static / RIPv1/v2) • Management • User Authentication (LDAP / RADIUS / SecureID / X.509) • VPN Tunneling (IPsec / PPTP / L2TP) • WAN Protocols (ADSL / FRF.9 / FRF.12 / ISDN / PPP / PPPoE)	• Advanced Routing • BGP Routing • Data Link Switching (DLSw) • Premium Routing • Stateful Firewall • VPN License	• VPN Router 1010/1050: Maximum 30 Tunnels • VPN Router 1100: Maximum 30 Tunnels • VPN Router 600: Maximum 50 Tunnels • VPN Router 1750: Maximum 500 Tunnels • VPN Router 2700: Maximum 2,000 Tunnels • VPN Router 5000: Maximum 5,000 Tunnels

Table 3.6.1 – VPN Router Licensing Levels

3.6.2 Base Licensing:

A base license is included with the purchase of each VPN Router and includes support for the following features: Accounting, Data Compression, Encryption, End Point Security, IP Filtering, IP Routing, Management, User Authentication, VPN Tunneling and WAN support.

Depending on the model ordered, the VPN Router may also include feature licenses as well as support for 5 or more VPN tunnels.

3.6.3 Feature Licenses:

Feature licenses are required to enable advanced services on a VPN Router device. These licenses include Advanced Routing, BGP, Data Link Switching, Premium Routing and Stateful Firewall.

3.6.3.1 Advanced Routing License:

The Advanced Routing license key enables OSPF, VRRP, IP Differentiated Services, Bandwidth Management and IPsec Mobility on the VPN Router. Table 3.6.3.1 provides the Advanced Routing feature license order codes available for the VPN Router:

Order Code	Description
DM0016010	Advanced Routing License enables OSPF, VRRP, Differentiated Services, Bandwidth Management, ECMP, and IPSec Mobility for the VPN Router 600.

DM0016012	Advanced Routing License enables OSPF, VRRP, Differentiated Services, Bandwidth Management, ECMP, and IPSec Mobility for the VPN Router 1010, 1050, and 1100.
DM0016005	Advanced Routing License enables OSPF, VRRP, Differentiated Services, Bandwidth Management, ECMP, and IPSec Mobility for the VPN Router 1600/17X0 Series.
DM0016006	Advanced Routing License enables OSPF, VRRP, Differentiated Services, Bandwidth Management, ECMP, and IPSec Mobility for the VPN Router 2X00 Series.
DM0016007	Advanced Routing License enables OSPF, VRRP, Differentiated Services, Bandwidth Management, ECMP, and IPSec Mobility for the VPN Router 4X00 Series and VPN Router 5000.

Table 3.6.3.1 – VPN Router Advanced Routing License Kits

The BGP license key enables BGP routing on the VPN Router. Table 3.6.3.2 provides the BGP feature license order codes available for the VPN Router:

Order Code	Description
DM0016023	BGP License for VPN Router 600, 1010, 1050, 1100. Enables BGP functionality for first license installations or adds BGP functionality to other existing licenses enabled on the VPN Router.
DM0016024	BGP License for VPN Router 1600, 17X0. Enables BGP functionality for first license installations or adds BGP functionality to other existing licenses enabled on the VPN Router.
DM0016025	BGP License for VPN Router 2600, 2700 Enables BGP functionality for first license installations or adds BGP functionality to other existing licenses enabled on the VPN Router.
DM0016026	BGP License for VPN Router 4600/5000. Enables BGP functionality for first license installations or adds BGP functionality to other existing licenses enabled on the VPN Router.

Table 3.6.3.2 – VPN Router BGP License Kits

The Data Link Switching license key enables Data Link Switching on the VPN Router. Table 3.6.3.3 provides the Data Link Switching feature license order codes available for the VPN Router:

Order Code	Description
DM0016019	DLSw license for the 600/1010/1050/1100 platforms. Provides Data Link Switching for local and remote switching of SNA sessions and LLC2 and SDLC link types.
DM0016020	DLSw license for the 17XX platforms. Provides Data Link Switching for local and remote switching of SNA sessions and LLC2 and SDLC link types.

DM0016021	DLSw license for the 2700 platform. Provides Data Link Switching for local and remote switching of SNA sessions and LLC2 and SDLC link types.
DM0016022	DLSw license for the 5000 platform. Provides Data Link Switching for local and remote switching of SNA sessions and LLC2 and SDLC link types.

Table 3.6.3.3 – VPN Router Data Link Switching License Kits

The Premium Routing license key enables all the services included with the Advanced Routing licenses as well as BGP and Data Link Switching on the VPN Router. When installing the Premium Routing License there is no need to purchase separate license keys for Advanced Routing, BGP and Data Link Switching. Table 3.6.3.4 provides the Premium Routing feature license order codes available for the VPN Router:

Order Code	Description
DM0016027	Premium Routing License for VPN Router 600, 1010, 1050, 1100. Enables BGP functionality and all Advanced Routing and DLSw features; regardless of previous installs of any one of these license types.
DM0016028	Premium Routing License for VPN Router 1600, 17xx. Enables BGP functionality and all Advanced Routing and DLSw features; regardless of previous installs of any one of these license types.
DM0016029	Premium Routing License for VPN Router 2600, 2700. Enables BGP functionality and all Advanced Routing and DLSw features; regardless of previous installs of any one of these license types.
DM0016030	Premium Routing License for VPN Router 4600/5000. Enables BGP functionality and all Advanced Routing and DLSw features; regardless of previous installs of any one of these license types.

Table 3.6.3.4 – VPN Router Premium Routing License Kits

A Stateful Firewall license key enables the Stateful Firewall service on the VPN Router. Stateful Firewall provides additional firewall security for VPN Router and also allows non-tunneled traffic to traverse between private and public interfaces on the VPN Router. Table 3.6.3.5 provides the Stateful Firewall license order codes available for the VPN Router:

Order Code	Description
DM0016009	Stateful Firewall license for the VPN Router 600/1010/1050/1100
DM0016002	Stateful Firewall license for the VPN Router 1600/17x0 platforms.
DM0016003	Stateful Firewall license for the VPN Router 2x00 platform.
DM0016004	Stateful Firewall license for the VPN Router 4x00 and 5000 platforms.

Table 3.6.3.5 – VPN Router Stateful Firewall License Kits

3.6.4 VPN Tunnel Licenses:

Each VPN Router model scales to support a different number of tunnels. VPN Router 221/251, VPN Router 600 and VPN Router 5000 models are manufactured with fixed number of maximum supported tunnels. VPN Router 1xx0, VPN Router 11xx, VPN Router 17x0 and VPN Router 27xx series are manufactured in either a 5-tunnel version or in a version with the maximum number of tunnels. 5-tunnel versions can be upgraded using a license key to support the maximum number of tunnels for that model.

Table 3.6.4.1 provides the maximum number of supported tunnels supported by each model of the VPN Router:

VPN Router Model	Maximum Number of Tunnels
VPN Router 221/251	5 Tunnels
VPN Router 1010/1050	30 Tunnels
VPN Router 1100	30 Tunnels
VPN Router 600	50 Tunnels
VPN Router 1750	500 Tunnels
VPN Router 2700	2,000 Tunnels
VPN Router 5000	5,000 Tunnels

Table 3.6.4.1 – VPN Router Tunnels

Tunnel license keys are specific to the VPN Router hardware model. Some VPN Router models are manufactured to allow either access to the maximum number of tunnels (VPN bundle) or support for 5 tunnels (Base unit). The base unit basically offers reduced cost for users who want fewer tunnels. The tunnel license key must be installed to upgrade the maximum number of supported tunnels.

Table 3.6.4.2 provides the VPN Tunnel license order codes available for the VPN Router:

Order Code	Description
DM0016014	VPN Option License to provide 30 Tunnels on a Base Unit VPN Router 10x0/1100.
DM0016015	VPN Option License to provide 500 tunnels on a Base Unit VPN Router 17x0.
DM0016016	VPN Option License to provide 2000 tunnels on a Base Unit VPN Router 2700.
DM0016017	VPN Option License to provide 30 tunnels on a Base Unit VPN Router 10x0/1100.

Table 3.6.4.2 – VPN Tunnel License Kits

3.6.5 Third-Party Licensed Features:

The purchase of a VPN Router includes the Nortel VPN Client. The Nortel VPN Client for Windows includes an unlimited right to copy. Nortel also partners with Apani Networks to provide a MAC, Unix and PocketPC version of the VPN Client. Licenses for these are available from Nortel or directly from Apani. The Apani client is licensed per host and when purchased from Nortel may be obtained by contacting an authorized reseller, Nortel Sales representative or Nortel Customer Support.

In North America, Global Nortel Technical Support can be contacted at 1-800-4NORTEL (1-800-466-7835). For phone numbers outside of North America, see http://www.nortel.com/callus.

3.6.6 License Acquisition Process:

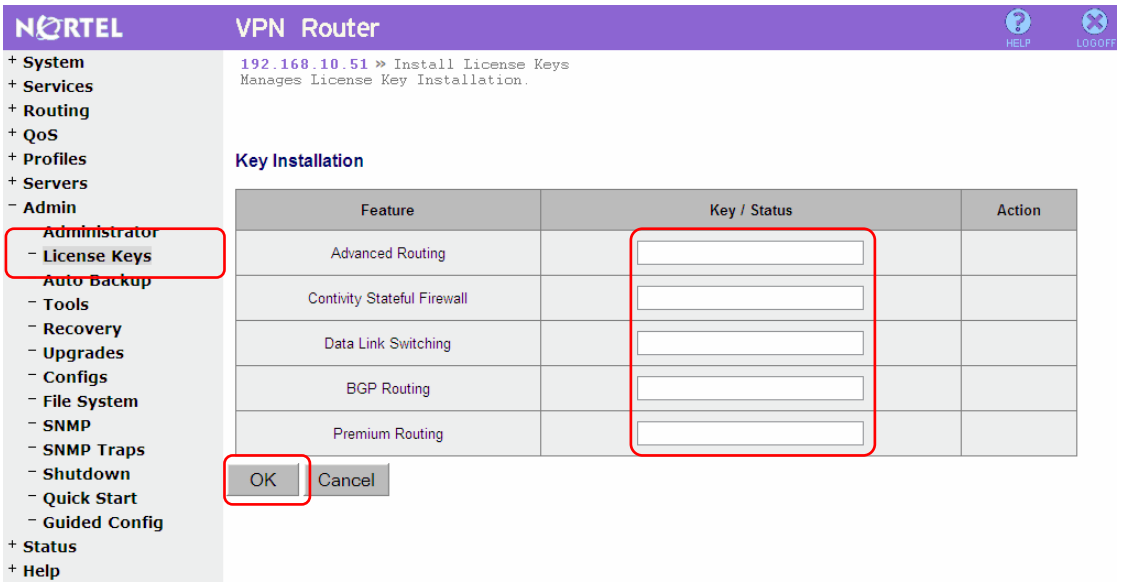
A Nortel VPN Router License can be obtained using the following procedure:

1. Contact your or authorized reseller, Nortel Sales representative or Nortel Customer Support and purchase a license part number provided in tables 3.6.3.1, 3.6.3.2, 3.6.3.3, 3.6.3.4, 3.6.3.5 and 3.6.4.2.
2. Once the license has been purchased, Nortel will mail a license kit that contains a unique license key which can be installed on the VPN Router to activate the feature. Do not lose this kit, should the license need to be reinstalled on the VPN Router you will need to retrieve it from the kit. Nortel does not have record of the individual license keys. If the key is lost, proof of purchase will be required by Nortel support staff to reissue a new license key. If a proof of purchase cannot be supplied the license key will need to be repurchased.

3.6.7 License Installation:

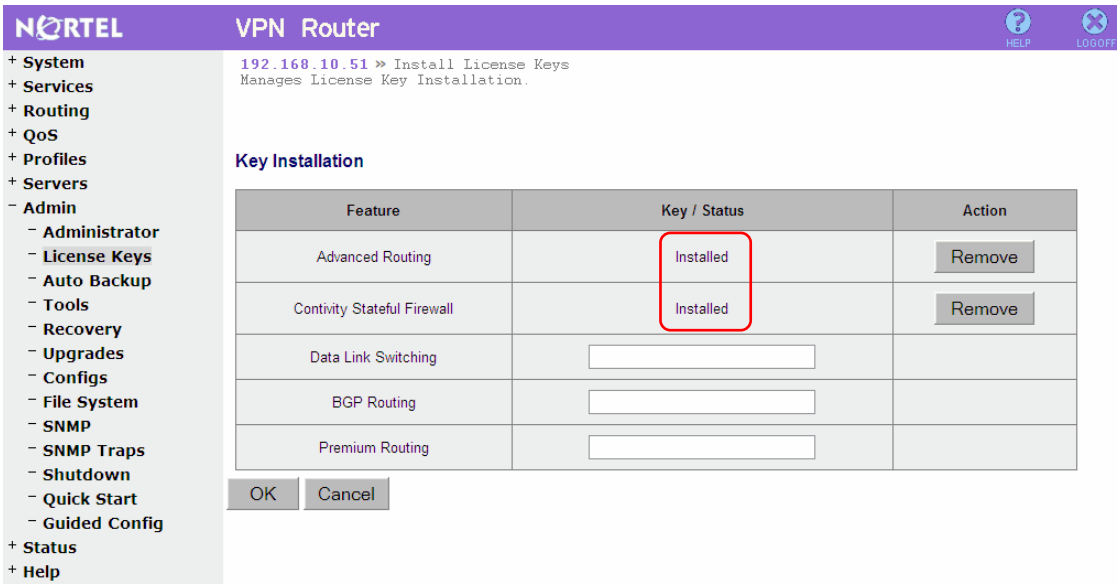
A new license key may be installed using the browser based interface by performing the following procedures:

1 In the main menu select *Admin* and then *License Keys*. In the *Key Installation* page enter the license key into the corresponding field and click *OK*.



For release 6.0 and below, license keys may be installed from the ***Admin*** → ***Install*** page.

2 Once a license key has been installed, the *Key / Status* field for the license will indicate *Installed.*



A license key may be removed at any point by clicking ***Remove***.

4. Mobility:

4.1 Wireless LAN Security Switch 2300:

The Nortel WLAN 2300 Series is a complete 802.11 solution for enterprises wishing to deploy widespread wireless coverage for today's business, IP Telephony and converged multimedia applications. The solution combines the latest industry standards with a centralized architecture and advanced features to create a secure, cost-effective and highly scalable WLAN infrastructure.

The WLAN 2300 Series is comprised of a portfolio of WLAN Security Switches, Access Points and a Management Software system.

Wireless LAN Security Switch 2300s may be purchased using the following order codes:

Order Code	Description
DR4001x72E5	WLAN Security Switch 2350 - 2 FE copper ports (1 PoE, 1 non-PoE), supports 3 Access Points (2300 series).
DR4001x73E5	WLAN Security Switch 2360 - 8 FE copper ports (6 PoE, 2 non-PoE), supports 12 Access Points (2300 series).
DR4001x74E5	WLAN Security Switch 2361 - 8 FE copper ports (6 PoE, 2 non-PoE), supports 12 Access Points (2300 series). Dual integrated PSU.
DR4001x71E5	WLAN Security Switch 2380 - 4 GE fiber ports, includes 40 Access Point support (2300 series). May support up to 120 AP's with additional license purchase.
DR4001x80E5	WLAN Security Switch 2382 - 2 Gigabit SFP ports, includes support for 32 Access Points (2300 series). May support up to 128 AP's with additional license purchase.

Table 4.1 – WLAN Security Switch Order Codes

4.1.1 Base Licensing:

A base license is included with the purchase of each Wireless LAN Security Switch 2300 and enables all core wireless features at no additional cost.

4.1.2 Access Point Licenses:

A Wireless LAN Security Switch can support a specific number of Active and Configured Access Points:

- Active Access Points – Access Points that are actively connected to the Wireless LAN Security Switch and are servicing users.
- Configured Access Points – Access Points that have a configuration profile defined on the Wireless LAN Security Switch but are not connected or managed by the Wireless LAN Security Switch.

Access Point licenses for the Wireless LAN Security Switch 2350, 2360 & 2361 are fixed and no additional active Access Points may be supported. If additional Access Point capacity is required, additional Wireless LAN Security Switches must deployed.

Security Switch Model	Active Access Points	Configured Access Points
2350	3	8
2360	12	30
2361	12	30
2380	40, 80 or 120	300
2382	32, 64, 96, 128	320

Table 4.1.2.1 – Access Points per Security Switch

The Wireless LAN Security Switch 2380 and 2382 Access Point licensing is upgradeable which allows customers to add additional Access Point capacity without having to add additional Wireless LAN Security Switches to the network.

A Wireless LAN Security Switch 2380 provides support for installing two 40 Access Point upgrade license keys which may be used to upgrade the active number of Access Point from 40 to 80 and 120 Access Points.

Customers may install a single 40 Access Point license to upgrade the security switch to 80 Access Points or two 40 Access Point licenses to support 120 Access Points. Alternatively customers may upgrade directly to 120 Access Points by installing a single 80 Access Point license.

Table 4.1.2.2 provides the AP license upgrade order codes available for the Wireless LAN Security Switch 2380:

Order Code	Description
DR4011013-6.0	WLAN Security Switch 2380 - Software License for 40 AP Access Point Upgrade.
DR4011014-6.0	WLAN Security Switch 2380 - Software License for 80 AP Access Point Upgrade.

Table 4.1.2.2 – WLAN Security Switch 2380 AP Licenses

The Wireless LAN Security Switch 2382 provides support for installing three 32 Access Point upgrade license keys which may be used to upgrade the active number of Access Point from 32 to 64, 96 and 128 Access Points.

Table 4.1.2.3 provides the AP license upgrade order code available for the Wireless LAN Security Switch 2382:

Order Code	Description
DR4011020-6.0.0	WLAN Security Switch 2382 - Software License for 32 AP Access Point Upgrade.

Table 4.1.2.3 – WLAN Security Switch 2382 AP Licenses

4.1.3 License Keying and Methodology:

Access Point upgrade licenses are based on the serial number of the Wireless LAN Security Switch 2380/2382. To generate an Access Point upgrade license the serial number of the

Wireless LAN Security Switch 2380/2382 must be obtained and provided to nortelicensing.com before a license activation key enabling the additional Access Points can be generated. Once the license activation key has been installed support for the additional Access Points will be enabled.

The serial number of a Wireless LAN Security Switch 2380/2382 may be obtained by CLI using the following procedure:

Using CLI issue the *show version* command:

```
WSS2380> show version

        Wireless Security Switch, Version: 6.0.4.6 REL
        Copyright (c) 2005 - 2007 Nortel. All rights reserved.

Build Information: (build#0) REL_6_0_4_branch 2007-10-31 18:38:00
Model:             2380
Hardware
   Mainboard:      version 2 ; revision 02 ; FPGA version 5
Serial number      STP1W700ZW
Flash:             6.2.0.280  - md0a
Kernel:            3.0.0#686: Tue Oct 30 01:15:52 PDT 2007
BootLoader:        6.0 / 6.0.6
```

In the event that a Wireless LAN Security Switch 2380 / 2382 needs to be replaced, the AP licenses may be transferred to a difference serial number using the Nortel electronic licensing portal http://www.nortellicensing.com. Note however that the Access Point licenses cannot be transferred between different switch models.

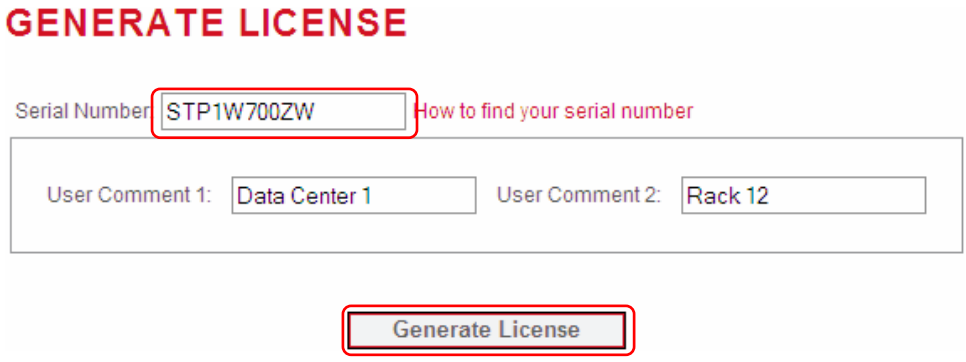
4.1.4 License Acquisition Process:

Please reference Section 5 for details on using the Nortel electronic licensing portal to create a license bank. Once the license bank has been created, the following steps are required to create the Access Point upgrade license file.

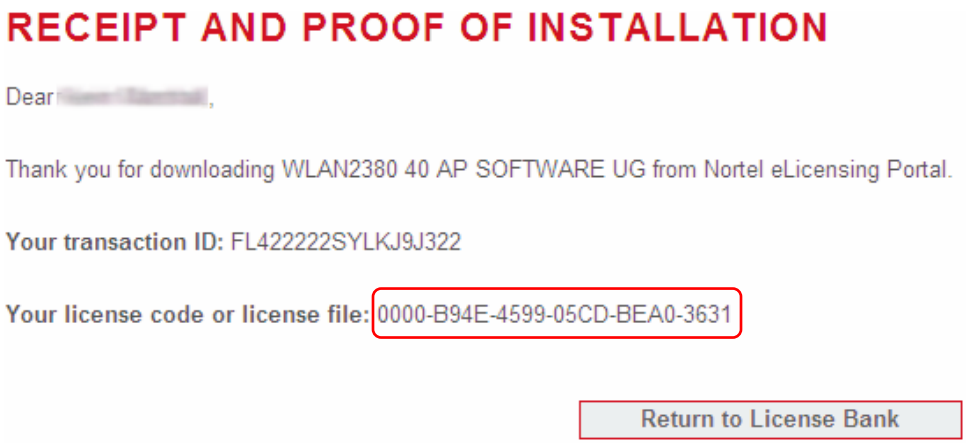
1 Access the *License Bank* page where the license was deposited. Locate the Access Point upgrade license and click *Download License*:

2 In the *Generate License* page enter the required information to create the Access Point license activation key and click *Generate License*:

- Serial Number – Enter the serial number of the Wireless LAN Security Switch 2380 / 2382 obtained using the ***show version*** command.
- User Comment Fields – Free form text fields that allow additional information to be entered to provide for asset tracking.



3 A *Receipt and Proof of Installation* page will be displayed providing the license code. The license key and confirmation will also be sent via email.



4.1.5 Access Point License Installation:

An Access Point license may be installed using the command line interface by performing the following procedure:

1 Using CLI enable the privExec mode and issue the *set license* command and specify the license activation key as provided by the Nortel licensing portal:

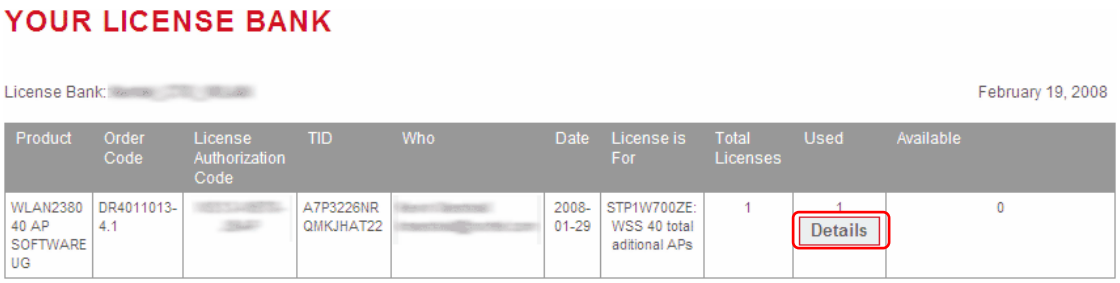
```
WSS2380# set license 0000-B94E-4599-05CD-BEA0-3631
success: license accepted
```

Installed licenses may be viewed in the CLI by issuing the ***show license*** command.

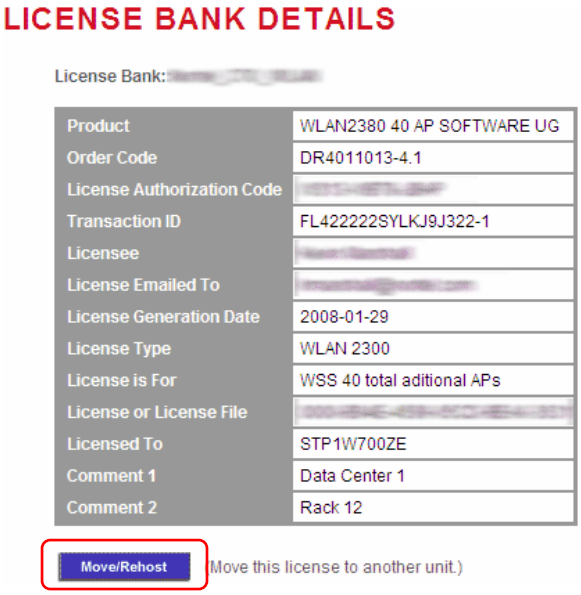
4.1.6 Replacing a Switch:

In the event of a switch failure, AP Software Upgrade licenses may be transferred from one WLAN Security Switch to another WLAN Security Switch of the exact same model, using the following procedure:

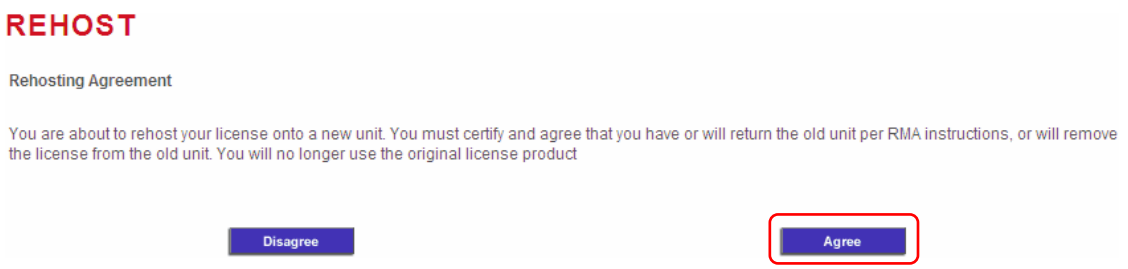
1 Access the *License Bank* page where the AP Software Upgrade license was deposited. Locate the AP Software Upgrade License to be transferred and click *Details*:



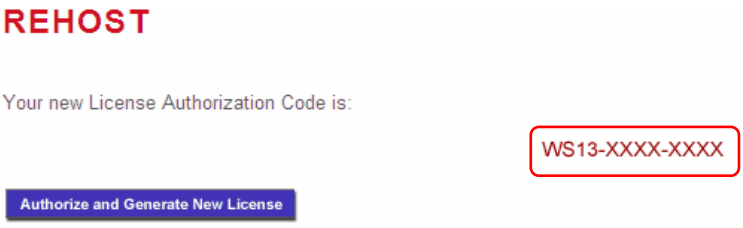
2 In the *License Bank Details* page click *Move/Rehost*:



3 Read the *Rehosting Agreement* and click *Agree*:



4 A new *License Authorization Code* will be generated and must be added to a new or existing *License Bank* before a *License Activation Key* for the new Wireless LAN Security Switch can be created.



Nortel will not maintain a record of the new License Authorization Code. If the License Authorization Code is lost before being deposited into a License Bank, a proof of purchase will be required by Nortel support to reissue a License Authorization Key.

AP Software Upgrade license may only be transferred between switches of the same model. Licenses cannot be transferred between dissimilar switches such as from a Wireless LAN Security Switch 2380 to a Wireless LAN Security Switch 2382 or vice versa.

4.2 Wireless LAN Management:

The Nortel WLAN Management Software system is a comprehensive design and management tool for the WLAN 2300 Series that identifies ideal access point locations on detailed floor plans, configures all devices with a single click and provides granular monitoring and reporting for complete visibility and control over the entire system.

The base Wireless LAN Management Software may be purchased using the following order codes:

Order Code	Description
DR4010001-6.0	WLAN Management Software – A To support up to 50 Access Points.
DR4010002-6.0	WLAN Management Software – B To support up to 250 Access Points.
DR4010003-6.0	WLAN Management Software – C To support up to 1000 Access Points.

Table 4.2 – WLAN Management Software Order Codes

4.2.1 Base Licensing:

Wireless LAN Management Software base software is licensed to support a specific number of Access Points (APs) and is available in 50, 250 and 1000 AP versions. The Wireless LAN Management Software base license provides core management capabilities that allow enterprises to perform the following functions:

- Create and manage network plans
- Manage WSS images and configurations
- Detect and combat rogues
- Monitor alarms, events and generate reports
- Import and edit floor plans and manually place APs
    - Create a site, building or floor
    - Edit a site, building or floor
    - Import a floor diagram
    - Create coverage areas
    - Manually place AP's on a floor in a coverage area
- Perform rough rogue AP and user location (greater accuracy requires planning license)

4.2.2 Access Point Upgrade Licenses:

The Wireless LAN Management Software AP license may be upgraded as the enterprises AP count increases. An enterprise may start by installing Wireless LAN Management Software with support for 50 APs and as needed upgrade the base license to support 250 or 2000 APs.

Table 4.2.2 provides the AP upgrade license order codes available for the Wireless LAN Management Software:

Order Code	Description
DR4011016-6.0	WLAN Management Software – A 50 to 250 Access Point Upgrade (Need to purchase DR4010001).
DR4011017-6.0	WLAN Management Software – A 50 to 2000 Access Point Upgrade (Need to purchase DR4010001).
DR4011018-6.0	WLAN Management Software – A 250 to 2000 Access Point Upgrade (Need to purchase DR4010002).

Table 4.2.2 – WLAN Management AP Upgrade License Order Codes

4.2.3 Planning License:

The Wireless LAN Management Software planning license is optional and when purchased enables additional functions in Wireless LAN Management Software that allow enterprises to perform RF modeling, predictive planning and more accurate Rogue AP and user location. When purchased the planning license enables the following functions:

- Create RF obstacles in floor plans to build an RF model of the floor.
- Perform automated RF planning (Compute & Place APs, Assign Channels, and Optimize TX Power).
- Import data from Ekahau Site Survey to optimize the RF model of a floor.
- Perform accurate location of devices on a floor plan.

Order Code	Description
DR4011015-6.0	WLAN Management Software – Planning Tool

Table 4.2.3 – WLAN Management Planning Tool License Order Code

The planning license cannot operate in a stand-alone mode and requires that the base 50/250/2000 AP Wireless LAN Management Software be purchased first.

4.2.4 License Keying and Methodology:

Wireless LAN Management Software AP upgrade and planning licenses are tied to hostname of the Windows or Linux host where the Wireless LAN Management Software services are installed. The hostname and license key will need to be provided to nortellicensing.com to generate a license activation key which will determine which features are licensed on the host.

The hostname of a Windows based system can be determined by using the following procedure:

At a command prompt issue the *ipconfig /all* command:

```
C:\> ipconfig /all

Windows IP Configuration

        Host Name . . . . . . . . . . . . : w3kserver-wms
        Primary Dns Suffix  . . . . . . . :
        Node Type . . . . . . . . . . . . : Hybrid
        IP Routing Enabled. . . . . . . . : No
        WINS Proxy Enabled. . . . . . . . : No
        DNS Suffix Search List. . . . . . : jclab.com
```

The hostname of a Linux based system can be determined by using the following procedure:

In the console issue the *hostname* command:

```
[root@wmsserver root]# hostname

W3kserver-wms.nortel.com
```

For Linux based systems, if the DNS suffix is defined it will also need to be provided to nortelicensing.com or the license will not install. If no DNS suffix is defined on the Linux host, only the hostname needs to be provided.

4.2.5 License Acquisition Process:

Please reference Section 5 for details on using the Nortel electronic licensing portal to create a license bank. Once the license bank has been created, the following steps are required to create a license file.

1 Access the *License Bank* page where the license was deposited. Locate the WMS license and click *Download License*:

YOUR LICENSE BANK

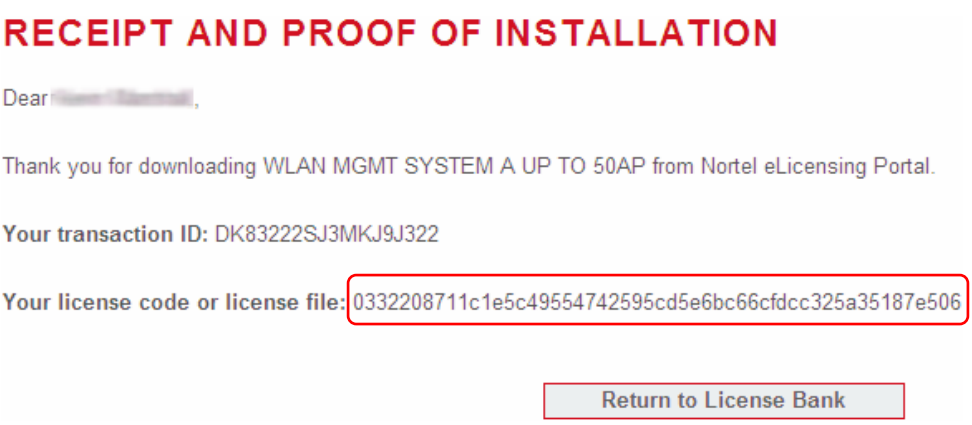
License Bank: [redacted] January 29, 2008

Product	Order Code	License Authorization Code	TID	Who	Date	License is For	Total Licenses	Used	Available
WLAN MGMT SYSTEM A UP TO 50AP	DR4010001-4.1	[redacted]	3K32226ED T2YJHAT22	[redacted]	2008-01-03		1	0	1 Download License

2 **In the *Generate License* page enter the required information to create the WMS license activation key and click *Generate License*:**

- PC Host Name – Enter the host name of the Windows or Linux host where the WMS service is installed. Note that the hostname is case sensistive.
- User Comment Fields – Free form text fields that allow additional information to be entered to provide for asset tracking.

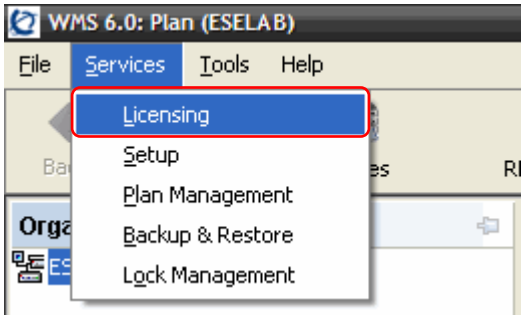
3 **A *Receipt and Proof of Installation* page will be displayed providing the license code. Note that the license key and confirmation will also be sent via email.**



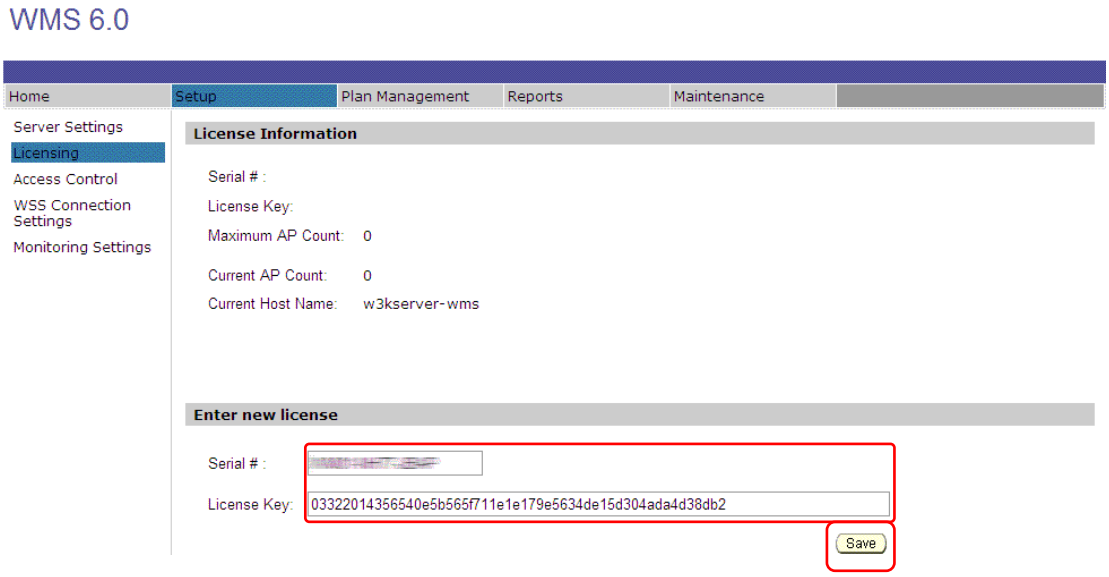
4.2.6 License Installation:

Wireless LAN Management Software licenses may be installed using the command line interface by performing the following procedure:

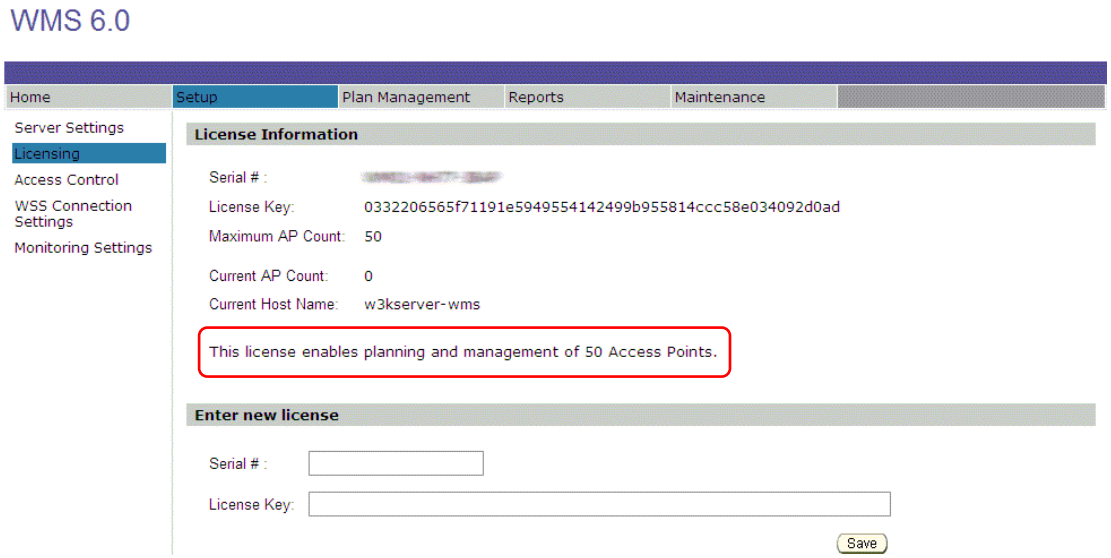
1 **Access the Wireless LAN Management Software services licensing configuration page by clicking *Services* then *Licensing* in the Wireless LAN Management Software client.**



2 **On the License Information configuration screen, in *Serial Number* field enter the *License Authorization Code* provided with the Software License Certificate. In the License Key field enter the License Code generated by nortellicensing.com. Click save.**



3 **The License Information configuration page will now display the number of APs that WMS is licensed to support as well as if planning is enabled.**



4.2.7 Replacing a Server:

In the event of a server failure or hardware upgrade a Wireless Management Software license may be transferred to another server with a different hostname using the following procedure:

1. Customers with a valid service contract should contact Global Nortel Technical Support (1-800-4NORTEL) and explain the situation and open a new trouble ticket.
2. The case will be escalated to Global Nortel Product Support and the customer will be contacted to verify proof-of-purchase.
3. Global Nortel Product Support will issue a replacement license key.

5. Nortel Licensing Portal:

The Nortel licensing portal works on the concept of a license bank which is an electronic repository for all license entitlements and licenses. End users deposit license entitlements into a license bank by entering a license authorization code.

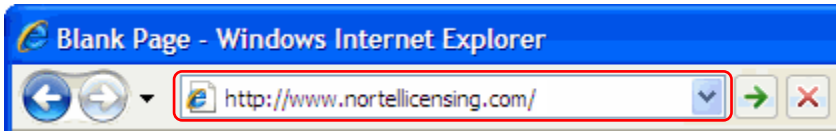
End users may deposit multiple license entitlements into a single license bank or utilize multiple license banks each with its own login. Consider carefully how you wish to organize and control access to your licenses.

For administrative issues such as lost passwords or username changes, please contact Global Nortel Technical Support (1-800-4NORTEL) and open a trouble ticket.

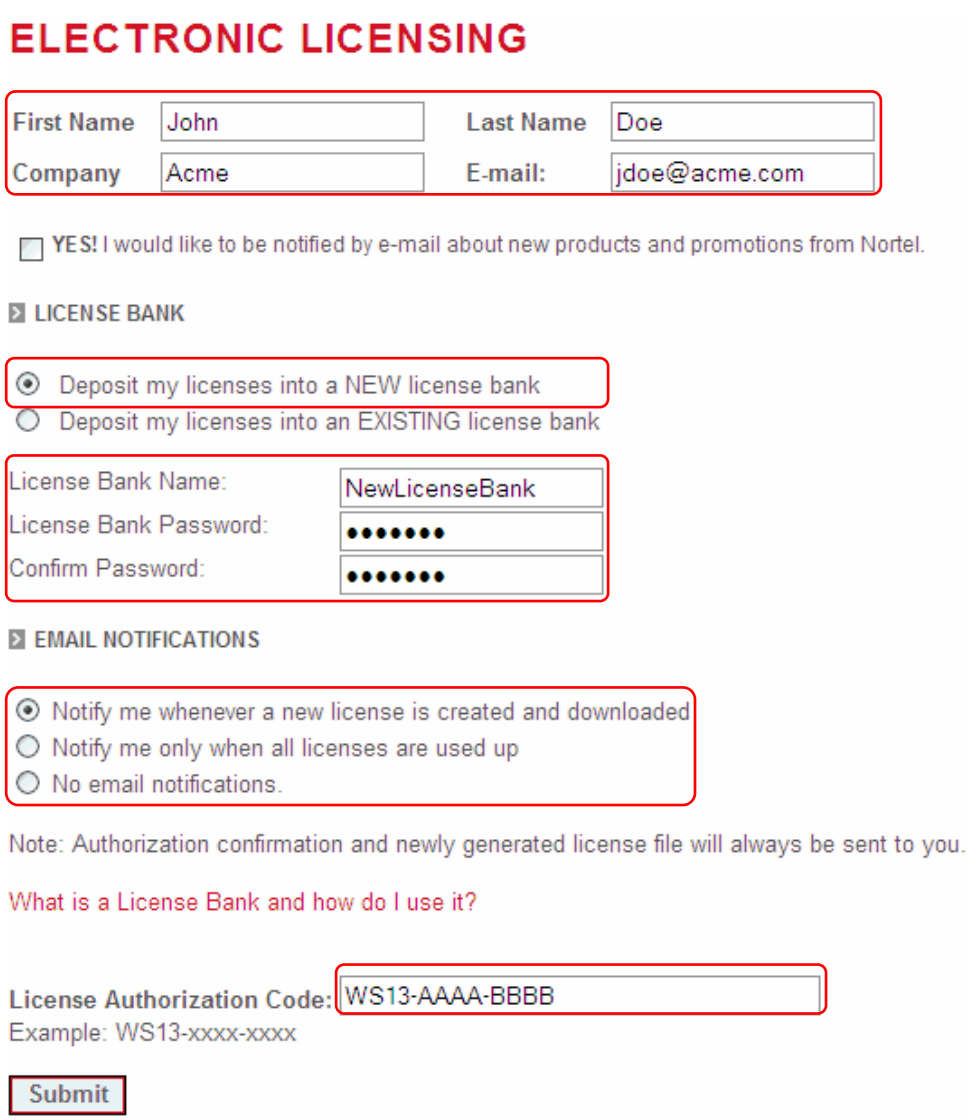
5.1 Creating a New License Bank:

A new license bank may be created using the following procedure:

1 **Using a web browser open the Nortel electronic licensing portal *http://www.nortellicensing.com*.**



2 **The following screen shows the initial information required to create a new license bank. One the Electronic Licensing page, select the option to *Deposit my licenses into a NEW license bank*. Enter the required information and then click *Submit*.**



First Name	End users first name.
Last Name	End users last name.
Company	Company name.
E-mail Address	The email address used for confirmations.
License Bank Name	The name of the new license bank you wish to create.
License Bank Password	The password for the new license bank you wish to create.
Email Notifications	Must select one option.
License Authorization Code	The initial license entitlement required to create the new license bank listed on the license certificate.

3 **Once the license bank has been created and the license entitlement deposited, end users may download the license file or exit the portal and use download a license at a later date.**

YOUR LICENSE BANK

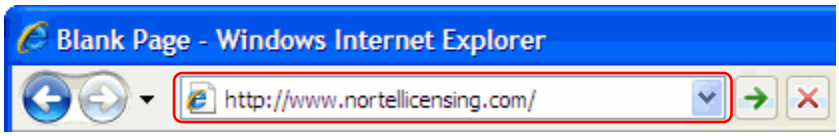
License Bank: [redacted] January 29, 2008

Product	Order Code	License Authorization Code	TID	Who	Date	License is For	Total Licenses	Used	Available
ERS5XXX Advanced Routing License for 10 stacks	AL1016002	[redacted]	53P3226NB 3BTJBACNU	[redacted]	2006-07-21	See Details	20	4 Details	16 Download License

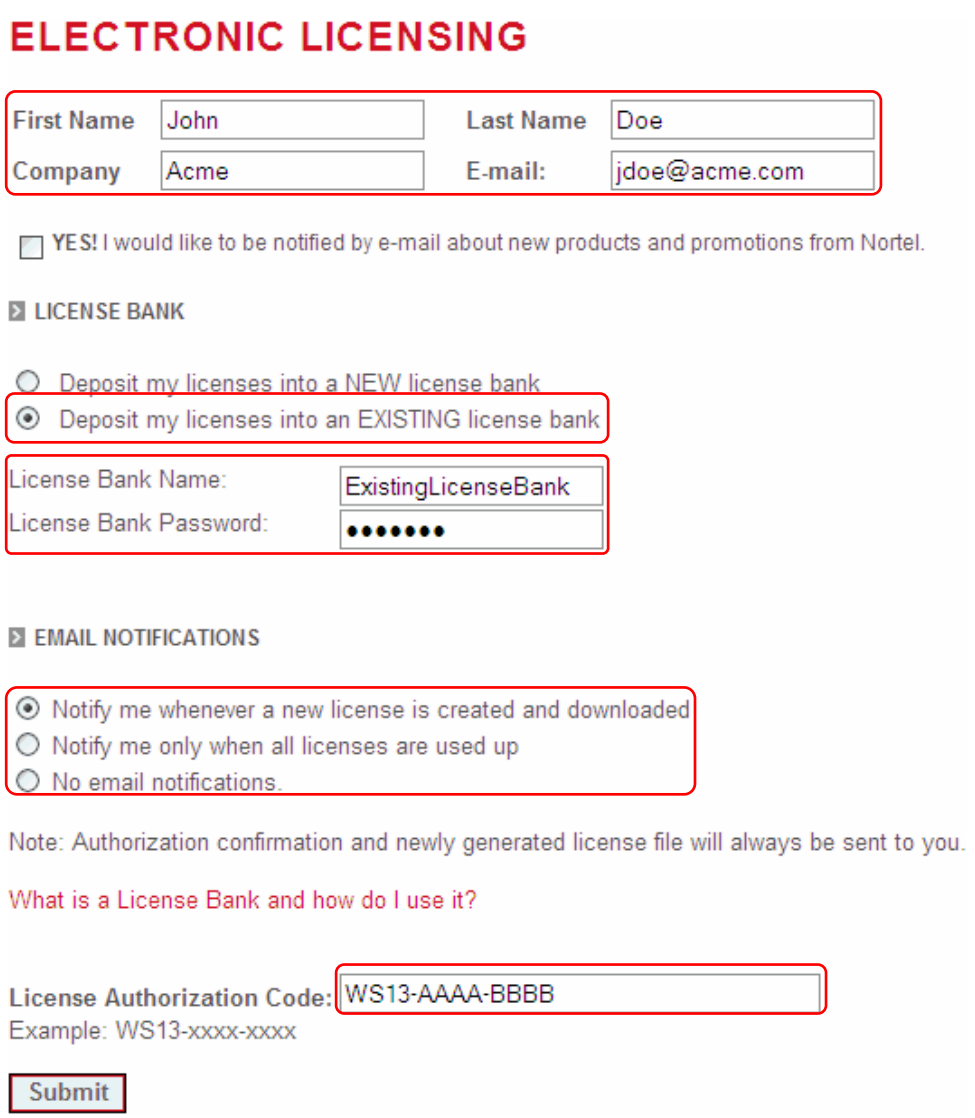
5.2 Depositing a License to an Existing License Bank:

Once an initial license bank has been created, end users may deposit additional license entitlements using the following procedure:

1 **Using a web browser open the Nortel electronic licensing portal *http://www.nortellicensing.com*.**



2 **The following screen shows the initial information required to add a new license entitlement to an existing license bank. One the Electronic Licensing page, select the option to *Deposit my licenses into a EXISTING license bank*. Enter the required information and then click *Submit*.**

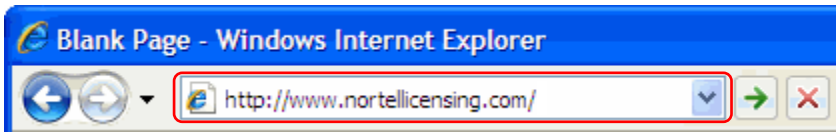


First Name	End users first name.
Last Name	End users last name.
Company	Company name.
E-mail Address	The email address used for confirmations.
License Bank Name	The name of the new license bank you wish to create.
License Bank Password	The password for the new license bank you wish to create.
Email Notifications	Must select one option.
License Authorization Code	The initial license entitlement required to create the new license bank listed on the license certificate.

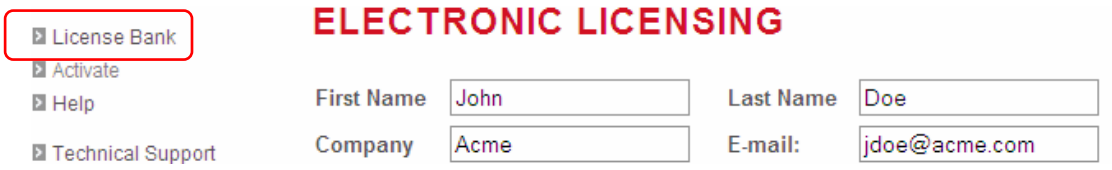
5.3 Accessing an Existing License Bank:

End users can access an existing license bank to download or view details on licenses using the following procedure:

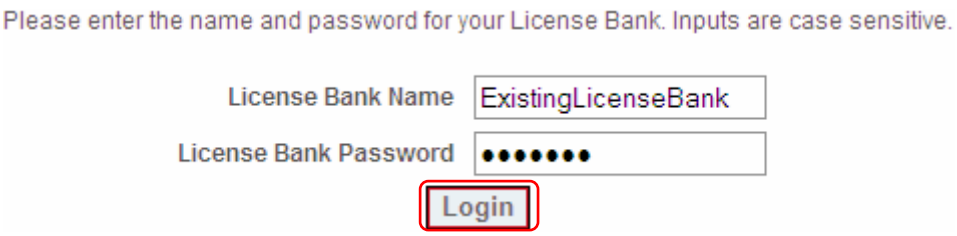
1 Using a web browser open the Nortel electronic licensing portal *http://www.nortellicensing.com*.



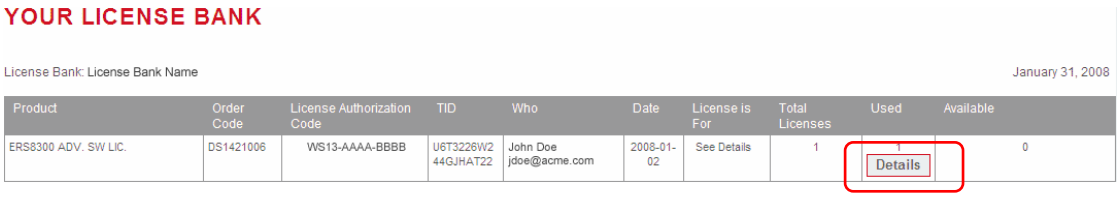
2 On the main *Electronic Licensing* page click *License Bank* on the left menu.



3 Enter the existing *License Bank Name* and *License Bank Password* then click *Login*.



4 The license bank screen will display all the licenses that have been deposited into the license bank and provide the following information:



Product	The product that the license authorisation code applies to.
Order Code	The order code for the license authorisation code.
License Authorisation Code	The license authorisation code deposted into the license bank.
Who	The name and email addresss of the end user who deposted the license authorisation code into the license bank.
TID	The name and email addresss of the end user who deposted the license authorisation code into the license bank.

Date	The date that the license authorisation code was deposted.
Total Licenses	The total number of licenses entitled for each license authorisation code.
Used	The total number of used licenses for each license authorisation code.

5 The following screen shows the details for a license authorization code. The details screen allows end users to display information about the license such as when the license was issued, which device the license was issued to as well as re-download the license.

Product	ERS8300 ADV. SW LIC.
Order Code	DS1421006
License Authorization Code	DS06-V2S3-JP7Y
Transaction ID	NPG2222J443GJ9J322-1
Licensee	Dan Debacker
License Emailed To	ddebacke@nortel.com
License Generation Date	2008-01-02
License Type	GENLIC
License or License File	ERS8300b96hub2.lic
MACs	ERS8300b96hub2.lic.macs
Comment 1	Bld 96 Hub 2
Comment 2	

Some licenses may be transferred to new devices which may be performed in the details window.

Contact us

If you purchased a service contract for your Nortel product from a distributor or authorized reseller, contact the technical support staff for that distributor or reseller for assistance.

If you purchased a Nortel Networks service program, contact Nortel Technical Support. To obtain contact information online, go to www.nortel.com/contactus.

From the Technical Support page, you can open a Customer Service Request online or find the telephone number for the nearest Technical Solutions Center. If you are not connected to the Internet, call 1-800-4NORTEL (1-800-466-7835) to learn the telephone number for the nearest Technical Solutions Center.

An Express Routing Code (ERC) is available for many Nortel products and services. When you use an ERC, your call is routed to a technical support person who specializes in supporting that product or service. To locate an ERC for your product or service, go to www.nortel.com/erc.