



Upgrades — Software Release 7.2.10

Avaya Ethernet Routing Switch 8800/8600

Release 7.2.10
NN46205-400
Issue 09.02
November 2013

Notice

While reasonable efforts have been made to ensure that the information in this document is complete and accurate at the time of printing, Avaya assumes no liability for any errors. Avaya reserves the right to make changes and corrections to the information in this document without the obligation to notify any person or organization of such changes.

Documentation disclaimer

"Documentation" means information published by Avaya in varying mediums which may include product information, operating instructions and performance specifications that Avaya generally makes available to users of its products. Documentation does not include marketing materials. Avaya shall not be responsible for any modifications, additions, or deletions to the original published version of documentation unless such modifications, additions, or deletions were performed by Avaya. End User agrees to indemnify and hold harmless Avaya, Avaya's agents, servants and employees against all claims, lawsuits, demands and judgments arising out of, or in connection with, subsequent modifications, additions or deletions to this documentation, to the extent made by End User.

Link disclaimer

Avaya is not responsible for the contents or reliability of any linked websites referenced within this site or documentation provided by Avaya. Avaya is not responsible for the accuracy of any information, statement or content provided on these sites and does not necessarily endorse the products, services, or information described or offered within them. Avaya does not guarantee that these links will work all the time and has no control over the availability of the linked pages.

Warranty

Avaya provides a limited warranty on its hardware and Software ("Product(s)"). Refer to your sales agreement to establish the terms of the limited warranty. In addition, Avaya's standard warranty language, as well as information regarding support for this Product while under warranty is available to Avaya customers and other parties through the Avaya Support website: <http://support.avaya.com>. Please note that if you acquired the Product(s) from an authorized Avaya reseller outside of the United States and Canada, the warranty is provided to you by said Avaya reseller and not by Avaya. "Software" means computer programs in object code, provided by Avaya or an Avaya Channel Partner, whether as stand-alone products or pre-installed on hardware products, and any upgrades, updates, bug fixes, or modified versions.

Licenses

THE SOFTWARE LICENSE TERMS AVAILABLE ON THE AVAYA WEBSITE, [HTTP://SUPPORT.AVAYA.COM/LICENSEINFO](http://support.avaya.com/LICENSEINFO) ARE APPLICABLE TO ANYONE WHO DOWNLOADS, USES AND/OR INSTALLS AVAYA SOFTWARE, PURCHASED FROM AVAYA INC., ANY AVAYA AFFILIATE, OR AN AUTHORIZED AVAYA RESELLER (AS APPLICABLE) UNDER A COMMERCIAL AGREEMENT WITH AVAYA OR AN AUTHORIZED AVAYA RESELLER. UNLESS OTHERWISE AGREED TO BY AVAYA IN WRITING, AVAYA DOES NOT EXTEND THIS LICENSE IF THE SOFTWARE WAS OBTAINED FROM ANYONE OTHER THAN AVAYA, AN AVAYA AFFILIATE OR AN AVAYA AUTHORIZED RESELLER; AVAYA RESERVES THE RIGHT TO TAKE LEGAL ACTION AGAINST YOU AND ANYONE ELSE USING OR SELLING THE SOFTWARE WITHOUT A LICENSE. BY INSTALLING, DOWNLOADING OR USING THE SOFTWARE, OR AUTHORIZING OTHERS TO DO SO, YOU, ON BEHALF OF YOURSELF AND THE ENTITY FOR WHOM YOU ARE INSTALLING, DOWNLOADING OR USING THE SOFTWARE (HEREINAFTER REFERRED TO INTERCHANGEABLY AS "YOU" AND "END USER"), AGREE TO THESE TERMS AND CONDITIONS AND CREATE A BINDING CONTRACT BETWEEN YOU AND AVAYA INC. OR THE APPLICABLE AVAYA AFFILIATE ("AVAYA").

Avaya grants you a license within the scope of the license types described below, with the exception of Heritage Nortel Software, for which the scope of the license is detailed below. Where the order documentation does not expressly identify a license type, the applicable license will be a Designated System License. The applicable number of licenses and units of capacity for which the license is granted will be one (1), unless a different number of licenses or units of capacity is specified in the documentation or other materials available to you. "Designated Processor" means a single stand-alone computing device. "Server" means a Designated Processor that hosts a software application to be accessed by multiple users.

Copyright

Except where expressly stated otherwise, no use should be made of materials on this site, the Documentation, Software, or hardware provided by Avaya. All content on this site, the documentation and the Product provided by Avaya including the selection, arrangement and design of the content is owned either by Avaya or its licensors and is protected by copyright and other intellectual property laws including the sui generis rights relating to the protection of databases. You may not modify, copy, reproduce, republish, upload, post, transmit or distribute in any way any content, in whole or in part, including any code and software unless expressly authorized by Avaya. Unauthorized reproduction, transmission, dissemination, storage, and/or use without the express written consent of Avaya can be a criminal, as well as a civil offense under the applicable law.

Third Party Components

"Third Party Components" mean certain software programs or portions thereof included in the Software that may contain software (including open source software) distributed under third party agreements ("Third Party Components"), which contain terms regarding the rights to use certain portions of the Software ("Third Party Terms"). Information regarding distributed Linux OS source code (for those Products that have distributed Linux OS source code) and identifying the copyright holders of the Third Party Components and the Third Party Terms that apply is available in the Documentation or on Avaya's website at: <http://support.avaya.com/Copyright>. You agree to the Third Party Terms for any such Third Party Components.

Preventing Toll Fraud

"Toll Fraud" is the unauthorized use of your telecommunications system by an unauthorized party (for example, a person who is not a corporate employee, agent, subcontractor, or is not working on your company's behalf). Be aware that there can be a risk of Toll Fraud associated with your system and that, if Toll Fraud occurs, it can result in substantial additional charges for your telecommunications services.

Avaya Toll Fraud intervention

If you suspect that you are being victimized by Toll Fraud and you need technical assistance or support, call Technical Service Center Toll Fraud Intervention Hotline at +1-800-643-2353 for the United States and Canada. For additional support telephone numbers, see the Avaya Support website: <http://support.avaya.com>. Suspected security vulnerabilities with Avaya products should be reported to Avaya by sending mail to: securityalerts@avaya.com.

Trademarks

The trademarks, logos and service marks ("Marks") displayed in this site, the Documentation and Product(s) provided by Avaya are the registered or unregistered Marks of Avaya, its affiliates, or other third parties. Users are not permitted to use such Marks without prior written consent from Avaya or such third party which may own the Mark. Nothing contained in this site, the Documentation and Product(s) should be construed as granting, by implication, estoppel, or otherwise, any license or right in and to the Marks without the express written permission of Avaya or the applicable third party.

Avaya is a registered trademark of Avaya Inc.

All non-Avaya trademarks are the property of their respective owners, and "Linux" is a registered trademark of Linus Torvalds.

Downloading Documentation

For the most current versions of Documentation, see the Avaya Support website: <http://support.avaya.com>.

Contact Avaya Support

See the Avaya Support website: <http://support.avaya.com> for product notices and articles, or to report a problem with your Avaya product. For a list of support telephone numbers and contact addresses, go to the Avaya Support website: <http://support.avaya.com>, scroll to the bottom of the page, and select Contact Avaya Support.

Contents

Chapter 1: Regulatory Information and Safety Precautions.....	9
Chapter 2: Introduction.....	23
Purpose of this document.....	23
Related resources.....	23
Documentation.....	23
Training.....	23
Avaya Mentor videos.....	23
Support.....	24
Chapter 3: New in this release.....	25
Features.....	25
Other changes.....	25
Chapter 4: Avaya Ethernet Routing Switch 8800/8600 upgrade.....	27
Chapter 5: Avaya Ethernet Routing Switch 8800/8600 upgrade considerations and concepts.....	29
Advanced License.....	29
Premier License.....	30
Proper care of external compact flash and PCMCIA cards.....	30
Proper handling of SF/CPU and I/O modules.....	31
Supported upgrade paths.....	32
Upgrade considerations.....	32
Enterprise Device Manager.....	33
Before you upgrade the software image.....	34
HTTPS support for EDM.....	35
Upgrade and Power Management.....	35
Power Management operations.....	35
Upgrading systems with 8895 CPUs and Dual Input Power Supplies.....	36
Hot swapping modules.....	37
DOSFS with upgrades from pre-Release 5.0.....	38
Avaya Command Line Interface.....	39
Flash memory and PCMCIA card file systems.....	39
Compact flash read/write compatibility with Windows PC.....	41
Compact flash support on 8895 SF/CPU.....	42
File storage options.....	42
Boot sources.....	43
Switch behavior during boot cycle and redundant configuration files.....	43
Support for the pcmboot.cfg file.....	45
DLD file considerations.....	45
FPGA firmware.....	46
New software files.....	46
Installing EDM help files.....	49
High Availability mode considerations.....	50
MD5 checksums.....	50
Considerations for upgrades from 5.0.0.x release code.....	51
Configuration file modifications for BGP upgrades from release 4.x code.....	51

Configuration file modifications for MVR upgrades from release 7.0 code.....	52
SMLT switch cluster upgrade considerations.....	55
Modifying IST ports during an SMLT upgrade.....	57
Downgrade considerations.....	58
Emergency recovery tree.....	59
SPBM IEEE 802.1aq standards compliance.....	60
Chapter 6: Avaya Ethernet Routing Switch 8800/8600 SF/CPU, R, RS, and 8800 module upgrade using the CLI.....	63
Prerequisites.....	63
Ethernet Routing Switch 8800/8600 SF/CPU, R, RS, and 8800 module upgrade using the CLI tasks....	64
Ethernet Routing Switch upgrade time requirements.....	66
Determining available storage space.....	67
Disabling Power Management.....	68
Backing up configuration files.....	70
Generating reference data.....	71
Upgrading the software on a single SF/CPU system.....	72
Upgrading the software on a dual SF/CPU system.....	75
Downloading the software.....	78
Installing FPGA firmware on R modules.....	79
Installing FPGA firmware on RS and 8800 modules.....	81
Changing passwords.....	83
Backing up upgraded configuration files.....	84
Verifying the upgrade.....	84
Upgrading from Release 5.x to Release 7.x.....	85
Upgrading R modules from Release 5.1.1.10/11 to 7.2.10.....	86
Software-specified SuperMezz image.....	87
User-specified SuperMezz image.....	89
Upgrading from 8692 SF/CPU with SuperMezz to 8895 SF/CPU.....	90
Downgrading the Ethernet Routing Switch 8800/8600.....	91
Migrating to standard SPBM using the CLI.....	92
Chapter 7: Operational procedures using the CLI.....	97
Saving configuration files.....	97
Copying files.....	97
Hiding files.....	99
Enabling FTP and TFTP.....	99
Configuring boot sources.....	100
Checking firmware revisions.....	103
Replacing a SF/CPU module in a single CPU chassis.....	104
Hot swapping the Master SF/CPU module in a dual CPU chassis.....	106
Hot swapping the Secondary SF/CPU module in a dual CPU chassis.....	109
Hot swapping an I/O module.....	111
Reformatting the 8692 SF/CPU flash memory to 64 MB for a single SF/CPU system.....	112
Reformatting the flash memory to 64 MB for a dual SF/CPU system.....	115
Reformatting the 8895 SF/CPU compact flash.....	116
Downgrading flash and PCMCIA memory.....	118
Verifying the MD5 checksums.....	119
Determining the number of chassis MAC addresses.....	121

Upgrading to 4096 MAC addresses.....	122
Chapter 8: Avaya Ethernet Routing Switch 8800/8600 SF/CPU, R, RS, and 8800 module upgrade using the ACLI.....	127
Prerequisites.....	127
Ethernet Routing Switch 8800/8600 SF/CPU, R, RS, and 8800 module upgrade using the ACLI tasks..	128
Determining available storage space.....	130
Disabling Power Management.....	131
Backing up configuration files.....	133
Generating reference data.....	134
Upgrading the software on a single SF/CPU system.....	135
Upgrading the software on a dual SF/CPU system.....	138
Downloading the software.....	142
Installing FPGA firmware on R modules.....	142
Installing FPGA firmware on RS and 8800 modules.....	145
Changing passwords.....	148
Backing up post-upgrade configuration files.....	149
Verifying the upgrade.....	149
Upgrading from Release 5.x to Release 7.x.....	150
Upgrading R modules from Release 5.1.1.10/11 to 7.2.10.1.....	150
Software-specified SuperMezz image.....	152
User-specified SuperMezz image.....	153
Upgrading from 8692 SF/CPU with SuperMezz to 8895 SF/CPU.....	155
Upgrading an 8630GBR with an 8648GBRS or 8848GB.....	156
Downgrading the Ethernet Routing Switch 8800/8600.....	159
Migrating to standard SPBM using the ACLI.....	160
Chapter 9: Operational procedures using the ACLI.....	163
Saving configuration files.....	163
Copying files.....	163
Hiding files.....	164
Enabling FTP and TFTP.....	165
Configuring boot sources.....	166
Checking firmware revisions.....	169
Replacing an SF/CPU module in a single CPU chassis.....	170
Hot swapping the Master SF/CPU module in a dual CPU chassis.....	172
Hot swapping the Secondary SF/CPU module in a dual CPU chassis.....	175
Hot swapping an I/O module.....	177
Reformatting the 8692 SF/CPU flash memory to 64 MB for a single SF/CPU system.....	179
Reformatting the flash memory to 64 MB for a dual SF/CPU system.....	181
Reformatting the 8895 SF/CPU compact flash.....	182
Downgrading flash and PCMCIA memory.....	184
Verifying the MD5 checksums.....	185
Determining the number of chassis MAC addresses.....	187
Upgrading to 4096 MAC addresses.....	187
Appendix A: Supported migration matrix.....	191
Migration matrix.....	191
Appendix B: Translations of Safety Messages.....	199
Electromagnetic interference caution statement.....	199

Electrostatic discharge caution statement.....	200
--	-----

Chapter 1: Regulatory Information and Safety Precautions

Read the information in this section to learn about regulatory conformities and compliances.

International Regulatory Statements of Conformity

This is to certify that the Avaya 8000 Series chassis and components installed within the chassis were evaluated to the international regulatory standards for electromagnetic compliance (EMC) and safety and were found to have met the requirements for the following international standards:

- EMC—Electromagnetic Emissions—CISPR 22, Class A
- EMC—Electromagnetic Immunity—CISPR 24
- Electrical Safety—IEC 60950, with CB member national deviations

Further, the equipment has been certified as compliant with the national standards as detailed in the following sections.

National Electromagnetic Compliance (EMC) Statements of Compliance

FCC Statement (USA only)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the Federal Communications Commission (FCC) rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy. If it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to take whatever measures may be necessary to correct the interference at their own expense.

ICES Statement (Canada only)

Canadian Department of Communications Radio Interference Regulations

This digital apparatus (8800/8600 Series chassis and installed components) does not exceed the Class A limits for radio-noise emissions from digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications.

Règlement sur le brouillage radioélectrique du ministère des Communications

Cet appareil numérique (8800/8600 Series chassis) respecte les limites de bruits radioélectriques visant les appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique du ministère des Communications du Canada.

CE Marking Statement (Europe only)

EN 55022 Statements

This is to certify that the Avaya 8800/8600 Series chassis and components installed within the chassis are shielded against the generation of radio interference in accordance with the application of Council Directive 2004/108/EC. Conformity is declared by the application of EN 55022 Class A (CISPR 22).

Caution:

This device is a Class A product. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users are required to take appropriate measures necessary to correct the interference at their own expense.

EN 55024 Statement

This is to certify that the Avaya 8800/8600 Series chassis is shielded against the susceptibility to radio interference in accordance with the application of Council Directive 2004/108/EC. Conformity is declared by the application of EN 55024 (CISPR 24).

EN 300386 Statement

The Avaya Ethernet Routing Switch 8800/8600 Series chassis complies with the requirements of EN 300386 V1.3.3 for emissions and for immunity for a Class A device intended for use in either Telecommunications centre or locations other than telecommunications centres given the performance criteria as specified by the manufacturer.

EC Declaration of Conformity

The Avaya Ethernet Routing Switch 8800/8600 Series chassis conforms to the provisions of the R&TTE Directive 1999/5/EC.

European Union and European Free Trade Association (EFTA) Notice



All products labeled with the CE marking comply with R&TTE Directive (1999/5/EEC) which includes the Electromagnetic Compliance (EMC) Directive (2004/108/EC) and the Low Voltage Directive (2006/95/EC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms (ENs). The equivalent international standards are listed in parenthesis.

- EN 55022 (CISPR 22)—Electromagnetic Interference
- EN 55024 (IEC 61000-4-2, -3, -4, -5, -6, -8, -11)—Electromagnetic Immunity
- EN 61000-3-2 (IEC 61000-3-2)—Power Line Harmonics
- EN 61000-3-3 (IEC 61000-3-3)—Power Line Flicker

VCCI Statement (Japan/Nippon only)

This is a Class A product based on the standard of the Voluntary Control Council for Interference (VCCI) for information technology equipment. If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

KCC Notice (Republic of Korea only)

This device has been approved for use in Business applications only per the Class A requirements of the Republic of Korea Communications Commission (KCC). This device may not be sold for use in a non-business application.

For Class A:

이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

Russia Belarus and Kazakhstan Requirement

В целях соблюдения действующего законодательства, продукты Компании Авайя, которые поставляются в Россию, Белоруссию и Казахстан, поставляются с конфигурацией, которая соответствует текущим требованиям нормативных актов. Любые изменения предустановленного программного обеспечения или прошивки программно-аппаратного комплекса, включая установку иной прошивки, запрещаются, а в случае таких изменений, лицо или компания их осуществившие несут ответственность на свой страх и риск. Компания Авайя не несет ответственности за внесение каких-либо изменений в продукт, произведенный на или для использования на территории России, Белоруссии и Казахстана, кроме модификаций, которые выполнены и сертифицированы Компанией Авайя.

In order to comply with existing laws, Avaya's products that are supplied to Russia, Belarus, and Kazakhstan are supplied with a configuration which is in line with existing legislation. Modifications may lead to product certifications becoming invalid. Any modification of preinstalled software and firmware, including installation of other or more current firmware or software, therefore is done at the responsibility of the person or company executing the changes. Avaya is not responsible for any modifications to the product made on or for use on the territory of Russia, Belarus and Kazakhstan other than modifications executed and certified by Avaya itself.

BSMI statement (Taiwan only)

BSMI statement (Taiwan only)

This is a Class A product based on the standard of the Bureau of Standards, Metrology and Inspection (BSMI) CNS 13438 Class A and CNS 14336-1.

警告使用者:

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Chinese EMI and safety warnings

 **Voltage:**

Risk of injury by electric shock

Before working on this equipment, be aware of good safety practices and the hazards involved with electrical circuits. Use only power cords that have a good grounding path. Ensure that the switch is properly grounded before powering on the unit.

 **電壓警告:**

觸電受傷的危險性

在此設備上進行作業之前，要認知到良好的安全行為和涉及電子電路可能的危害。使用的電源線需有接地路徑。確保供電給設備之前，有適當的接地。

 **Warning:**

Disconnecting the power cord is the only way to turn off power to this device. Always connect the power cord in a location that can be reached quickly and safely in case of emergency.

 **警告使用者:**

斷開電源線，是關閉該設備電源的唯一方法。始終確保連接電源線的位置，在緊急情況下，是可以快速且安全抵達的一個位置。

 **Electrostatic alert:**

Risk of equipment damage

To prevent damage from electrostatic discharge, always wear an antistatic wrist strap connected to an ESD jack when connecting cables or performing maintenance on this device.

⚠ 靜電提醒：

設備損壞的風險

為了防止靜電放電的破壞，在此設備上連接纜線或執行維護時，始終戴上防靜電腕帶並連接到ESD插孔。

National Safety Statements of Compliance

CE Marking Statement (Europe only)

EN 60 950 Statement

This is to certify that the Avaya 8000 Series chassis and components installed within the chassis are in compliance with the requirements of EN 60 950 in accordance with the Low Voltage Directive. Additional national differences for all European Union countries have been evaluated for compliance. Some components installed within the 8000 Series chassis may use a nickel-metal hydride (NiMH) and/or lithium-ion battery. The NiMH and lithium-ion batteries are long-life batteries, and it is very possible that you will never need to replace them. However, should you need to replace them, refer to the individual component manual for directions on replacement and disposal of the battery.

NOM Statement (Mexico only)

The following information is provided on the devices described in this document in compliance with the safety requirements of the Norma Oficial Mexicana (NOM):

Exporter:	Avaya Inc. 4655 Great America Parkway Santa Clara CA 95054 USA
Importer:	Avaya Communication De Mexico S.A. De C.V. Av Presidente Msarik 111 Piso 6 Col. Chapultepec Morales Deleg. Miguel Hidalgo México D.F. 11570
Tel:	52 5 480 2100

Fax: 52 5 480 2199

Input: Model 8004AC:
100-240 VAC, 50-60 Hz, 12-6 A maximum for each power supply

Model 8005AC:
100-120 VAC, 50-60 Hz, 16 A maximum for each power supply
200-240 VAC, 50-60 Hz, 8.5 A maximum for each power supply

Model 8005DI AC:
100-120 VAC, 50-60 Hz, 16 A maximum for each AC inlet
200-240 VAC, 50-60 Hz, 9.3 A maximum for each AC inlet

Model 8005DI DC:
8005DIDC: 40 to 75 VDC, 48.75 to 32.5 A
single supply, single supply + one redundant supply, two supplies, or two
supplies + one redundant supply configurations

Model 8004DC:
48-60 VDC, 29-23 A

Model 8005DC:
48-60 VDC, 42-34 A

Información NOM (únicamente para México)

La información siguiente se proporciona en el dispositivo o en los dispositivos descritos en este documento, en cumplimiento con los requisitos de la Norma Oficial Mexicana (NOM):

Exportador: Avaya Inc.
4655 Great America Parkway
Santa Clara, CA 95054 USA

Importador: Avaya Communication De Mexico S.A. De C.V..
Av Presidente Msarik 111
Piso 6
Col. Chapultepec Morales
Deleg. Miguel Hidalgo
México D.F. 11570

Tel: 52 5 480 2100

Fax: 52 5 480 2199

Embarcar a:	Model 8004AC: 100-240 VCA, 50-60 Hz, 12-6 A max. por fuente de poder Model 8005AC: 100-120 VCA, 50-60 Hz, 16 A max. por fuente de poder 200-240 VCA, 50-60 Hz, 9.5 A max. por fuente de poder Model 8005DI AC: 100-120 VCA, 50-60 Hz, 16 A max para cada entrada de CA 200-240 VCA, 50-60 Hz, 9.3 A max para cada entrada de CA Model 8005DI DC: 8005DIDC: 40 to 75 VDC, 48.75 to 32.5 A una fuente, una fuente + configuraciones de una fuente redundante, dos fuentes o dos + configuraciones de una fuente redundante Model 8004DC: -48 VCD, 29 A Model 8005DC: -48 VCD, 42 A
-------------	---

Denan Statement (Japan/Nippon only)



警告

本製品を安全にご使用頂くため、以下のことにご注意ください。

- 接続ケーブル、電源コード、ACアダプタなどの部品は、必ず製品に同梱されております。添付品または指定品をご使用ください。添付品・指定品以外の部品をご使用になると故障や動作不良、火災の原因となることがあります。
- 同梱されております付属の電源コードを他の機器には使用しないでください。上記注意事項を守らないと、死亡や大怪我など人身事故の原因となることがあります。

Safety Messages

This section describes the different precautionary notices used in this document. This section also contains precautionary notices that you must read for safe operation of the Avaya Ethernet Routing Switch 8800/8600.

Notices

Notice paragraphs alert you about issues that require your attention. The following sections describe the types of notices. For a list of safety messages used in this guide and their translations, see "Translations of safety messages".

Attention Notice

 **Important:**

An attention notice provides important information regarding the installation and operation of Avaya products.

Caution ESD Notice

 **Electrostatic alert:**

ESD

ESD notices provide information about how to avoid discharge of static electricity and subsequent damage to Avaya products.

 **Electrostatic alert:**

ESD (décharge électrostatique)

La mention ESD fournit des informations sur les moyens de prévenir une décharge électrostatique et d'éviter d'endommager les produits Avaya.

 **Electrostatic alert:**

ACHTUNG ESD

ESD-Hinweise bieten Information dazu, wie man die Entladung von statischer Elektrizität und Folgeschäden an Avaya-Produkten verhindert.

 **Electrostatic alert:**

PRECAUCIÓN ESD (Descarga electrostática)

El aviso de ESD brinda información acerca de cómo evitar una descarga de electricidad estática y el daño posterior a los productos Avaya.



Electrostatic alert:

CUIDADO ESD

Os avisos do ESD oferecem informações sobre como evitar descarga de eletricidade estática e os conseqüentes danos aos produtos da Avaya.



Electrostatic alert:

ATTENZIONE ESD

Le indicazioni ESD forniscono informazioni per evitare scariche di elettricità statica e i danni correlati per i prodotti Avaya.

Caution Notice



Caution:

Caution notices provide information about how to avoid possible service disruption or damage to Avaya products.



Caution:

ATTENTION

La mention Attention fournit des informations sur les moyens de prévenir une perturbation possible du service et d'éviter d'endommager les produits Avaya.



Caution:

ACHTUNG

Achtungshinweise bieten Informationen dazu, wie man mögliche Dienstunterbrechungen oder Schäden an Avaya-Produkten verhindert.



Caution:

PRECAUCIÓN

Los avisos de Precaución brindan información acerca de cómo evitar posibles interrupciones del servicio o el daño a los productos Avaya.



Caution:

CUIDADO

Os avisos de cuidado oferecem informações sobre como evitar possíveis interrupções do serviço ou danos aos produtos da Avaya.

**Caution:****ATTENZIONE**

Le indicazioni di attenzione forniscono informazioni per evitare possibili interruzioni del servizio o danni ai prodotti Avaya.

Warning Notice

**Warning:**

Warning notices provide information about how to avoid personal injury when working with Avaya products.

**Warning:****AVERTISSEMENT**

La mention Avertissement fournit des informations sur les moyens de prévenir les risques de blessure lors de la manipulation de produits Avaya.

**Warning:****WARNUNG**

Warnhinweise bieten Informationen dazu, wie man Personenschäden bei der Arbeit mit Avaya-Produkten verhindert.

**Warning:****ADVERTENCIA**

Los avisos de Advertencia brindan información acerca de cómo prevenir las lesiones a personas al trabajar con productos Avaya.

**Warning:****AVISO**

Os avisos oferecem informações sobre como evitar ferimentos ao trabalhar com os produtos da Avaya.

**Warning:****AVVISO**

Le indicazioni di avviso forniscono informazioni per evitare danni alle persone durante l'utilizzo dei prodotti Avaya.

Danger High Voltage Notice

 **Voltage:**

Danger—High Voltage notices provide information about how to avoid a situation or condition that can cause serious personal injury or death from high voltage or electric shock.

 **Voltage:**

La mention Danger—Tension élevée fournit des informations sur les moyens de prévenir une situation ou une condition qui pourrait entraîner un risque de blessure grave ou mortelle à la suite d'une tension élevée ou d'un choc électrique.

 **Voltage:**

GEFAHR

Hinweise mit „Vorsicht – Hochspannung“ bieten Informationen dazu, wie man Situationen oder Umstände verhindert, die zu schweren Personenschäden oder Tod durch Hochspannung oder Stromschlag führen können.

 **Voltage:**

PELIGRO

Los avisos de Peligro-Alto voltaje brindan información acerca de cómo evitar una situación o condición que cause graves lesiones a personas o la muerte, a causa de una electrocución o de una descarga de alto voltaje.

 **Voltage:**

PERIGO

Avisos de Perigo—Alta Tensão oferecem informações sobre como evitar uma situação ou condição que possa causar graves ferimentos ou morte devido a alta tensão ou choques elétricos.

 **Voltage:**

PERICOLO

Le indicazioni Pericolo—Alta tensione forniscono informazioni per evitare situazioni o condizioni che potrebbero causare gravi danni alle persone o il decesso a causa dell'alta tensione o di scosse elettriche.

Danger Notice

 **Danger:**

Danger notices provide information about how to avoid a situation or condition that can cause serious personal injury or death.

 **Danger:**

La mention Danger fournit des informations sur les moyens de prévenir une situation ou une condition qui pourrait entraîner un risque de blessure grave ou mortelle.

 **Danger:**

GEFAHR

Gefahrenhinweise stellen Informationen darüber bereit, wie man Situationen oder Umständen verhindert, die zu schweren Personenschäden oder Tod führen können.

 **Danger:**

PELIGRO

Los avisos de Peligro brindan información acerca de cómo evitar una situación o condición que pueda causar lesiones personales graves o la muerte.

 **Danger:**

PERIGO

Avisos de perigo oferecem informações sobre como evitar uma situação ou condição que possa causar graves ferimentos ou morte.

 **Danger:**

PERICOLO

Le indicazioni di pericolo forniscono informazioni per evitare situazioni o condizioni che potrebbero causare gravi danni alle persone o il decesso.

National Environmental Statements of Compliance

The WEEE Directive 2002/96/EC and RoHS (Restriction of Hazardous Substances) Directive 2002/95/EC sets collection, recycling and recovery targets for various categories of electrical products and their waste.

RoHS Directive Compliance Statement

The Restriction on Hazardous Substances Directive (RoHS) (2002/95/EC), which accompanies the WEEE Directive, bans the use of heavy metals and brominated flame-retardants in the manufacture of electrical and electronic equipment. Specifically, restricted materials under the RoHS Directive are Lead (including solder used in PCB's), Cadmium, Mercury, Hexavalent Chromium, and Bromine.

Avaya declares compliance with the European Union (EU) RoHS Directive (2002/95/EC).

WEEE Directive Compliance Statement



This product at end of life is subject to separate collection and treatment in the EU Member States, Norway, and Switzerland and therefore is marked with the symbol shown at the left. Treatment applied at end of life of these products in these countries shall comply with the applicable national laws implementing Directive 2002/96/EC on Waste of Electrical and Electronic Equipment (WEEE). Avaya declares compliance with the European Union (EU) WEEE Directive (2002/96/EC).

Chapter 2: Introduction

Purpose of this document

This document provides instructions to upgrade the Avaya Ethernet Routing Switch 8800/8600 to Release 7.2. It also provides instructions for adding the required SuperMezz option to the 8692 SF/CPU and for replacing an existing 8692 SF/CPU (with or without SuperMezz) with a new 8895 SF/CPU.

For information about installing or transferring licenses, see *Avaya Ethernet Routing Switch 8800/8600 Administration*, (NN46205-605).

Related resources

Documentation

See the *Avaya Ethernet Routing Switch 8800/8600 Documentation Roadmap*, NN46205-103, for a list of the documentation for this product.

Training

Ongoing product training is available. For more information or to register, you can access the website at <http://avaya-learning.com/>.

Avaya Mentor videos

Avaya Mentor is an Avaya-run channel on YouTube that includes technical content on how to install, configure, and troubleshoot Avaya products.

Go to <http://www.youtube.com/AvayaMentor> and perform one of the following actions:

- Enter a key word or key words in the Search Channel to search for a specific product or topic.
- Scroll down Playlists, and click the name of a topic to see the available list of videos posted on the site.

Support

Visit the Avaya Support website at <http://support.avaya.com> for the most up-to-date documentation, product notices, and knowledge articles. You can also search for release notes, downloads, and resolutions to issues. Use the online service request system to create a service request. Chat with live agents to get answers to questions, or request an agent to connect you to a support team if an issue requires additional expertise.

Chapter 3: New in this release

The following sections detail what's new in *Avaya Ethernet Routing Switch 8800/8600 Upgrades* (NN46205-400) for Release 7.2.

- [Features](#) on page 25
- [Other changes](#) on page 25

Features

There are no new feature for this release.

Other changes

This section lists the non-feature changes to this document for release 7.2.10.

Upgrading to 7.x

A new section was added to the CLI and the ACLI for upgrading to 7.x. For the CLI, see [Upgrading from Release 5.x to Release 7.x](#) on page 85. For the ACLI, see [Upgrading from Release 5.x to Release 7.x](#) on page 150. These sections include three subsections for the following procedures:

- Upgrading R modules from Release 5.1.1.10/11 to 7.2.10
- Software-specified SuperMezz image
- User-specified SuperMezz image

New in this release

Chapter 4: Avaya Ethernet Routing Switch 8800/8600 upgrade

Upgrade the chassis and module software to take advantage of all the latest Ethernet Routing Switch 8800/8600 features and improvements. This document describes how to upgrade the software for the Ethernet Routing Switch 8800/8600 SF/CPU, and how to update R module firmware.

For more information about how to use the command line interface (CLI), the Avaya command line interface (ACLI), and Enterprise Device Manager (EDM), see *Avaya Ethernet Routing Switch 8800/8600 User Interface Fundamentals*, (NN46205-308).

For information about installing or transferring licenses, see *Avaya Ethernet Routing Switch 8800/8600 Administration*, (NN46205-605).

Chapter 5: Avaya Ethernet Routing Switch 8800/8600 upgrade considerations and concepts

Review the considerations and concepts in this section before you upgrade the Ethernet Routing Switch 8800/8600.

For Release 7.2, you require Advanced or Premier Routing licenses to unlock certain features.

 **Note:**

Avaya VENA Unified Access only requires a Base License.

 **Caution:**

Proper handling of compact flash cards and modules can eliminate many potential issues. Please refer to the following sections to avoid unnecessary problems:

- [Proper care of external compact flash and PCMCIA cards](#) on page 30
- [Proper handling of SF CPU and I O modules](#) on page 31

Advanced License

The features enabled by the Advanced License are as follows:

- Border Gateway Protocol version 4 (BGP4) for more than 10 Peers
- Bidirectional Forwarding Detection
- Multicast Source Discovery Protocol (MSDP)
- Packet Capture function (PCAP)
- IPv6 Features
 - IP Routing
 - IPv6 over SMLT and RSMLT
 - DHCPv6 Relay
 - VRRPv3
 - BGP+

- RADIUSv6

Premier License

The features enabled by the Premier License are as follows:

- All Advanced License features
- Virtual Routing and Forwarding, Lite version (VRF-Lite)
- Multicast virtualization for VRF-Lite (IGMP and PIM-SM/SSM)
- Multi-Protocol Border Gateway Protocol (MP-BGP)
- IP-Virtual Private Network, Multi-Protocol Label Switching (RFC2547) (IP-VPN MPLS RFC2547)
- IP-Virtual Private Network-Lite (IP-VPN-Lite – IP-in-IP)
- Shortest Path Bridging (SPB) Features:
 - Multicast over SPBM
 - SPB L2 VSNs (VLAN Extensions)
 - SPB GRT Shortcuts (VRF0 shortcuts)
 - SPB L3 VSN (VRF Extensions)
 - IP VPN Lite over SPB IP shortcuts
 - Inter-VSN Routing
 - IEEE 802.1ag Connectivity Fault Management

The Premier License enables all licensed features on the Ethernet Routing Switch 8800.

For a complete list of files that you require to upgrade, their sizes, and any last-minute upgrade procedure changes, see the Release Notes or ReadMe files that accompany your software release. You can download these documents from the Avaya Technical Support Web site: <http://www.avaya.com/support>.

Proper care of external compact flash and PCMCIA cards

To ensure proper software cleanup on the CP and to prevent corruption of the external compact flash card or the PCMCIA card, **do not remove the external memory card without first entering the following command:**

- `dos-stop /pcmcia`

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

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

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

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

The above commands are available in the CLI, ACLI, and the boot monitor.

For more information, see Shutting down external CF cards in *Administration* (NN46205–605).

Proper handling of SF/CPU and I/O modules

Caution:

Avaya strongly recommends that you disable any module (SF/CPU or I/O) before you remove it. Use one of the following commands.

- `config slot <slotnum> state disable` (CLI command)
- `slot shutdown <slotnum>` (ACLI command)

Do not remove any module without first entering one of the preceding commands.

For information on using the CLI to perform specific tasks, see:

- [Upgrading from 8692 SF CPU with SuperMezz to 8895 SF CPU](#) on page 90
- [Hot swapping the Master SF CPU module in a dual CPU chassis](#) on page 106
- [Hot swapping the Secondary SF CPU module in a dual CPU chassis](#) on page 109
- [Hot swapping an I O module](#) on page 111

For information on using the ACLI to perform specific tasks, see:

- [Upgrading from 8692 SF CPU with SuperMezz to 8895 SF CPU](#) on page 155
- [Hot swapping the Master SF CPU module in a dual CPU chassis](#) on page 172
- [Hot swapping the Secondary SF CPU module in a dual CPU chassis](#) on page 175
- [Hot swapping an I O module](#) on page 177

Supported upgrade paths

The Ethernet Routing Switch 8800/8600 Software Release 7.2 supports upgrades from the following earlier releases:

- 5.1.8.x
- 7.0.0.3
- 7.1.3.0

 **Important:**

If you want to upgrade to release 7.2 from a release other than those listed above, first upgrade to one of the listed releases, and then upgrade to 7.2. Other upgrade paths may work, but have not been tested and are not officially supported. Also note that release 7.2 only supports the following SF/CPU modules:

- 8895 SF/CPU
- 8692 SF/CPU with SuperMezz

The 8692 SF/CPU without SuperMezz is not supported.

 **Important:**

Before you upgrade to Release 7.2, upgrade all power supplies to either 8004 or 8005 level power supplies.

See also [Considerations for upgrades from 5.0.0.x release code](#) on page 51 for important upgrade information.

Upgrade considerations

Release 7.2 does not support any classic modules. Be sure to remove classic modules from the chassis before upgrading to Release 7.2.

Release 7.2 supports the 8692 SF/CPU only if it is equipped with SuperMezz. The 8692 SF/CPU without SuperMezz is not supported with Release 7.2.

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

Before you upgrade to release 7.2, upgrade all power supplies to either 8004 or 8005 level power supplies.

The 8895 SF/CPU module requires release 7.0 or later software to function properly.

Avaya does not support different software versions, for example, Releases 7.1.3 and 7.2, on the Master and Secondary SF/CPU. The only exception to this rule is during an upgrade process when the HA-CPU flag is disabled.

When the HA-CPU flag is enabled, the Standby and Master SF/CPUs must simultaneously run the same software version, or system instability can result.

The configuration file generated with Ethernet Routing Switch 8800/8600 Software Release 7.2 contains options that are not backward-compatible with any previous Ethernet Routing Switch 8800/8600 Software Releases.

Loading a Release 7.2 configuration file on a pre-7.2 runtime image can generate errors and cause the image to stop loading the configuration file. Under these conditions, the system will load with a default configuration.

If 8800/8600 switches running pre-7.0 code are connected to rebranded 8800 7.0 switches, the pre-7.0 switches cannot identify the chassis type and remote port from Topology Discovery Packets from the rebranded 8800 switches. As a result, in the pre-7.0 switches, the command **show sys topology** displays unknown error: 192 in the ChassisType and Rem Port fields for the 8800 switches.

Downgrades always require previously saved configuration files (boot.cfg and config.cfg) and may require the removal of R, RS, and 8800 series modules prior to downgrade.

Enterprise Device Manager

Enterprise Device Manager (EDM) replaces both the Java-based Device Manager and Web-based management. EDM is an embedded element management and configuration application for Ethernet Routing Switch 8800 Series switches. EDM uses a Web-based graphical user interface for the convenience of full integration onto the switch, but it retains the look and feel of Device Manager.

Important:

With the introduction of Enterprise Device Manager (EDM), the use of Device Manager (sometimes referred to as JDM) is no longer supported because the use of JDM to control the switch could lead to potential corruption of the switch configuration.

Important:

If you upgrade the software on your switch, and if you manage the switch with EDM, then you should refresh the browser cache on your end device to ensure that EDM loads the latest tabs for all respective features.

Before you upgrade the software image

Caution:

Risk of service interruption

If the switch has only one SF/CPU, the upgrade procedure can cause interruption of normal switch operation.

Before you upgrade the Ethernet Routing Switch 8800/8600:

- Read the entire upgrade procedure.
- Back up your runtime configuration and boot configuration for both Master and Secondary SF/CPU (if the SavetoStandby feature is enabled, you only need to back up the files from the Master).
- Determine that you have enough power supplies installed to run all modules and devices —see [Upgrade and Power Management](#) on page 35.
- Remove all nonsupported classic modules, including E and M modules, 8691 SF/CPU modules, and 8692 SF/CPU modules without SuperMezz. (The 8692 SF/CPU is supported if equipped with SuperMezz.)

After you upgrade the software, if the upgrade is unsuccessful and you must return to the previous software version, you need the previously saved configuration files (boot.cfg and config.cfg). The upgrade process automatically converts, but does not save, the existing configuration files to a format that is compatible with the new software release. The new configuration files may not be backward compatible.

Before you run any **copy** command that uses Trivial File Transfer Protocol (TFTP), be aware that if a failure occurs (for example, a TFTP server is not available), the file that you specify in the copy command is deleted. To preserve the original file, rename the file or make a copy of the file in the internal flash memory or external Personal Computer Memory Card International Association (PCMCIA) card (for 8692 SF/CPU) or external compact flash (for 8895 SF/CPU) before you begin the copy process.

When you install files on the onboard flash memory or external memory card, verify capacity before you download the files.

Caution:

Loss of access to /pcmcia/boot.cfg

If you use a PCMCIA card manufactured by SanDisk, the Ethernet Routing Switch 8800/8600 may be unable to access the /pcmcia/boot.cfg file during bootup. This limitation is observed only during bootup.

HTTPS support for EDM

With release 7.1 and later, HTTPS is the default method to connect to the switch using EDM.

If you require a non-secure connection (HTTP), you must disable the Web server secure-only option using CLI or ACLI. You cannot use EDM to configure HTTPS or HTTP access. For more information about HTTPS support for EDM, see *Avaya Ethernet Routing Switch 8800/8600 User Interface Fundamentals*, (NN46205-308).

Upgrade and Power Management

The Power Management feature available with Release 7.2 and later, may require you to take special steps before you upgrade.

When you upgrade to Release 7.2, Power Management is enabled by default. When the switch boots, if Power Management detects that there are not enough power supplies in the system to successfully run the system, it shuts down the lowest-priority modules. This does not occur if you have enough available power.

You can calculate the number of power supplies required for your Ethernet Routing Switch 8800/8600 system. To determine the number of power supplies required for your switch configuration, use the *Avaya ERS 8800/8600 Power Supply Calculator*, (NN48500-519). This is available on the Avaya Technical Support Web site at www.avaya.com/support.

For Power Management configuration and conceptual information, see *Avaya Ethernet Routing Switch 8800/8600 Administration*, (NN46205-605).

Power Management operations

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

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

The amount of system power is calculated based on the number, type, and input source voltage of the power supplies in the chassis. This system power calculation is equal to the DC wattage output (which can differ depending on AC input voltage) minus 90 W required for the fans. For 8005AC or 8005DI AC supplies, the system detects whether the supply is sourced with 110 V or 220 V and uses the corresponding output power. For 8004 series power supplies, the system

power output calculation is the same (690 W), regardless of source input AC voltage. However, the actual power supply wattage output will vary depending upon the input source voltage. The system power output calculation is always based on low-voltage input. Therefore in systems using 8004 series power supplies that are running at high voltage input (220 V), the system output power calculation will actually be lower (displaying 690 W) than what the system is capable of.

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

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

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

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

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

Upgrading systems with 8895 CPUs and Dual Input Power Supplies

In systems running pre-7.1.5.2 code with an 8895 SF/CPU and Dual Input Power Supplies, the I2C bus can sometimes hang. The system continues to function properly even with the I2C in a hung state. However, when you reboot the system, the reboot fails due to `Chassis Seeprom read error`.

Important:

If the system that you are going to upgrade is already in the I2C Hung state, use the procedure below to correct that state **before** proceeding with the upgrade. Failure to do so results in a failed upgrade and the device remains in a software hung state upon reboot and potentially become inaccessible.

The I2C Hang issue is not a problem in the following code streams:

- Release 7.1.5.2 and higher in the 7.1.x software stream
- Release 7.2.1.1 and higher in the 7.2.x software stream

 **Note:**

The Dual AC-Input Power Supply part number is: 8005DI 1170W/1492W 120/240V.

Before you begin

On the Primary CPU only, enter the CLI `show sys info` command (or ACLI `show sys-info`) to check the I2C status. If the Fan temperature reading is 0, that means the device is in an I2C Hung state and you must perform the following procedure. If it is not hung, you can skip this procedure and continue with the upgrade.

Procedure

1. Make sure someone is **physically** present at the device in case a power cycle becomes necessary to recover the system.
2. Download the 7.1.5.2 or higher software release onto the device and complete all the pre-sets as you would in a normal upgrade.

 **Important:**

DO NOT issue the `reset` or `reboot` command yet.

3. Once all pre-work is complete, power the chassis off.
4. Remove **ALL** power supplies from the chassis and keep them out for a minimum of **30** seconds.
This step discharges the capacitors in the supply, which makes the supply completely cold electrically. This step ensures that the I2C bus starts clean on power-up.
5. Reinsert all the necessary power supplies into the chassis securely.
6. Power on the chassis.
The chassis should boot successfully with the 7.1.5.2 or higher or 7.2.1.1 or higher software that it was preconfigured to load. If for any reason the chassis hangs during software initialization of this upgrade boot, you can recover it using the above procedure.

Hot swapping modules

When an upgrade includes I/O or SF/CPU module replacement, be aware that the removal of an active module or SF/CPU can cause an undesirable effect on the forwarding plane. When you remove an active SF/CPU module, packets currently traversing the switch fabric may be lost or corrupted. The same is true if you want to replace an active SF/CPU module and the chassis has dual SF/CPU. To avoid loss of data in a dual SF/CPU system, you should switchover the active (Master) CPU so that the Secondary SF/CPU becomes active. Then you can disable and remove the old Master.

If only one SF/CPU exists in the chassis, disabling the SF/CPU causes a loss of data. Additionally, the removal and replacement of the SF/CPU in a single-CPU system causes all I/O modules to be reset.

All I/O modules are sensitive to corruption caused by removing active devices and can cause other I/O modules in the chassis to inadvertently stop receiving or forwarding traffic. If this occurs, a full system reboot is required to restore all services. To remove a module from an active system, you should disable the module before you remove it.

 **Caution:**

Risk of initialization failure

Do not hot swap or insert modules in an Ethernet Routing Switch 8800/8600 while the switch is booting. If you do, the switch may not recognize the module, which causes initialization failure.

Before you swap an SF/CPU module, make sure that you save all files you may need later.

When you hot swap the active SF/CPU module in an Ethernet Routing Switch 8800/8600 with dual SF/CPU modules (HA mode enabled or disabled), wait until the previous Secondary SF/CPU module is stabilized before you insert any other modules. Wait until the new Master is stabilized before you insert a replacement SF/CPU, the original SF/CPU, or any input/output modules.

The new Master is stable when the SF/CPU module displays a login prompt on the console screen. If no console connection is available, wait for at least thirty seconds or until the previous Secondary CPU becomes Master, whichever is longer. Then you can insert modules.

DOSFS with upgrades from pre-Release 5.0

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

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

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

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

! Important:

The one-time DOS reformat erases all files on the DOSFS device. Avaya recommends that you:

1. Back up all files from the DOSFS device.
Be sure to back up all hidden files as well.
2. Reformat the device.
3. Replace all files.

Avaya Command Line Interface

Starting with Release 5.0, you can use either the command line interface (CLI) or the Avaya command line interface (ACLI) to access and configure the Ethernet Routing Switch 8800/8600.

You cannot use ACLI commands in a CLI session, and you cannot use CLI commands in an ACLI session.

A CLI configuration file cannot be loaded by a switch running in ACLI mode.

An ACLI configuration file cannot be loaded by a switch running in CLI mode.

You can save a configuration file in either mode; however, you cannot convert a configuration file from one mode to another.

For more information about ACLI, see *Avaya Ethernet Routing Switch 8800/8600 User Interface Fundamentals*, (NN46205-308).

Flash memory and PCMCIA card file systems

This section describes the flash memory and PCMCIA card file systems in the switch. With the 8692 SF/CPU, the files that boot and operate the Ethernet Routing Switch 8800/8600 exist in onboard flash memory or on the external PCMCIA card. The 8895 SF/CPU is also equipped with onboard flash memory. However, with the 8895 SF/CPU, the external PCMCIA slot is replaced by a compact flash slot.

For onboard memory, the 8692 SF/CPU and the 8895 SF/CPU each have two onboard flash memory devices: the boot flash memory and the system flash memory.

Boot flash memory is 2 Mbytes and contains the boot monitor image file. You cannot access the boot monitor image directly. You can update the boot flash memory using a special boot monitor image file (p80bxxxx.img) that writes to the area reserved for the boot image.

The system flash memory stores configuration files, runtime images, the system log, and other files. You can access it through Enterprise Device Manager or CLI (/flash).

The system flash memory size is 16 to 64 Mbytes and depends on the SF/CPU type and software release version.

Release support for flash memory is summarized as follows:

Table 1: Release support for flash memory

Software release	Flash memory usage
3.7.x	16 Mbyte
4.0.x	Up to 40 Mbyte, but only with the 8692 SF/CPU
4.1-5.x	Up to 64 Mbyte, but only with the 8692 SF/CPU
7.0 and later	Up to 64 Mbyte with the 8692 SF/CPU and 8895 SF/CPU

To access 64 Mbytes of flash memory on the 8692 SF/CPU, reformat the flash memory after you upgrade to any 4.1.x or later boot monitor image (p80bxxxx.img). If you reformatted the flash in a previous code upgrade, the reformatting is not required again during the 7.2 upgrade. The 8895 SF/CPU is standard equipped with 64 Mbytes of flash memory.

For more information about:	See:
Memory and storage options	File storage options on page 42
Flash memory reformatting procedures	For CLI: Reformatting the 8692 SF/CPU flash memory to 64 MB for a single SF/CPU system on page 112, Reformatting the flash memory to 64 MB for a dual SF/CPU system on page 115 For ACLI: Reformatting the 8692 SF/CPU flash memory to 64 MB for a single SF/CPU system on page 179, Reformatting the flash memory to 64 MB for a dual SF/CPU system on page 181.
Downgrading the flash memory	For CLI: Downgrading flash and PCMCIA memory on page 118 For ACLI: Downgrading flash and PCMCIA memory on page 184

On the 8692 SF/CPU, the PCMCIA card is a removable storage device that you can also use to store configuration files, runtime images, and other files. PCMCIA cards provide a convenient way to move files between switches because they are portable. You can use one PCMCIA card to update the configuration and image files on several switches. An Ethernet Routing Switch 8800/8600 accepts any ATA-type, SanDisk-compatible memory card. PCMCIA cards as large as 1 gigabyte (GB) are successfully tested with the Ethernet Routing Switch 8800/8600.

The Ethernet Routing Switch 8800/8600 file system uses long file names such as those used with Microsoft Windows 95, Windows 98, and Windows NT operating systems. The file naming

convention for system flash memory files is `/flash/<filename>`. The file naming convention for PCMCIA card files is `/pcmcia/<filename>`.

On the 8895 SF/CPU, the PCMCIA card slot is replaced by a compact flash slot that you can also use to store configuration files, runtime images, and other files. You can use one compact flash card to update the configuration and image files on several switches. 2 gigabyte (GB) compact flash cards are successfully tested with the Ethernet Routing Switch 8800/8600.

For backwards compatibility, the file naming convention for compact flash card files remains `/pcmcia/<filename>`.

Note that PCMCIA cards cannot function in the external 8895 SF/CPU card slot, and similarly, compact flash cards cannot function in the external 8692 SF/CPU card slot. If you need to transfer files from an 8692 SF/CPU to an 8895 SF/CPU, Avaya recommends the use of an external TFTP/FTP server for storage during the transfer.

Compact flash read/write compatibility with Windows PC

The compact flash interface card of the 8895 SF/CPU can be formatted in either the Windows PC compatible format or its original format.

Important:

You must initially format the compact flash on the ERS 8800/8600 to be recognized by both VxWorks and Windows. If you initially format the compact flash on a Windows PC, VxWorks on the ERS 8800/8600 cannot recognize it.

You can format the compact flash using the boot configuration flag `cf-pc-compat`. Set this flag in the boot configuration file `boot.cfg` using the boot monitor CLI/ACLI. If you set the `cf-pc-compat` flag to `True` the compact flash is formatted in the Windows PC compatible format. Setting the flag to `False` ensures backward compatibility with the original format. The default state of the flag is `False`.

Important:

Ensure that you remove the Compact Flash interface card from its slot before you modify the `cf-pc-compat` flag. Otherwise the system displays errors.

For information about formatting this feature with the CLI, see [Reformatting the 8895 SF CPU compact flash](#) on page 116. For information about formatting this feature with the ACLI, see [Reformatting the 8895 SF CPU compact flash](#) on page 182.

For information on boot configuration flags and configuring them using the boot monitor CLI/ACLI, see *Avaya Ethernet Routing Switch 8800/8600 Administration*, (NN46205–605).

To configure boot configuration flags as part of boot source configuration, see [Configuring boot sources](#) on page 100 (CLI) and [Configuring boot sources](#) on page 166 (ACLI).

 **Important:**

When you modify the `cf-pc-compat` flag, you must reformat the compact flash for it to be readable in the new format.

Compact flash support on 8895 SF/CPU

Avaya recommends using only the Compact Flash cards listed below with the 8895 SF/CPU since they have been validated for proper operation. Use of any other Compact Flash devices is not recommended as they have not been verified for compatibility on the 8895 SF/CPU.

- SSD-C02G-4000
- SSD-C02G-4007
- SSD-C02G-4300
- SSD-C02G-4500
- SSD-C02G-4600

File storage options

You can download the new software directly to a personal computer with a compact flash card (for the 8895 SF/CPU) or PCMCIA card (for the 8692 SF/CPU). You can also download the software to a TFTP server, or to a File Transfer Protocol (FTP) server.

If you use a compact flash or PCMCIA card, after the new software is loaded onto the card, you can insert it into the Ethernet Routing Switch 8800/8600 and then:

- Load the software directly from the external compact flash or PCMCIA card
- Copy the software from the external compact flash or PCMCIA card to the internal flash memory and then load from the internal flash memory

If you use a TFTP or FTP server:

- Load the software directly from the TFTP or FTP server
- Copy the software from the TFTP or FTP server to internal flash memory or to the external flash or PCMCIA card and then load from the internal flash memory or from the external flash or PCMCIA card

The Ethernet Routing Switch 8800/8600 can act as an FTP server. If the FTP daemon (`ftpd`) is enabled, you can use a standards-based FTP client to connect to the SF/CPU by using the CLI log on parameters. Copy the files from the client either to the internal flash memory or to the external flash or PCMCIA card.

Each storage choice has advantages and disadvantages. Files in the internal flash memory are accessed most quickly; however, the internal flash memory size may be a limiting factor.

You can download the software to one external flash or PCMCIA card, and use the card to upgrade many Ethernet Routing Switches. Copying to, and loading from, a TFTP (or FTP) server is the easiest method; however, this method can present problems if there are network connectivity issues or limited bandwidth.

The upgrade procedures in this guide assume that you copy the new software from a TFTP server to the internal flash memory. However, you can use any of the storage options if you use the bootconfig command to point the Ethernet Routing Switch to the correct file location. The upgrade procedures in this guide point the switch to the internal flash memory.

Boot sources

The default boot sequence directs the switch to look for its image and configuration files first on the PCMCIA card (on the 8692 SF/CPU) or the external compact flash (on the 8895 SF/CPU), then in the onboard flash memory, and then from a server on the network. The switch first checks for /pcmcia/pcmbboot.cfg and then checks for /flash/boot.cfg.

The primary source for files is the PCMCIA card (on the 8692 SF/CPU) or the external compact flash (on the 8895 SF/CPU); the onboard flash memory is the secondary source; and the network server is the tertiary source. These source and file name definitions are in the boot configuration file. The boot source order is configurable.

The config.cfg file stores the configuration of the Ethernet Routing Switch 8800/8600 and its modules. This is the default configuration file. You can specify a different configuration file for the switch to use for the boot process.

For more details about boot sources, see *Avaya Ethernet Routing Switch 8800/8600 Administration*, (NN46205-605).

Switch behavior during boot cycle and redundant configuration files

Avaya recommends that you take special care when providing the boot option for your production systems. The Ethernet Routing Switch 8800/8600 provides three boot configuration file choices, as well as a backup configuration file choice for each configuration file choice.

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

 **Caution:****Risk of network outage**

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

Ensure a valid configuration file is always available.

For procedures for configuring the boot sources, see [Configuring boot sources](#) on page 100 (CLI) and [Configuring boot sources](#) on page 166 (ACLI).

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

Table 2: Switch behavior during boot cycle

Boot situations	Switch action
A configuration file is not specified. The config.cfg file is present on the internal flash drive.	The switch boots config.cfg
The primary configuration file is specified. The configuration file is present on the internal flash drive.	The switch boots the specified configuration file.
The primary configuration file is specified. The configuration file is not present on the internal flash drive.	The switch boots with factory defaults (if config boot flags verify-config is <i>true</i> , and a backup configuration is not specified).
The primary configuration file is specified. The configuration file on the internal flash drive has a bad command.	The switch boots with factory defaults (if config boot flags verify-config is <i>true</i> , and a backup configuration is not specified).
The primary configuration file is specified. The configuration file on the internal flash drive has a bad command. The backup configuration file is specified, but it has a bad command.	The switch fails the first configuration file, and boots the second configuration file, ignoring the bad command.
The switch is configured to boot with factory defaults.	The switch boots with factory defaults.
The boot.cfg file is corrupt.	In CLI mode: The switch fails to load the boot.cfg file and creates a new boot.cfg file with a default boot configuration. In ACLI mode: The switch fails to load the boot.cfg file and creates a new boot.cfg file with a default boot configuration. The switch comes up in

Boot situations	Switch action
	CLI mode, which is the correct behavior because the ACLI mode flag is false by default.

Support for the pcmboot.cfg file

Ethernet Routing Switch 8800/8600 Software Release 4.1 and later offers pcmboot.cfg file support. A pcmboot.cfg file on a PCMCIA card (on the 8692 SF/CPU) or on an external compact flash card (on the 8895 SF/CPU) takes precedence over all other boot configurations. The boot lookup sequence is as follows:

- /pcmcia/pcmboot.cfg
- /flash/boot.cfg
- /pcmcia/boot.cfg

DLD file considerations

R, RS, and 8800 modules require a .dld image. These files are named by default to be p80jxxxx.dld for R modules and p80kxxxx.dld for RS and 8800 modules, and automatically load to the module from the same location as the runtime image (p80axxxx.img). Avaya strongly recommends that you store the I/O module .dld files on /flash, and that you do not change the file names.

The .dld file version must match the running software version. Although you can store different versions of .dld files on the same flash, you must ensure that the switch runs the correct version. The easiest way to ensure this is to use the `config bootconfig bootp image <image-name> <slot>` command, where image-name = default (or `boot config bootp <Primary|Secondary> default <1-10>` in the ACLI). Using this command ensures that the DLD file loaded during the boot sequence corresponds to the running software version. Avaya recommends that you always use this setting.

If the `config bootconfig bootp image <image-name>` command has been used with a file specified, then the switch uses that version each time it boots. In this case, to ensure that the correct .dld file is loaded, either use this command again with the correct image name, or else set the switch to always use the correct version by using default as the image name.

To ensure proper system operation, if you want to rename or change the location of .dld files, specify the new location and name of the files using `bootconfig bootp` commands. See [Configuring boot sources](#) on page 100 (CLI) or [Configuring boot sources](#) on page 166 (ACLI).

FPGA firmware

The Ethernet Routing Switch 8800/8600 R, RS, and 8800 modules use a field programmable gate array (FPGA) in the module. At times, the FPGA firmware is upgraded and must be updated.

FPGA firmware includes:

- FOQ—Feedback Output Queueing
- DPC—Dual Port Controller
- BMC—BAP Memory Controller
- PIM—Port Interface Module

FPGA firmware updates are not always mandatory for a software upgrade; they depend on the hardware revision and the software release version.

You can check if a firmware upgrade is required. See:

- [Checking firmware revisions](#) on page 103
- [Installing FPGA firmware on R modules](#) on page 142
- [Installing FPGA firmware on RS and 8800 modules](#) on page 145

For R modules, each component (FOQ, PIM, DPC, BMC) must be updated separately using a command for each component. For RS and 8800 modules, all firmware components (except PIM) are updated through one command.

Any R, RS, or 8800 module that ships from the factory already has the latest FPGA firmware installed, and no firmware update is required. If, after a software upgrade, an update is required, a log message is generated.

New software files

To upgrade the Ethernet Routing Switch 8800/8600, depending on the modules present in the chassis and your operating system, you require some or all of the files listed in the following table. For file sizes and current file names, see *Release Notes — Software Release 7.2* (NN46205–402).

From the Avaya Technical Support Web Site, you can download each file separately, or you can download all files at once using the tar file.

Table 3: Release 7.2.0 software files

Module or file type	Description	File name
Software tar file	Tar file of all software deliverables (includes images that also contain encryption software)	pr86_72100.tar.gz
<i>Ethernet Routing Switch images</i>		
Boot monitor image for 8692 SF/CPU	8692 CPU and switch fabric firmware	p80b72100.img
Boot monitor image for 8895 SF/CPU	8895 CPU and switch fabric firmware	p80be72100.img
Run-time image for 8692 SF/CPU	Run-time image for 8692 SF/CPU	p80a72100.img
Run-time image for 8895 SF/CPU	Run-time image for 8895 SF/CPU	p80ae72100.img
Run-time image for R modules	Image for R modules	p80j72100.dld
Run-time image for RS and 8800 modules	Run-time image for RS and 8800 modules	p80k72100.dld
Run-time image for Enterprise Enhanced SF/CPU Daughter Card (SuperMezz)	Image for the SuperMezz card	p80m72100.img
3DES for 8692 SF/CPU	Encryption module for privacy protocol with Secure Shell (SSH)	p80c72100.des
3DES for 8895 SF/CPU	Encryption module for privacy protocol with Secure Shell (SSH)	p80ce72100.des
AES for 8692 SF/CPU	Encryption module for privacy protocol with Secure Shell (SSH)	p80c72100.aes (this image includes the 3DES image)
AES for 8895 SF/CPU	Encryption module for privacy protocol with Secure Shell (SSH)	p80ce72100.aes (this image includes the 3DES image)
MIB	MIB files	p80a72100.mib
MIB (zip file)	Zip file containing MIBs	p80a72100.mib.zip

Module or file type	Description	File name
MD5 checksum file	md5 checksums of all Release 7.2 software files	p80a72100.md5
<i>Firmware images</i>		
FOQ for R modules	Feedback output queueing FPGA firmware	foq267.xsvf
BMC for R modules	BAP memory controller FPGA firmware	bmc776.xsvf
DPC for R modules	Dual port controller FPGA firmware	dpc194.xsvf
PIM8630GBR	Programmable I/O module FPGA firmware; for the 8630GBR only	PI_769.xsvf
Firmware for RS and 8800 modules	Contains FOQ, BMC, DPC, mirroring, and loopback images	rs_dpm_fpga.bin
PIM images for RS and 8800 modules*	PIM FPGA firmware required for the 8612XLRS module	pim8612XLRS.bin
	PIM FPGA firmware required for the 8634XGRS and the 8834XG modules	pim8634XGRS.bin
	PIM FPGA firmware required for the 8648GBRS and the 8848GB modules	pim8648GBRS.bin
	PIM FPGA firmware required for the 8648GTRS and the 8848GT modules	pim8648GTRS.bin
<i>Trace files</i>		
MPLS trace file	Trace file for MPLS. This is autogenerated and appears on the PCMCIA after upgrade.	nbpdtrc.lo0
<i>EDM Help files</i>		
EDM help files	Help files for EDM GUI	ers8000v72100_HELP_EDM_gzip.zip
<i>ERS 8000 EDM plug-in for COM</i>		
EDM plug-in for COM	EDM plug-in for COM	ers8000v7.2.10.0.zip

* With the `pim8612XLRs.bin` file, you can upgrade older versions of the 8612XLRs module to PIM (1024). However, there is no PIM upgrade file available for the 8812XL. It is programmed at the factory at 256.

Installing EDM help files

While the EDM GUI is bundled with the Release 7.2 software, the associated EDM help files are not included.

To access the help files from the EDM GUI, you must install the EDM help files on a TFTP or FTP server in your network.

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

Important:

Do not install the EDM help files on PCMCIA or Flash.

Procedure steps

1. Retrieve the EDM help zip file from avaya.com or from the software CD.
2. On a TFTP or FTP server that is reachable from your switch, create a directory named: `ERS8000_720_Help`.

If you are using FTP for this installation, be sure that the switch is configured with the appropriate host name and password using the `config bootconfig host user` and `config bootconfig host password` commands (or, using the ACLI, `boot config host user` and `boot config host password`).

If a host password is configured, the switch uses FTP to transfer data from the switch to the server.

If no host password is configured, the switch uses TFTP for the data transfer. To clear the host password, specify a blank value using the host password command: `config bootconfig host password ""` (CLI) OR `boot config host password ""` (ACLI)

3. Unzip the EDM help zip file in the new FTP or TFTP server directory.
4. Using EDM on the switch, open the following folders: **Configuration > Security > Control Path**.
5. Double-click **General**.
6. Click the **Web** tab.

7. In the **HelpTftp/Ftp_SourceDir** field, enter the FTP or TFTP server IP and the path of the online directory where the files are unzipped, in the following format: <TFTP/FTP-server-IP-address>:ERS8000_720_Help.
8. To test that the help is working properly, select any tab (for example, Edit > Chassis) and click the **Help** button.

The appropriate EDM help page appears.

High Availability mode considerations

High Availability CPU (HA-CPU, or HA mode) provides Layer 3 redundancy. For the latest information about HA mode and protocol support for this release, see *Avaya Ethernet Routing Switch 8800/8600 Release Notes — Software Release 7.2* (NN46205-402).

High Availability mode requires additional steps in the upgrade procedures. Follow the upgrade procedures carefully. To upgrade an HA-CPU system, two options exist:

1. Keep HA enabled; upgrade the switch software. During the upgrade procedure, reboot the standby CPU, then immediately reboot the Master SF/CPU.

The Standby and Master SF/CPU must simultaneously run the same software version, or system instability can result.

2. Disable HA, reboot the system; upgrade the switch software; enable HA; reboot the system.

These options are both included in the upgrade procedures. Choose one and follow the appropriate steps.

If you must perform a failover when High Availability is enabled, see [Hot swapping the Master SF/CPU module in a dual CPU chassis](#) on page 106.

MD5 checksums

By verifying the MD5 checksum, you can verify that files transfer properly (error-free) to the switch. This command is available from both the boot monitor or runtime CLI.

The **md5** command calculates the MD5 checksum for files on the internal switch flash memory or external memory card and either shows the output on screen or stores the output in a file that you specify. An MD5 command option compares the calculated MD5 checksums with checksums present in a checksum file on internal flash memory or external memory card, and shows the compared output on the screen.

The Ethernet Routing Switch 8800/8600 software includes the MD5 file p80a7100.md5, which includes the MD5 checksums of all of the new files.

Transfer your image files to the switch and use the `md5` command to ensure that the checksums of the images on the switch are the same as those in the checksum file.

For information about using the `md5` command, see [Verifying the MD5 checksums](#) on page 119 (CLI) and [Verifying the MD5 checksums](#) on page 185 (ACLI).

Considerations for upgrades from 5.0.0.x release code

Users should read and reference the latest version of CSB 2008008618, Software Life-Cycle Management for the ERS 8800/8600 product, before deciding to move to any code release.

Important:

For switch cluster systems running 5.0.0.x code (where x is less than 2), intermediate upgrades first to 5.0.0.2, then to one of 5.1.x release are required, versus a direct upgrade to 7.1.0.0. If not performed, direct console access will be required to recover the 'peer' switch cluster system still running 5.0.0.x code, after the first switch is upgraded. Refer to the 5.0.1.0 Release notes for details regarding the intermediate upgrade. Direct upgrades to release 7.1.0.0 are supported from 4.1.8.x, 5.0.1, 5.1.2, 5.1.3, 5.1.4, 5.1.5, and 7.0.0.0.

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

Caution:

Users using BGP with release 4.x code need to be aware of the following limitations regarding upgrading to 5.x or later code release. For any user using the `add-as-path` command in 4.x or earlier releases, a direct upgrade to 5.x or later code (including 5.0.0.x, 5.0.1.0, 5.1.0.0, 7.0.0.0, or 7.1.0.0 code) will create issues with your BGP operation, as the format for this command has changed in 5.x and all future code releases. The usage of this command can be confirmed by looking at your current 4.x based configuration file (`config.cfg` by default) by using either CLI command `show config` or `more /flash/config.cfg`, and looking for entries under:

Important:

Direct upgrades to release 7.1.0.0 are supported from 4.1.8.x, 5.0.1, 5.1.2, 5.1.3, 5.1.4, 5.1.5, and 7.0.0.0. If you want to upgrade to 7.1.0.0 from an earlier release, you must first upgrade to a supported release, then upgrade to 7.1.0.0.

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

Entries such as this indicate usage of the command:

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

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

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

Prior to upgrading to 5.x code, if such config entries are in a 4.x config file, those entries must be manually converted to 5.x or later format before upgrading; the upgrade to 5.x or later code does not convert this command structure properly. Since both the 4.x and 5.x code files are plain ASCII text, the 4.x config file can be copied to any text editor (or edited locally on the 8800/8600 switch with its Unix VI editor), edited (for example with MS Word) and then copied back before upgrading.

For example, the above 4.x config example:

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

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

```
ip as-list 1 create 100 permit "64521"  
(Q01977204)
```

Configuration file modifications for MVR upgrades from release 7.0 code

Caution:

Users enabling Multicast VLAN Registration (MVR) with release 7.0 code need to be aware of the following limitations regarding upgrading to 7.1 or later code release. The commands to create and enable MVR have changed in release 7.1. Configuration file modifications are required if enabling MVR in the configuration file for release 7.0. A direct upgrade to 7.1 or later code without modifying the configuration file can create issues with MVR operation.

Search for usage of MVR commands in your current 7.0 based configuration file (config.cfg by default) by using either CLI command **show config** or **more /flash/config.cfg**, then modify the following release 7.0 entries to support release 7.1:

Important:

Direct upgrades to release 7.1.0.0 are supported from 4.1.8.x, 5.0.1, 5.1.2, 5.1.3, 5.1.4, 5.1.5, and 7.0.0.0. If you want to upgrade to 7.1.0.0 from an earlier release, you must first upgrade to a supported release, then upgrade to 7.1.0.0.

MVR CLI command modifications

Find and modify all release 7.0 MVR CLI commands in your configuration file to support release 7.1:

Create and enable MVR on a VRF instance.**7.0 configuration file:**

```
config ip vrf <vrfname> igmp multicast-vlan-registration enable
config ip vrf <vrfname> igmp multicast-vlan-registration enable
```

7.1 configuration file:

```
config ip vrf <vrfname> igmp multicast-vlan-registration create
config ip vrf <vrfname> igmp multicast-vlan-registration enable
```

Create and disable MVR on a VRF instance.**7.0 configuration file:**

```
config ip vrf <vrfname> igmp multicast-vlan-registration enable
config ip vrf <vrfname> igmp multicast-vlan-registration disable
```

7.1 configuration file:

```
config ip vrf <vrfname> igmp multicast-vlan-registration create
config ip vrf <vrfname> igmp multicast-vlan-registration disable
```

Enable MVR.**7.0 configuration file:**

```
config ip igmp multicast-vlan-registration enable
config ip igmp multicast-vlan-registration enable
```

7.1 configuration file:

```
config ip igmp multicast-vlan-registration enable
```

Disable MVR.**7.0 configuration file:**

```
config ip igmp multicast-vlan-registration enable
config ip igmp multicast-vlan-registration disable
```

7.1 configuration file:

```
config ip igmp multicast-vlan-registration disable
```

MVR ACLI command modifications

Find and modify all release 7.0 MVR ACLI commands in your configuration file to support release 7.1:

Create and enable MVR on a VRF instance.

7.0 configuration file:

```
router vrf vrf-1
ip igmp multicast-vlan-registration
router vrf vrf-1
ip igmp multicast-vlan-registration
```

7.1 configuration file:

```
router vrf vrf-1
ip igmp multicast-vlan-registration
router vrf vrf-1
ip igmp multicast-vlan-registration enable
```

Create and disable MVR on a VRF instance.

7.0 configuration file:

```
router vrf vrf-1
ip igmp multicast-vlan-registration
router vrf vrf-1
no ip igmp multicast-vlan-registration
```

7.1 configuration file:

```
router vrf vrf-1
ip igmp multicast-vlan-registration
```

Enable MVR.

7.0 configuration file:

```
ip igmp multicast-vlan-registration
ip igmp multicast-vlan-registration
```

7.1 configuration file:

```
ip igmp multicast-vlan-registration enable
```

Disable MVR.

7.0 configuration file:

```
ip igmp multicast-vlan-registration
no ip igmp multicast-vlan-registration
```

7.1 configuration file:

```
no ip igmp multicast-vlan-registration enable
```

SMLT switch cluster upgrade considerations

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

Important:

For switch cluster systems running 5.0.0.x code (where x is less than 2), intermediate upgrades first to 5.0.0.2, then to one of 5.1.x release are required, versus a direct upgrade to 7.2.0.0. If not performed, direct console access will be required to recover the 'peer' switch cluster system still running 5.0.0.x code, after the first switch is upgraded. Refer to the 5.0.1.0 Release notes for details regarding the intermediate upgrade. Direct upgrades to release 7.2.0.0 are supported from 4.1.8.x, 5.0.1, 5.1.2, 5.1.3, 5.1.4, 5.1.5, 7.0.0.0, 7.1.0.0, 7.1.1 and 7.1.3.0.

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

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

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

Consider the following figure, showing a triangle SMLT setup. In this case, the user intends to upgrade the IST peers (that are currently running 5.1.0.0) to 7.2.0.0.

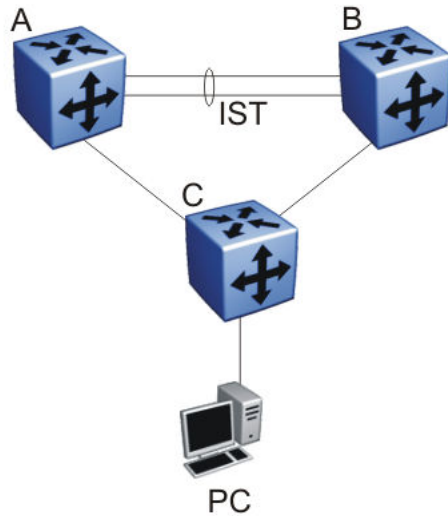


Figure 1: SMLT upgrade scenario

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

Assume that the user upgrades switch A to 7.2.0.0. Due to the SMLT behavior, the network diagram now looks like the following figure.

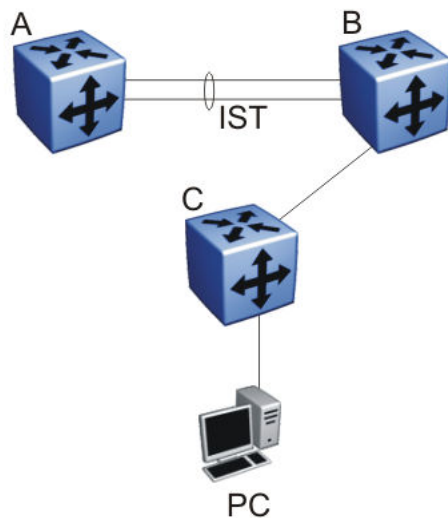


Figure 2: SMLT upgrade scenario after upgrading switch A to 7.2.0.0

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

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

1. Telnet to switch B from the PC
2. From switch B, Telnet to switch A
3. Upgrade switch A to 7.2.0.0, following the normal upgrade process. At this point, your Telnet session to switch A is lost, and eventually times out. After approximately a minute, Telnet to switch A again. This allows you to check the log messages on switch A. (At this point, you can possibly lose the Telnet connectivity to B in some situations depending on the MLT hashing occurring on switch C. If this occurs, re-open a Telnet connection to switch B.)
4. Upgrade switch B to 7.2.0.0 following the normal upgrade process. At this point, your Telnet session to switch B is lost. You can open a new Telnet session to switch A. After switch B completes the upgrade, you can then establish connectivity with switch B, either via Telnet from switch A, or via Telnet from the PC.

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

Note that you cannot use SSH in this upgrade scenario, as you cannot open SSH connections from one Ethernet Routing Switch 8800/8600 to another. You must use Telnet.

 **Note:**

If switch A and switch B are running 4.x, or 5.0.0.x (where x is less than 2), the switches **MUST** be upgraded to 5.1.x before upgrading to 7.2.0.0.

Modifying IST ports during an SMLT upgrade

 **Important:**

Do not modify the IST ports immediately after rebooting the SMLT-enabled node.

When an SMLT enabled device is rebooted, SMLT/SLT and all normal ports enter a special "hold-down" state transition and remain locked till the system becomes fully operational. Addition of any port that is in such an "hold-down" state to an IST will cause continuous flooding of MLT unlock messages such as `MLT INFO smltTick: Initial MAC/ARP tbl completed, unlocked SMLT/SLT ports` to the log.

To avoid this scenario, any configuration changes on or modification of IST ports should be done only when the system is completely up, IST is up and all ports have reached their normal run-time states. Even if IST fails to come up all ports will reach their normal run-time state in 40 seconds after the system is completely up.

 **Note:**

Avaya recommends using the following procedure to modify IST ports during a node upgrade.

Procedure

1. Keep the desired new IST ports in an administratively down state and ensure connectivity.
 2. Disable the IST using the following CLI command:
`config mlt <mltID> ist disable`
 3. Disable all of the other ports on the node.
 4. Remove the old ports from the IST MLT:
`config mlt <mltID> remove ports <ports>`
 5. Add the new ports to the IST MLT:
`config mlt <mltID> add ports <ports>`
 6. Enable the new IST ports:
`config ethernet <slot/port> state enable`
 7. Verify that the IST is up:
`show mlt ist info`
 8. Enable all other required ports on the node.
 9. Check all the SMLT/SLT's on the node.
 10. Save the configuration.
 11. Upgrade the node using the new configuration file.
-

Downgrade considerations

Downgrades from release 7.2.0.0 to releases 4.1.8.2, 4.1.8.3, 5.0.1.x, 5.1.x, 7.0.0.0, 7.1.0.0, 7.1.1 and 7.1.3.0 are supported with original configuration files. To successfully downgrade, you require a previously saved primary configuration and the boot configuration for the version to which the switch is being downgraded.

If you downgrade from release 7.2.0.0 to any previous release, you must remove all installed 8800 I/O modules prior to the downgrade.

If you downgrade from release 7.2.0.0 to a pre-7.0 release, you must also remove all installed 8895 SF/CPU modules prior to the downgrade.

In addition, downgrades from 7.2.0.0 to 4.1.8.2 (or 4.1.8.3) work only if the internal flash and the PCMCIA are formatted with 4.1.8.2 (or 4.1.8.3) software. If you have formatted the flash

and PCMCIA in release 7.2.0.0 for any reason, and then want to downgrade to 4.1.8.x, you must perform the [Downgrading flash and PCMCIA memory](#) on page 118 procedure first before you can successfully downgrade to 4.1.8.x.

If you downgrade to any release, you need the previously saved configuration files (boot.cfg and config.cfg) for the release to which you intend to downgrade.

Avaya does not support different software versions, for example, Releases 7.0 and 7.2.x, on the Master and Secondary SF/CPU except during an upgrade or downgrade process. An exception to this rule occurs for a switch in High Availability mode, where both the Master and Secondary SF/CPU must run the same software release. Also, the Master and Secondary SF/CPU must have the same amount of memory.

Emergency recovery tree

The following figure depicts an emergency recovery tree (ERT) for the upgrade and downgrade process.

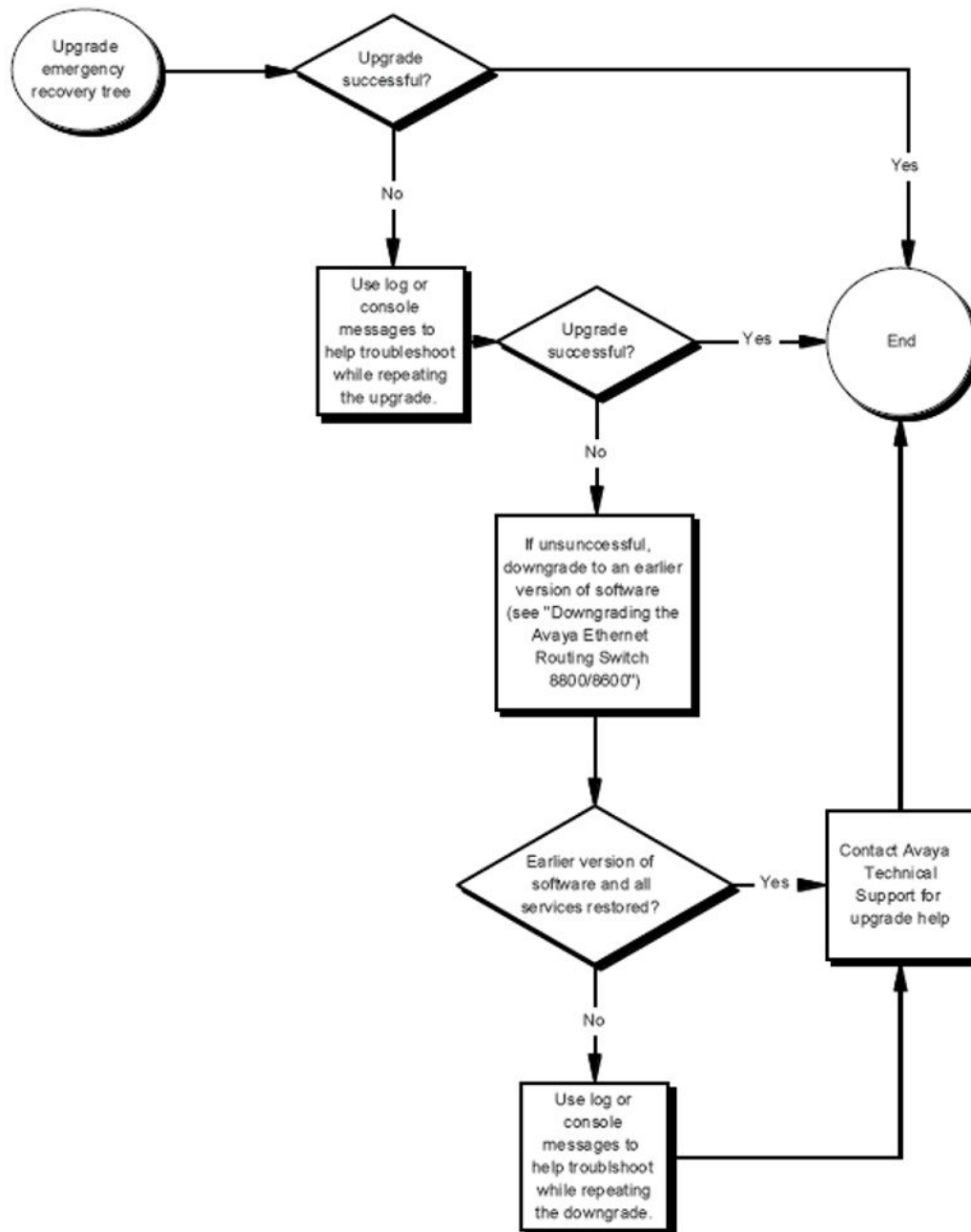


Figure 3: Emergency recovery tree for upgrade process

SPBM IEEE 802.1aq standards compliance

SPBM uses the Intermediate System to Intermediate System (IS-IS) link state routing protocol to learn and distribute network information. The IEEE ratified the 802.1aq standard that defines

SPBM and the Type-Length-Value (TLV) encoding that IS-IS uses to support SPBM services. With Release 7.1.3, Avaya is in full compliance with the IEEE 802.1aq standard.

Avaya continues to support the pre-standard (or draft) SPBM for previous releases, but all future releases will support standard SPBM only. Release 7.1.3 is a *bridge* release that supports both draft and standard SPBM. For migration purposes, it is very important to understand the following upgrade considerations:

- Releases prior to 7.1.3 support draft SPBM only.
- Release 7.1.3 supports both draft and standard SPBM.
- Future releases (7.2 and after) will support standard SPBM only.

 **Important:**

To upgrade to standard SPBM and to use future releases, you must first upgrade to 7.1.3. as an intermediate upgrade step. For SPBM deployments, future ERS 8800/8600 releases cannot interoperate with releases prior to 7.1.3. The default setting for this release is for draft SPBM.

You can use the CLI or the ACLI for the migration procedure. EDM does not support this feature. For information on how to migrate to standard SPBM, see [Migrating to standard SPBM using the CLI](#) on page 92 or [Migrating to standard SPBM using the ACLI](#) on page 160.

 **Note:**

IEEE 802.1aq provides a Multi-Topology (MT) TLV to support multiple SPBM instances. Release 7.1.3 and Release 7.2 support single SPBM instances only so the MT-ID is always set to 0.

Chapter 6: Avaya Ethernet Routing Switch 8800/8600 SF/CPU, R, RS, and 8800 module upgrade using the CLI

Upgrade software to add new functionality to your Ethernet Routing Switch.

If you upgrade the switch from pre 5.0.0.0 to post 5.0.0.0, all the routing information is placed in VRF0, which is also called the Global Routing Table (GRT).

Prerequisites

Caution:

Risk of service interruption

If the switch has only one SF/CPU, the upgrade procedure can cause interruption of normal switch operation.

Important:

All upgrade procedures assume that files use the default names. Use caution in any procedure if the file names are nondefault. Ensure that all parameters associated with file names take into consideration the use of nondefault values.

- Read the latest Release Notes.
- Read the section [Translations of Safety Messages](#) on page 199.
- Remove all nonsupported classic modules, including E and M modules, 8691 SF/CPU modules, and 8692 SF/CPU modules without SuperMezz. (The 8692 SF/CPU is supported if equipped with SuperMezz.)
- Upgrade all power supplies to either 8004 or 8005 level power supplies.
- Read the section [Avaya Ethernet Routing Switch 8800/8600 upgrade considerations and concepts](#) on page 29, especially the section [High Availability mode considerations](#) on page 50.

- You must be able to access the new software from the site <http://www.avaya.com/support>. You need a valid user or site ID and password.
- If necessary, schedule a time for the switch to be non-operational.

Ethernet Routing Switch 8800/8600 SF/CPU, R, RS, and 8800 module upgrade using the CLI tasks

This task flow shows you the sequence of tasks you perform to upgrade the Ethernet Routing Switch 8800/8600.

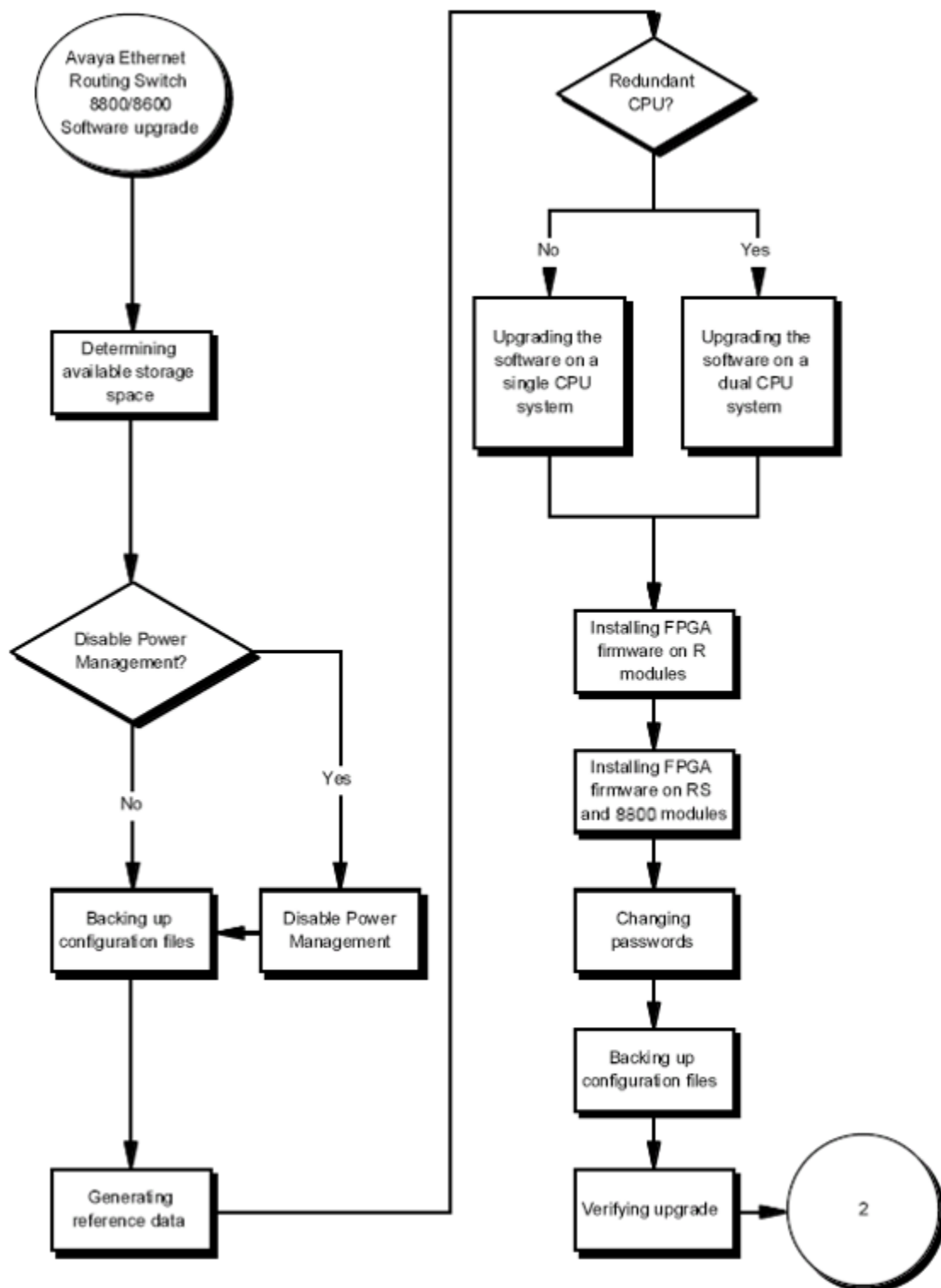


Figure 4: Ethernet Routing Switch 8800/8600 SF/CPU, R, RS, and 8800 module upgrade using the CLI tasks 1

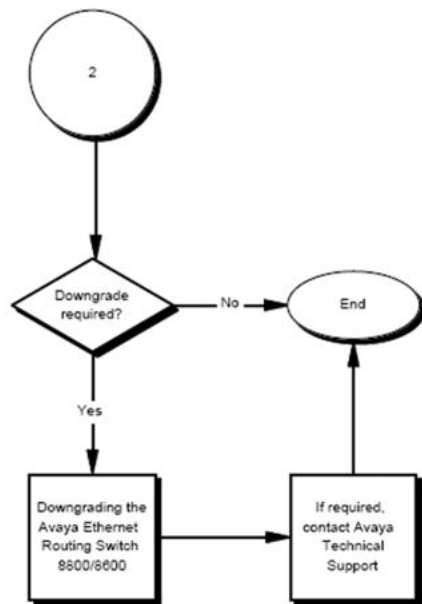


Figure 5: Ethernet Routing Switch 8800/8600 SF/CPU, R, RS, and 8800 module upgrade using the CLI tasks 2

Ethernet Routing Switch upgrade time requirements

The following table lists tasks used to upgrade the Ethernet Routing Switch 8800/8600 software and the estimated time to complete each task. Not all tasks are required for every Ethernet Routing Switch 8800/8600 system; the required tasks depend on the hardware present in the chassis. Upgrade times may vary depending on the software access method used (TFTP; FTP, and so on), number and size of files, and the number of boot sources to be configured.

Table 4: Upgrade tasks and times

Task	Application	Estimated time required
Preupgrade tasks	Determining available storage space Backing up files Generating reference data	10–15 minutes
Upgrading Ethernet Routing Switch 8800/8600 software on a single CPU system		30–45 minutes

Task	Application	Estimated time required
Upgrading Ethernet Routing Switch 8800/8600 software on a dual CPU system		45–60 minutes
Upgrading R, RS, or 8800 module firmware		10–20 minutes
Post-upgrade tasks	Changing passwords Backing up upgraded configuration files Verifying the upgrade	10–15 minutes
Downgrading the Ethernet Routing Switch 8800/8600		Similar to upgrade time

Determining available storage space

Determine whether the switch has enough storage space to store the new software.

Procedure steps

1. To view the free space and files in internal flash memory by using the CLI, enter the following command:

```
dir
```

The bottom line shows the amount of free space in internal flash memory and on the external memory card.

```

Telnet 192.167.120.2
ERS-8606:5# dir
size      date      time      name
-----
 485      NOV-22-2006 10:31:48  /flash/boot.cfg
7706      SEP-18-2006 15:18:14  /flash/config.cfg
 11       SEP-18-2006 15:09:44  /flash/engboot
2048      AUG-02-2006 15:45:30  /flash/.ssh <DIR>
 332      AUG-02-2006 15:45:24  /flash/.ssh/dsa_pub.key
 162      AUG-02-2006 15:45:30  /flash/.ssh/ssh_host_rsa_key.pub
8697210   AUG-02-2006 12:27:44  /flash/p80a4100.img
1080823   AUG-02-2006 12:21:56  /flash/p80b4100.img
26112     AUG-02-2006 12:21:58  /flash/p80c4100.aes
55928     AUG-02-2006 12:22:02  /flash/p80c4100.img
total: 15297536 used: 9962496 free: 5335040 bytes
size      date      time      name
-----
24926     NOV-22-2006 10:31:48  /pcmcia/c1340005.000
12362     NOV-22-2006 10:55:04  /pcmcia/clilog.txt
 8        SEP-18-2006 15:09:44  /pcmcia/c1340005.num
7706      NOV-22-2006 09:59:16  /pcmcia/config.cfg
7706      NOV-22-2006 10:00:16  /pcmcia/config_backup.cfg
7706      NOV-22-2006 10:02:52  /pcmcia/BackupNov06_config.cfg
 485      NOV-22-2006 10:03:54  /pcmcia/BackupNov06_boot.cfg
7706      NOV-22-2006 10:31:36  /pcmcia/BackupConfigNov06.cfg
 485      NOV-22-2006 10:32:30  /pcmcia/BackupBootNov06.cfg
1080823   AUG-02-2006 13:18:44  /pcmcia/P80B4100.IMG
26112     AUG-02-2006 13:18:52  /pcmcia/P80C4100.AES
55928     AUG-02-2006 13:18:56  /pcmcia/P80C4100.IMG
8697210   AUG-02-2006 13:19:28  /pcmcia/P80A4100.IMG
 500      SEP-18-2006 16:04:40  /pcmcia/BOOT.CFG
total: 64978944 used: 10738688 free: 54240256 bytes
ERS-8606:5#

```

- If you must remove files to make space, use the remove command:

```
rm /flash/<filename>

rm /pcmcia/<filename>
```

! Important:

Older load, boot, and configuration files may be required if the upgrade is unsuccessful. Make sure you back up these files to a safe place before you remove them.

Consult Avaya Support for recommendations about deleting old image (.img), log (.txt), PCAP (.cap), or bootconfig (.cfg) files.

Variable definitions

Use the information in the following table to perform this procedure.

Variable	Value
<filename>	Specifies the file by name.

Disabling Power Management

Disable Power Management to successfully upgrade when the chassis is not equipped with enough power supplies to run all I/O modules.

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

You can calculate the number of power supplies required for your Ethernet Routing Switch 8800/8600 system. To determine the number of power supplies required for your switch configuration, use the *Power Supply Calculator for Avaya ERS 8800/8600*, (NN48500-519) . This is available on the Avaya Technical Support Web site at www.avaya.com/support.

Important:

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

1. Save the pre-7.2 configuration file.

```
save config.cfg
```

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

- Use the CLI to edit the file on the switch (the switch has a built-in VI-like editor).

```
edit config.cfg
```

- Save the file as an ASCII file and transfer to another device for editing with a text editor like Notepad.
- Transfer the file to a device and edit with VI or EMACS-like editor.

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

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

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

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

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

Job aid: configuration file and command placement

```
#
# THU APR 12 12:11:04 2012 UTC
# box type           : ERS-8006
# software version   : REL7.2.0.0_B001
# monitor version    : 7.2.0.0/xxx
# cli mode           : 8600 CLI
#
#
# Asic Info :
# SlotNum|Name      |CardType  |MdaType    |Parts Description
#
# Slot  1  --      0x00000001 0x00000000
# Slot  2  8812XL  0x25b25122 0x00000000 PRS:RSP=27 F2I=4 F2E=5 FTMUX=17 CC=33281
```

```
FOQ=270 DPC=7 BMC =264 PIM=256 MAC=1112670281 Mirror=304 Loopback=274
# Slot 3 -- 0x00000001 0x00000000
# Slot 4 8648GTR 0x24220130 0x00000000 RSP=25 CLUE=2 F2I=1 F2E=1 FTMUX=17 CC=3
FOQ=267 DPC=184 BM C=776 PIM=3 MAC=2
# Slot 5 8895SF 0x200e1100 0x00000000 CPU: BDLB=21 glue=14 SFM: OP=3 TMUX=2
SWIP=23 FAD=16 CF=2
# Slot 6 8895SF 0x200e1100 0x00000000 CPU: BDLB=21 glue=14 SFM: OP=3 TMUX=2
SWIP=23 FAD=16 CF=2
#
#!flags global-filter-ordering false
#!resource-reservation max-vlan false
#!resource-reservation multicast 2048
#!flags multicast-check-packet true

#!flags system-monitor true
#!system-monitor monitoring-enable true
#!system-monitor detection-time 30
#!power power-check-enable false <----- ADD THIS LINE
#!power fan-check-enable false <----- ADD THIS LINE
```

Backing up configuration files

Before you upgrade your switch software, make copies of the configuration files. If an upgrade is unsuccessful, use backup configuration files to return the switch to its previous state.

You should have several copies of backup files. For more information, see [Switch behavior during boot cycle and redundant configuration files](#) on page 43.

Prerequisites

- If you use Trivial File Transfer Protocol (TFTP) or File Transfer Protocol (FTP), ensure that the switch allows TFTP or FTP access. See [Enabling FTP and TFTP](#) on page 99.
- For more details about how to copy files, see [Copying files](#) on page 97.

Procedure steps

1. Determine the configuration file names by using the following CLI command:

```
show boot choice primary
```

2. Save the configuration files. Assuming the files use the default file names, enter:

```
save config
```

```
save bootconfig
```

```
save config standby config.cfg
```

```
save bootconfig standby boot.cfg
```

If the SaveToStandby flag is true, then you do not need to save the files to the Secondary.

3. Copy the files to a safe place:

```
copy /flash/boot.cfg /pcmcia/boot_backup.cfg
```

```
copy /flash/config.cfg /pcmcia/config_backup.cfg
```

OR

Copy the files to a TFTP server:

```
copy /flash/config.cfg <tftpipaddress>:config_backup.cfg
```

```
copy /flash/boot.cfg <tftpipaddress>:boot_backup.cfg
```

Variable definitions

Use the information in the following table to perform this procedure.

Variable	Value
<tftpipaddress>	Specifies the IP address of the TFTP server.

Generating reference data

Use show commands to generate data to determine if the software upgrade is successful. After the upgrade, the switch and network should operate as they did before the upgrade. Avaya recommends that you keep track of important parameters and ensure that they are unchanged after an upgrade. The following procedure gives examples of how to generate reference data. Choose the parameters that are most important to your network.

If these parameters remain unchanged before and after the upgrade, the upgrade is likely successful. Otherwise, you may need to downgrade to a previous release or perform troubleshooting procedures. For downgrade information, see [Downgrade considerations](#) on page 58.

Procedure steps

1. Determine the number of routes in the routing table:

```
show ip route info
```

Record the number of routes.

2. Determine Address Resolution Protocol (ARP) information:

```
show ip arp info
```

3. Determine Border Gateway Protocol (BGP) parameters; note the total number of routes:

```
show ip bgp summary
```

4. Determine the total number of Internet Group Management Protocol (IGMP) groups:

```
show ip igmp group
```

5. Determine the total number of multicast routes:

```
show ip mroute interface
```

```
show ip mroute route
```

6. Determine Open Shortest Path First (OSPF) parameters:

```
show ip ospf show-all
```

7. Use the following command to view other IP show commands that you can use:

```
show ip ?
```

Upgrading the software on a single SF/CPU system

Use this CLI procedure to upgrade the SF/CPU software on a nonredundant Ethernet Routing Switch 8800/8600 SF/CPU. This procedure shows how to upgrade using the flash memory as the file storage location; you can use other storage locations. For information about storage options, see [File storage options](#) on page 42.



Caution:

Risk of bootconfig file corruption

Operating a system with different versions of the runtime image and boot monitor image can cause a corrupt bootconfig file. If the boot.cfg file is corrupt, replace it with a saved version or recreate the file.



Important:

Before you configure the switch to run the new software, ensure the integrity of the new software by checking the MD5 checksums. This is part of the following upgrade procedure.

Prerequisites

- Back up the switch configuration files. See [Backing up configuration files](#) on page 70 and [Copying files](#) on page 97.
- You must be able to access www.avaya.com/support.
- If you determined you must disable Power Management, ensure that the configuration file is edited appropriately and saved on the switch. See [Disabling Power Management](#) on page 68.

Procedure steps

1. Download the new software.

For instructions, see [Downloading the software](#) on page 78.

2. Connect to the Ethernet Routing Switch 8800/8600 CLI interface by using the management console port, Secure Shell (SSH), or a Telnet session.
3. Copy the required software files to flash memory. If you use TFTP or FTP, use the IP address of the SF/CPU.

For instructions about copying files, see [Copying files](#) on page 97.

4. Confirm that the software files are successfully copied by using the `dir` command. Ensure that the new files are listed.
5. Ensure that the new files are error-free. See [Verifying the MD5 checksums](#) on page 119.
6. Configure the boot source to point to the new runtime image file on flash:

```
config bootconfig choice primary image-file /flash/  
p80a7130.img (for 8692 SF/CPU)
```

```
config bootconfig choice primary image-file /flash/  
p80ae7130.img (for 8895 SF/CPU)
```

7. Ensure that the switch loads the new Mezz image from the flash:

```
config bootconfig mezz-image image-name /flash/p80m7130.img
```

8. Ensure that the switch uses the correct R, RS, and 8800 module driver files from the flash memory (repeat for each slot):

```
config bootconfig bootp image-name default <slot-number>
```

9. Save the configuration files:

```
save bootconfig
```

```
save config
```

10. To verify that the changed primary image file settings are in the boot.cfg file, enter the following command :

```
more boot.cfg
```

Confirm that the image location and name are correct.

11. To boot the Ethernet Routing Switch 8800/8600 with the new boot-monitor image, enter the following command:

```
boot /flash/p80b7130.img (for 8692 SF/CPU)
```

```
boot /flash/p80be7130.img (for 8895 SF/CPU)
```

This step causes an interruption to user traffic.

The switch boots using the new image file. The system takes a longer time to come up than a normal reboot because the system must write the new boot monitor to flash memory.

If you interrupt the auto-boot process, you may have to issue the `boot` command again.

12. For upgrades from pre-Release 5.0 software, after the switch boots and runs the Release 5.0 or later software for the first time, perform the following steps to use the new DOSFS.

 **Important:**

The following DOS reformat steps are only required the first time a switch is upgraded to a 5.0 or later release.

- Back up all files from the flash and PCMCIA.
- Format the flash and PCMCIA.

 **Important:**

This step deletes any files on these devices.

- dos-format /flash
- dos-format /pcmcia

Move all files back to the flash and PCMCIA.

13. If you upgrade to release 7.1 or later from a release prior to 5.1, you must specify the location of your license file in the boot configuration file. If you do not specify the location of your license file, you can encounter issues with your licensed features. To specify the license file location, enter the following command:

```
boot config choice primary license-file <file>
```

Variable definitions

Use the information in the following table to perform this procedure.

Variable	Value
<slot-number>	Specifies the slots that have installed R, RS, or 8800 modules.

Upgrading the software on a dual SF/CPU system

Use this procedure to upgrade the SF/CPU software on a system that contains redundant SF/CPU. This procedure shows how to upgrade using the flash memory as the file storage location; you can use other storage locations. For information about storage options, see [File storage options](#) on page 42.

Caution:

Risk of configuration loss

Avaya does not support different software versions, for example, Releases 7.0 and 7.1, on the Master and Secondary SF/CPU except for during an upgrade process. An exception to this rule occurs for a switch in High Availability mode, where both the Master and Secondary SF/CPU must run the same software release. Also, operating a system with different versions of the runtime image and boot monitor image can corrupt the bootconfig file. If the boot.cfg file is corrupt, replace it with a saved version, or recreate the file.

The Master and Secondary SF/CPU must have the same amount of memory.

Caution:

Risk of system instability

If you use High Availability mode, to upgrade, you must use one of two options:

1. Keep HA enabled; upgrade the switch software. During the upgrade procedure, reboot the standby CPU, then immediately reboot the Master SF/CPU.

The Standby and Master SF/CPU must simultaneously run the same software version, or system instability can result.
2. Disable HA, reboot the system; upgrade the switch software; enable HA; reboot the system.

These options are both included in this procedure. Choose one and follow the appropriate steps.

! Important:

Before you configure the switch to run the new software, ensure the integrity of the new software by checking the MD5 checksums. This is part of the following upgrade procedure.

Prerequisites

- Back up the switch configuration files. See [Backing up configuration files](#) on page 70.
- You must be able to access www.avaya.com/support.
- If TFTP or FTP is required, ensure they are enabled. See [Enabling FTP and TFTP](#) on page 99.

Procedure steps

1. Download the new software.

For instructions, see [Downloading the software](#) on page 78.

2. Connect to the Master SF/CPU CLI interface by using the management console port, SSH, or a Telnet session.
3. If you use High Availability mode and chose the second HA upgrade option, disable HA:

```
config bootconfig flags ha-cpu false  
reset -y
```

4. Save the boot.cfg file and reboot the switch.
5. Copy the required software files to flash memory. Use the management IP address of the SF/CPU.

For instructions about copying files, see [Copying files](#) on page 97.

6. To confirm that the software files are successfully copied, use the `dir` command.
7. Ensure that the new files are error-free. See [Verifying the MD5 checksums](#) on page 119.
8. Copy the runtime image file (and all other files copied to the Master SF/CPU flash) to the Secondary SF/CPU.

For example:

```
ERS-8610:5# copy /flash/p80a7200.img <IP address of standby  
CPU>:p80a7200.img (for 8692 SF/CPU)
```

```
ERS-8610:5# copy /flash/p80ae7200.img <IP address of standby CPU>:p80ae7200.img (for 8895 SF/CPU)
```

Use the management IP address of the Master SF/CPU.

9. Configure the boot source to point to new runtime image file:

```
config bootconfig choice primary image-file /flash/p80a7200.img (for 8692 SF/CPU)
```

```
config bootconfig choice primary image-file /flash/p80ae7200.img (for 8895 SF/CPU)
```

10. Ensure that the switch uses the correct R, RS, and 8800 module driver files from the flash memory (repeat for each R, RS, or 8800 module slot):

```
config bootconfig bootp image-name default <slot-number>
```

11. Ensure that the switch loads the new Mezz image from the flash:

```
config bootconfig mezz-image image-name /flash/p80m7200.img
```

12. Save the configuration on both the Master and the Secondary SF/CPU:

```
save bootconfig standby boot.cfg
```

```
save config standby config.cfg
```

13. To verify that the changed primary image file settings are in the boot.cfg file, enter the following command:

```
more boot.cfg
```

Verify that the primary image file is p80a7200.img (for 8692 SF/CPU) or p80ae7200.img (for 8895 SF/CPU).

14. To log on to the Secondary SF/CPU, enter the following command and log on:

```
peer telnet
```

15. To verify that the changed primary image file settings are in the boot.cfg file, enter the following command:

```
more boot.cfg
```

Confirm that the image location and name are correct.

16. Boot the Secondary SF/CPU.

Important:

Boot the Secondary SF/CPU first and immediately after that, boot the Master SF/CPU (following step). Do not wait for the Secondary SF/CPU to come up completely before booting the Master SF/CPU, or the Secondary SF/CPU may hang.

To boot the Secondary SF/CPU with the new boot monitor image, enter the following command:

```
boot /flash/p80b7200.img (for 8692 SF/CPU)
```

```
boot /flash/p80be7200.img (for 8895 SF/CPU)
```

During the booting of the Secondary SF/CPU, the Telnet session stops responding and takes some time to time out. To quickly exit the peer Telnet session, enter `CTRL +]`. Next, when prompted, enter `q`.

17. To upgrade the Master SF/CPU with the new boot monitor image, enter the following command:

```
boot /flash/p80b7200.img (for 8692 SF/CPU)
```

```
boot /flash/p80be7200.img (for 8895 SF/CPU)
```

If you interrupt the auto-boot process, you may have to issue the `boot` command again.

If you are connecting remotely, the session stops responding. You will have to reconnect.

18. If you use High Availability mode and you are using the second HA upgrade option, after both SF/CPUs come back online, reenable HA:

```
config bootconfig flags ha-cpu true
```

When you are prompted to continue, enter `y`.

19. To run in HA mode, you must reboot the switch.

Variable definitions

Use the information in the following table to perform this procedure.

Variable	Value
<slot-number>	Specifies the slots that have installed R, RS, or 8800 modules.

Downloading the software

Download the new software to upgrade the switch.

Installing FPGA firmware on R modules

For proper operation, review and, if required, update the field programmable gate array (FPGA) firmware revisions on every R module.

 **Caution:**

Avoid an outage

Before any software firmware upgrade, Avaya strongly recommends that you consider rerouting traffic away from that particular switch module. Do not perform a firmware upgrade on an in-service module.

 **Caution:**

Risk of service loss

Before a firmware upgrade, Avaya strongly recommends that you verify the file MD5 checksums. If you upgrade using a corrupted file, module functionality can be affected and require a return manufacturing agreement (RMA).

 **Important:**

After the update process begins, do not enter commands or reset the module or switch during the process. If any failure occurs, retry the updates or contact Avaya before you reset the module or switch.

You can only update firmware for one slot at a time. For example, the BAP Memory Controller (BMC) must be completed for a slot before you complete Dual Port Controller (DPC).

If you do not enter a file name the default file name is shown. Do not interrupt the update process, which is approximately ten minutes in length. Wait until the FPGA UPDATE SUCCESS message appears for each slot that you update. The success message is appended to the log file.

 **Important:**

While upgrading FPGA on a line card with active ports in a live environment, certain warnings may be seen. Once the upgrade is complete, the warnings stop.

Do not download an image or multiple images to different modules at the same time. Only download one image to one module at one time.

Procedure steps

1. Determine if a firmware update is required.

See [Checking firmware revisions](#) on page 103.

2. Copy the following files to the SF/CPU flash memory on the chassis that contains R modules:

- foqyyy.xsvf
- dpcyyy.xsvf
- bmcyyy.xsvf
- PI_yyy.xsvf (only for 8630GBR modules)

3. For each R module slot, enter the following command:

```
config diag fpga foq update <1-4,7-10> <file-name>
```

The following messages appear:

```
Starting the update Process, will take a few minutes
Don't reset the card or box during the process A SUCCESS message will
display on the console and will get appended to the log file upon
completion of the update.
ERS-8610:5# CPU5 [02/08/05 18:55:31] SW ERROR R module Slot<1> is unable
to Process Async messages and Slot Reset is Disabled!!
ERS-8610:5# CPU5 [04/12/05 14:05:38] COP-SW INFO Slot 1:
FPGA UPDATE SUCCESS
```

Disregard the message SW ERROR unable to Process Async messages and Slot Reset is Disabled!! The message disappears after system reboot.

4. For each R module slot, enter the following command:

```
config diag fpga bmc update <1-4,7-10> <file-name>
```

5. For each R module slot, enter the following command:

```
config diag fpga dpc update <1-4,7-10> <file-name>
```

6. For each 8630 GBR module slot, enter the following command:

```
config diag fpga pim update <1-4,7-10> <file-name>
```

7. After all modules are updated, for the updates to take effect, you have three choices:

- a. Reboot the switch.

Before you boot, wait at least 30 seconds after the FPGA UPDATE SUCCESS message appears.

- b. Any module can be unseated and reseated for the change to take effect.

- c. You can use the `config slot <slot num> state reset` command for the change to take effect.

An enable/disable of the slot is not sufficient for the change to take effect.

The **show sys infoasic** command does not display the updated firmware revisions until after you have performed one of these three options.

Variable definitions

Use the information in the following table to help you perform this procedure.

Variable	Value
<filename>	Specifies the appropriate xsvf file.
<1-4, 7-10>	Specifies the slots that have installed R modules. Slots 5 and 6 are for SF/CPUs.

Installing FPGA firmware on RS and 8800 modules

For proper operation, review and, if required, update the field programmable gate array (FPGA) firmware revisions on every RS and 8800 module.

Caution:

Avoid an outage

Before any software firmware upgrade, Avaya strongly recommends that you consider rerouting traffic away from that particular switch module. Do not perform a firmware upgrade on an in-service module.

Caution:

Risk of service loss

Before a firmware upgrade, Avaya strongly recommends that you verify the file MD5 checksums. If you upgrade using a corrupted file, module functionality can be affected and require a return manufacturing agreement (RMA).

Important:

After the update process begins, do not enter commands or reset the module or switch during the process. If any failure occurs, retry the updates or contact Avaya before you reset the module or switch.

If you do not enter a file name the default file name is shown. Do not interrupt the update process, which is approximately ten minutes in length. Wait until the FPGA UPDATE

SUCCESS message appears for each slot that you update. The success message is appended to the log file.

! Important:

While upgrading FPGA on a line card with active ports in a live environment, certain warnings may be seen. Once the upgrade is complete, the warnings stop.

Do not download an image or multiple images to different modules at the same time. Only download one image to one module at one time.

Procedure steps

1. Determine if a firmware update is required.
See [Checking firmware revisions](#) on page 103.
2. Copy the required files to the SF/CPU flash memory on the chassis that contains RS or 8800 modules:
 - rs_dpm_fpga.bin (for all RS and 8800 modules—contains DPC, BMC, FOQ, Mirror, Loopback firmware)
 - pim8612XLRS.bin (only for the 8612XLRS module)
 - pim8634XGRS.bin (only for 8634XGRS and 8834XG modules)
 - pim8648GBRS.bin (only for 8648GBRS and 8848GB modules)
 - pim8648GTRS.bin (only for 8648GTRS and 8848GT modules)
3. For each RS or 8800 module slot, enter the following command:

```
config diag fpga rs-module-dpm update <1-4,7-10> [<file-name>]
```

This command reprograms all five subcomponents.
4. For each RS or 8800 module slot, update the PIM FPGA firmware with the appropriate PIM file:

```
config diag fpga pim update <1-4,7-10> <file-name>
```
5. After all modules are updated, for the updates to take effect, you have three choices:
 - a. Reboot the switch.

Before you boot, wait at least 30 seconds after the FPGA UPDATE SUCCESS message appears.
 - b. Any module can be unseated and reseated for the change to take effect.

- c. You can use the `config slot <slot num> state reset` command for the change to take effect.

An enable/disable of the slot is not sufficient for the change to take effect.

The `show sys infoasic` command does not display the updated firmware revisions until after you have performed one of these three options.

Variable definitions

Use the information in the following table to help you perform this procedure.

Variable	Value
<filename>	Specifies the appropriate file, if the file is not named the default name.
<1-4, 7-10>	Specifies the slots that have installed RS or 8800 modules.

Changing passwords

Change passwords after an upgrade to maintain the highest security levels. For more information about passwords, see *Avaya Ethernet Routing Switch 8800/8600 Security*, (NN46205-601).

Important:

Passwords are stored in an encrypted format in a system file, rather than in the configuration file. Passwords are maintained across an upgrade, assuming that the hidden files are not modified. If required, change the passwords after upgrade to secure your system. All passwords are case-sensitive.

Procedure steps

1. To change a password, use one of the following commands as required:

```
config cli password ro <username> [<password>]
config cli password rw <username> [<password>]
```

```
config cli password rwa <username> [<password>]
```

2. To view other options to configure, use the **config cli password ?** command.

Variable definitions

Use the information in the following table to help you perform this procedure.

Variable	Value
<username>	Specifies the user name.
<password>	Specifies the password for the user.

Backing up upgraded configuration files

After you complete the upgrade, save the new config.cfg and boot.cfg files to the external memory card or another safe place. See [Backing up configuration files](#) on page 70.

Verifying the upgrade

Verify your upgrade to ensure proper switch operation.

Procedure steps

1. Repeat the procedure used in [Generating reference data](#) on page 71 and regenerate the same data.

Compare the results. If you see substantial differences in this data, you may have to downgrade to the previous version and/or commence troubleshooting procedures. See [Downgrading the Ethernet Routing Switch 8800/8600](#) on page 91.

2. To view bootconfig flags, enter the following command:

```
config bootconfig flags info
```

Ensure that the flags are set correctly.

3. To view mode flags, enter the following command:

```
config sys set flags info
```

Ensure that the flags are set correctly.

4. To view RADIUS settings, enter the following command:

```
config radius info
```

Ensure that the settings are correct.

5. To check for alarms or unexpected errors, enter one the following commands:

```
show log file tail
```

```
show log file severity
```

Upgrading from Release 5.x to Release 7.x

Use the following procedures to upgrade the modules in your switch and the SuperMezz image.

There are two different procedures that you can use to upgrade from Release 5.x to Release 7.x. The major difference between the following procedures is how the SuperMezz image is selected:

- [Software-specified SuperMezz image](#) on page 87
- [User-specified SuperMezz image](#) on page 89

Important:

The SuperMezz image must match the run-time image.

If the pointer to the SuperMezz image is incorrect, the switch tries to boot up using the SuperMezz image that does not match the run-time image. This mismatch causes the switch to hang or default the system.

Because it is critical that the `dld` and `mezz` images match the run-time image, Avaya recommends using the first procedure: [Software-specified SuperMezz image](#) on page 87. This procedure allows the software to select the correct SuperMezz image, involves less steps, and provides fewer opportunities to introduce errors.

Note:

In addition to installing the software upgrade, you must install an Enterprise enhanced CPU daughter card (also called SuperMezz) on the 8692 SF/CPU module. The SuperMezz has dual 1 GHz Power PC processors that off-load processor intensive tasks from the 333 MHz processor located on the 8692 SF/CPU motherboard. For information on installing the SuperMezz, see *Avaya Ethernet Routing Switch 8800/8600 Installation — Modules*, (NN47205-304).

Upgrading R modules from Release 5.1.1.10/11 to 7.2.10

Use this procedure to upgrade the R modules in your switch.

 **Important:**

This procedure is for R modules **only**. If you have any RS modules that require upgrading, use the following procedure but use the RS `bin` modules provided via software.

Procedure

1. Use the following command to verify that the `mezz` flag is set to `true`:

```
show bootconfig flags
```

2. Check the version of the Dual Port Controller (DPC) FPGA firmware for the 8630GBR, 8648GTR and 8683XLR/8683XZR.

```
show sys info asic
```

 **Note:**

If the version is below 184, follow Step 3.

3. Upgrade the FPGA firmware. During this process, do not press `Enter` or interrupt this process.

 **Note:**

In the following example, `<slot-number>` refers to the slot that the module is in so enter the appropriate number.

```
config diag update fpga dpc <slot-number> /flash/dpc184.xsvf
```

Make sure you receive a log message on the console stating that the upgrade of the FPGA was successful.

4. Repeat Step 3 for any other modules that need upgrading of their DPC FPGA.
5. Repeat Steps 2 and 3, but replace DPC with the appropriate FPGA type to upgrade the FOQ, BMC, and PIM firmware.

 **Note:**

PIM is not applicable for the 8648GTR.

6. Set the `mezz` flag to `true`:

```
config bootconfig flag mezz true
```

7. Save the boot configuration file.
8. Boot the switch and press `y` to confirm.

```
boot
```

9. After the switch restarts, verify that the ASIC is the correct version make sure the SuperMezz is detected and it is up.

```
show sys info asic
```

```
show sys info
```

10. Copy the 7.2.10.0 images to flash and set the primary image file to point to p80a72100.img.
11. Save the boot configuration file.
12. Restart the switch.

*** Note:**

Do not interrupt the boot ROM upgrade process.

```
boot /flash/p80b72100.img
```

13. **After the boot rom is upgraded and the system is ready to boot /flash/p80a72100.img, interrupt the process if the /flash was formatted to a pre 5.0.0.0 version and follow these steps:.**
 - a. Copy the necessary files over to pcmcia.
 - b. Format the flash.
 - c. Copy all the files back to /flash.
14. At the monitor prompt, enter the following command and let the switch boot through normally.


```
/flash/p80a72100.img
```
15. After the system is fully functional in 7.2.10.0, repeat Step 3 at the console prompt to upgrade the line cards to dpc version 194. However, instead of dpc 184, you are going upgrade to 194. During this process, do not interrupt the upgrade. After you see a message stating that the upgrade of the FPGA was successful, repeat this same procedure for the rest of the modules.
16. Reboot the switch and press `y` to confirm.


```
boot
```
17. After the system is fully operational, verify that all the R modules `dpc` is set to 194.


```
show sys info asic
```

Software-specified SuperMezz image

Use this procedure to enable the 7.x software to detect the correct SuperMezz image to boot from.

 **Note:**

Use the commands listed in this procedure only. Do not use any other boot configuration commands that explicitly define image names such as `config bootconfig bootp image-name /flash/p80j72100.dld 1` or `config bootconfig mezz-image image-name /flash/p80m72100.img`.

Before you begin

1. Power down the switch running the 5.x software release.
2. Install the SuperMezz.
3. Power up the switch.

Procedure

1. Remove the image name from the boot image.

```
config bootconfig mezz-image image-name ""
```

This step enables the software to detect the presence of the `mezz` image on either the flash or PCMCIA and boots accordingly.

2. Set the boot flag with the 5.1.1.10 image running.

```
config bootconfig flags mezz true
```

3. Set the boot parameters.

```
config bootconfig choice primary-image /flash/p80a72100.img
```

4. **Use the following command to make sure that no boot configuration parameters for the line card dld files or mezz images are set.**

```
show bootconfig config
```

5. Save the boot configuration file.

6. DO NOT enable an IPv6 configuration or any feature that uses the SuperMezz currently running 5.1.1.10 code.

7. Boot from flash.

```
boot /flash/p80b72100.img -y
```

The switch boots, updates the bootrom sectors, and loads the run-time image /flash/p80a72100.img. Then the SuperMezz CPU takes over and boots the line cards.

8. Make sure the previous configuration is fully functional before you add any new features.

9. Save the configuration file.
-

User-specified SuperMezz image

Use this procedure to explicitly define the correct SuperMezz image to boot from.

! Important:

In this procedure, it is very important that you match the `dld` and `mezz` images with the run-time image.

* Note:

Use the commands listed in this procedure only. Do not use any other boot configuration commands such as `config bootconfig bootp image-name /flash/p80j72100.dld 1` or `config bootconfig mezz-image image-name /flash/p80m72100.img`.

Before you begin

1. Power down the switch running the 5.x software release.
2. Install the SuperMezz.
3. Power up the switch.

Procedure

1. Set the boot flag with the 5.1.1.10 image running.

```
config bootconfig flags mezz true
```
2. Save the boot configuration file.
3. Make sure that the mezz image, `p80m51110.img` is present on either `/flash/` or `/pcmcia`.

```
show bootconfig config
```
4. Boot the system. This example shows how to boot from flash.

```
boot /flash/p80m51110.img
```

The switch boots the CPU with the SuperMezz, which is now fully operational.

At this point, you can build an IPv6 configuration if you want. Make it functional and save the configuration.
5. Download the 7.2.10.0 images (`a`, `b`, `j`, `k`, `m`, and `des` and `aes`) to the `/flash/` or `/pcmcia/`.
6. Set the boot configuration.

```
config bootconfig choice primary-image /flash/p80a72100.img
```
7. Save the boot configuration file.

8. Boot the system. This example shows how to boot from flash.

```
boot /flash/p80b72100.img
```

The switch updates the boot sectors, loads the run-time image, `/flash/p80a72100.img` and then the mezz image takes over.

9. Make sure the previous configuration is fully functional before you add any new features and save the configuration file.

Upgrading from 8692 SF/CPU with SuperMezz to 8895 SF/CPU

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

Prerequisites

- You must be local to the switch with a console connection.
- Upgrade the Ethernet Routing Switch 8800/8600 to 7.2 code with the 8692 SF/CPU with SuperMezz as master and slave.
- Download the p80ae7130.img and p80be7130.img software images, as well as the dld files (p80j7130.dld, p80k7130.dld) to the master 8692 SF/CPU.

Procedure steps

1. Disable the slot for the slave SF/CPU. For example (where slot x is the slot of the slave 8692 SF/CPU):

```
ERS-8010:5#config slot x state dis
```
2. Remove the slave 8692 SF/CPU with SuperMezz.
3. Insert the 8895 SF/CPU into the chassis, and immediately after inserting the 8895 SF/CPU, stop the boot process at the boot monitor when prompted.
4. Copy the running configuration file (config.cfg), boot configuration file (boot.cfg), images and dld files (p80ae7100.img, p80be7100.img, p80j7100.dld, p80k7100.dld) from the current master 8692 SF/CPU to the 8895 SF/CPU using the internal IP for the copy command: `127.0.0.X`, where X is the slot number of the 8692 SF/CPU. For example:

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

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

```
monitor:5# choice primary image-file p80ae7100.img
```

```
monitor:5# save
```

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

```
monitor:5# boot /flash/ p80be7100.img
```

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

```
ERS-8010:5# config sys set action cpuswitchover
```

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

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

10. Copy the running configuration file (config.cfg), boot configuration file (boot.cfg), images and dld files (p80ae7100.img, p80be7100.img, p80j7100.dld, p80k7100.dld) from the current master 8895 SF/CPU to the new 8895 SF/CPU using the internal IP for the copy command: 127.0.0.X, where X is the slot number of the master 8895 SF/CPU. For example:

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

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

```
monitor:5# boot /flash/ p80be7100.img
```

Downgrading the Ethernet Routing Switch 8800/8600

Downgrade the Ethernet Routing Switch 8800/8600 if an upgrade is not successful.

Prerequisites

- You must remove any installed 8800 series I/O modules.
- If you are downgrading to a pre-7.2 release, you must remove any installed 8895 SF/CPU modules.
- You need the previously saved configuration files (boot.cfg and config.cfg) for the release to which you intend to downgrade.

- For I/O modules, you need compatible firmware versions for the release to which you intend to downgrade. See the Upgrades document for the target release for the required firmware.
- Read [Downgrade considerations](#) on page 58.

Procedure steps

1. Install an older version of software.

Use the procedure found in the *Upgrades* document that corresponds to the software release you intend to install. Ensure that you use the previously saved configuration files for that release.

2. Install an older version of compatible firmware on any R or RS modules.

See [Installing FPGA firmware on R modules](#) on page 79 and [Installing FPGA firmware on RS and 8800 modules](#) on page 81.

Migrating to standard SPBM using the CLI

Important:

If you are running Release 7.2 or later, ignore this procedure because you are already compliant with the IEEE 802.1aq standard.

Use the following procedure to migrate your SPBM network from a pre-7.1.3 release to the IEEE 802.1aq standard compliant Release 7.1.3. This upgrade enables SPBM to interoperate with future SPBM releases and third party SPB products. Your existing configuration will continue to be valid after the upgrade to Release 7.1.3.

It is very important to understand the following upgrade considerations:

- Releases prior to 7.1.3 support draft SPBM only.
- Release 7.1.3 and 7.1.3.x support both draft and standard SPBM.
- Release 7.2 and later support standard SPBM only.

Important:

To ensure minimum interruption of services, apply the following procedure to each switch in the network one switch at a time. DO NOT upgrade any switch to a release above 7.1.3 until you apply the procedures below to all the switches in the network.

*** Note:**

Multicast over SPBM is a feature of release 7.2. In order to use Multicast over SPBM, you must first upgrade all switches to release 7.2.

Prerequisites**! Important:**

- DO NOT use this migration procedure until you upgrade all the nodes in the network running SPBM to 7.1.3 code.
- DO NOT use the `spbm version <draft|802.1aq>` command until told to do so in the procedure. SPBM operates in the draft mode by default.

Procedure steps

1. If the switch you are upgrading is part of an IST cluster, disable all NNI, IST and SMLT ports.

2. Disable IS-IS globally by using the following command:

```
config isis disable
```

3. Set the version to standard SPBM:

```
config spbm version 802.1aq
```

4. Enable IS-IS globally:

```
config isis enable
```

5. If the switch you are upgrading is part of an IST cluster, enable all NNI, IST and SMLT ports.

6. Wait for adjacencies to be established.

7. Verify that all the services are restored:

```
show isis spbm info
```

8. Change the SPBM ethertype from the default to the standard value:

```
config spbm ethertype 0x88a8
```

*** Note:**

- The default Ethertype used by SPBM NNI links is 0x8100. You can optionally change the Ethertype to 0x88a8, which is the value for PBB (802.1ah) encapsulated packets. This may be required for interoperability with other vendor products that support SPBM and only process packets with Ethertype of 0x88a8.
- ERS 8800 accepts and processes ingress packets with an Ethertype of either 0x8100 or 0x88a8, and uses the configured Ethertype value in the egress packets.

- Changing the Ethertype does not impact service because you can change it dynamically. Also, because SPBM accepts both values on ingress, you do not have to change values at both ends of a link at the same time.
- SPBM networks that have NNI links traversing non-SPBM capable switches or MAN/WAN services that are not SPBM-aware should use Ethertype 0x8100 to ensure compatibility.

Variable definitions

Use the data in the following table to configure the SPBM and IS-IS parameters.

Variable	Value
config isis {enable disable}	Enables or disables IS-IS globally on the switch.
config spbm version <draft 802.1aq>	Sets the SPBM version to the draft (pre-standard) or to the 802.1aq (standard) version. The 802.1aq version is in full compliance with the IEEE.


Job aid

The following table describes the fields in the output for the **show isis spbm info** command.

Parameter	Description
SPBM INSTANCE	Indicates the SPBM instance identifier. You can only create one SPBM instance.
B-VID	Indicates the SPBM B-VLAN associated with the SPBM instance.
PRIMARY VLAN	Indicates the primary SPBM B-VLAN associated with the SPBM instance.
NICK NAME	Indicates the SPBM node nickname. The nickname is used to calculate the I-SID multicast MAC address.
LSDB TRAP	Indicates the status of the IS-IS SPBM LSDB update trap on this SPBM instance. The default is disable.
IP	Indicates the status of SPBM IP Shortcuts on this SPBM instance. The default is disable.
MULTICAST	Indicates the status of IP Multicast on this SPBM instance. The default is disable.
SMLT-SPLIT-BEB	Specifies whether the switch is the primary or secondary IST peer.
SMLT-VIRTUAL-MAC	Specifies a virtual MAC address that can be used by both peers.
SMLT-PEER-SYSTEM-ID	Specifies the IST peer BMAC address.

Job aid

The following table describes the fields in the output for the **show spbm** command.

Parameter	Description
spbm	Shows whether SPBM is enabled or disabled on the switch.
ethertype	Indicates the SPBM ethertype. The default value is 0x8100.  Note: After you change the SPBM version to standard, Avaya recommends that you change ethertype to the standard value (0x88a8).

Chapter 7: Operational procedures using the CLI

The following sections describe common operational procedures that you can use for the Avaya Ethernet Routing Switch 8800/8600. You can use these procedures during upgrade or as part of normal system operations.

Saving configuration files

Save configuration files in the mode that you want to use. Although you cannot convert configuration files from one mode to another, you can save them in either CLI or ACLI mode.

Procedure steps

1. When in CLI mode, to save a configuration file in CLI mode, enter:

```
save config
```



```
save bootconfig
```
2. When in CLI mode, to save a configuration file in ACLI mode, enter:

```
save config mode acli
```



```
save bootconfig mode acli
```

Copying files

Copy files as part of an upgrade procedure to back up files or to move files to another location.

When you copy files, you can rename the files. Use caution. All procedures in this document use the default file names. Upgrades can be unsuccessful if the wrong file names are used.

Important:

If a failure occurs while you copy a file using TFTP (for example, a TFTP server is not available), the file is deleted.

Procedure steps

1. Use the **copy** command:

```
copy <filename> <filename>
```

For example:

```
copy /flash/config.cfg /pcmcia/config_backup.cfg
```

The first parameter you specify is where the file resides, and the second parameter is the location for the new file.

2. To copy files using a TFTP server, ensure that the TFTP server is operating and then use the following command:

```
copy <tftp IP address>:<filename> /<location>/
```

For example:

```
copy 111.111.1.11:p80a4100.img /flash/p80a4100.img
```

Variable definitions

Use the information in the following table to help you perform this procedure.

Variable	Value
<filename>	Specifies the file name and the path.
<location>	Specifies the file name and the path for file storage on the switch
<tftp IP address>	Specifies the IP address of the TFTP server.

Example of copying files

The following figure shows how to copy files by using the CLI.

```

Telnet 192.167.120.4
ERS-8606:5# copy ?
copy <src> file to <dest> file
Required parameters:
<srcfile>      = {a.b.c.d:}/pcmcia/flash/<file>
<destfile>     = {a.b.c.d:}/pcmcia/flash/<file>
Optional parameters:
-y            = skip the confirm question
Command syntax:
copy <srcfile> <destfile> [-y]
For WSM :
<srcfile>     = /wsn/{1..10}/<srctarget>]
<dstfile>     = /wsn/{1..10}/<dsttarget>]
srctarget     = "image1"|"image2"|"boot"|"cfg"|"ptdmp"
dsttarget     = "image1"|"image2"|"boot"|"cfg"
For SAM :
<srcfile>     = /sam/{1..10}/<srctarget>]
<dstfile>     = /sam/{1..10}/<dsttarget>]
srctarget     = "cfg"|"ptdmp"
dsttarget     = "image"|"cfg"
ERS-8606:5# copy /Flash/config.cfg /pcmcia/config2.cfg

```

Hiding files

Hide files for security reasons, and to keep them safe from accidental deletion.

Procedure steps

To hide files, use the attribute "+h" command. For example, to hide a file located on the flash named shadv.txt:

```
attrib /flash/shadv.txt "+h"
```

Enabling FTP and TFTP

Enable FTP and TFTP to use these protocols on the Ethernet Routing Switch 8800/8600. You can use FTP or TFTP servers to store upgrade files. To save a file to a Secondary SF/CPU, enable TFTP on the Secondary SF/CPU. Reboot the switch to enable FTP or TFTP.

Procedure steps

1. To enable the FTP daemon, enter the following command:

```
config bootconfig flags ftpd true
```
2. To enable the TFTP daemon, enter the following command:

```
config bootconfig flags tftpd true
```
3. To save the boot configuration file, enter the following command:

```
save bootconfig standby boot.cfg
```
4. Reboot the SF/CPU so that the changes take effect, and the protocols are enabled:

```
boot -y
```

Configuring boot sources

If the boot source location or image name is not default, specify its location or name. To specify boot source locations and file names, use the following procedure. You can also use these commands to change the order in which the boot sources (internal flash memory, external memory card, FTP or TFTP server) are accessed. If you move a .dld file from its default location, be sure to specify its new location. For more information about boot sources, see [Boot sources](#) on page 43.

Important:

R, RS, and 8800 modules require that the switch loads a .dld image on each module. See [DLD file considerations](#) on page 45.

The R module image is p80jxxxx.dld and the RS and 8800 module image is p80kxxxx.dld.

Procedure steps

1. To change the runtime configuration file locations, use the following command:

```
config bootconfig choice <primary|secondary|tertiary>
[config-file <file>|backup-config-file <file>|image-file
<file>]
```

For example, to specify the configuration file in flash memory as the primary, use the following command:

```
ERS-8610:6# config bootconfig choice primary config-file /
flash/config.cfg
```

2. To set the location for the I/O module driver image for the BootStrap protocol:

```
config bootconfig bootp image-name <image-name> <slot-number>

config bootconfig bootp secondary-image-name <image-name>
<slot-number>
```

For example, to specify an R module driver for slot 2 in flash memory, use the following command:

```
ERS-8610:6# config bootconfig bootp /flash/p80j41xx.dld 2
```

! Important:

Avaya recommends that you store .dld files in flash memory, and that you always set the image-name to default.

3. To set the boot source location for the SuperMezz image:

```
config bootconfig mezz-image image-name <image-name>
```

For example:

```
ERS-8610:6# config bootconfig mezz-image image-name /flash/  
p80m41xx.img
```

4. To configure boot configuration system flags, use the following command:

```
config bootconfig flags <flag-name> <flag-value>
```

For example:

```
ERS-8610:6# config bootconfig flags cf-pc-compat false
```

5. Save the `boot.cfg` file and reboot the switch.

Variable definitions

Use the data in the following table to help you use the **config bootconfig choice** **<primary|secondary|tertiary>** command.

Variable	Value
backup-config-file <file>	Identifies the backup boot configuration file; file is the device path and file name, up to 256 characters including the path.
config-file <file>	Identifies the boot configuration file; file is the device path and file name, up to 256 characters including the path.
image-file <file>	Identifies the image file; file is the device path and file name, up to 256 characters including the path.
info	Shows the current boot choices and associated files.

Use the data in the following table to help you use the **config bootconfig bootp** command.

Variable	Value
image-name <image-name> <slot-number>	Identifies the I/O module primary image. <file> is the device and file name, up to 256 characters including the

Variable	Value
	path. <slot-number> identifies the image with a particular slot. To ensure that the .dld image loaded is the same as the running software image, configure the image-name to default.
secondary-image-name <image-name> <slot-number>	Identifies the I/O module secondary image. <file> is the device and file name, up to 256 characters including the path. <slot-number> identifies the image with a particular slot. To ensure that the .dld image loaded is the same as the running software image, configure the image-name to default.
info	Shows the current boot choice and associated files.

Use the data in the following table to help you use the **config bootconfig mezz-image** command.

Variable	Value
image-name <image-name> [<slot-number>]	Identifies the SuperMezz image. <image-name> is the device and file name, up to 256 characters including the path. slot-number identifies the image with a particular slot.
info	Shows the current SuperMezz boot choice and associated files.

Use the data in the following table to help you use the **config bootconfig flags** command.

Variable	Value
flags <flag-name> <flag-value>	Identifies boot configuration system flags. <flag-name> indicates the name of the flag. <flag-value> indicates the value. The value can either be True/False
info	Shows the current value of the boot configuration flag.

Example of configuring primary and secondary sources

This example configures the primary and secondary sources as per Avaya recommendation.

1. Configure the primary configuration file choices:

```
config bootconfig choice primary config-file /flash/
primaryconfig.cfg

config bootconfig choice primary backup-config-file /pcmcia/
primaryconfig.cfg
```

2. Configure the secondary configuration file choices:

```
config bootconfig choice secondary config-file /flash/
secondaryconfig.cfg

config bootconfig choice secondary backup-config-file /
pcmcia/secondaryconfig.cfg
```

Checking firmware revisions

To determine if an update to the firmware is required, check the current firmware revisions on the slot containing an R, RS, or 8800 module.

Procedure steps

Enter the following command:

```
show sys info asic
```

```
#
# Asic Info :
# SlotNum|Name      |CardType  |MdaType    |Parts Description
#
# Slot 1  --        0x00000001 0x00000000
# Slot 2  8812XL    0x25b25122 0x00000000 PRS:RSP=27 F2I=4 F2E=5 FTMUX=17
CC=33281 FOQ=270 DPC=7 BMC =264 PIM=256 MAC=1112670281 Mirror=304
Loopback=274
# Slot 3  --        0x00000001 0x00000000
# Slot 4  8648GTR   0x24220130 0x00000000 RSP=25 CLUE=2 F2I=1 F2E=1 FTMUX=17
CC=3 FOQ=267 DPC=184 BM C=776 PIM=3 MAC=2
# Slot 5  8695SF    0x200e1100 0x00000000 CPU: BDLB=21 glue=14 SFM: OP=3
TMUX=2 SWIP=23 FAD=16 CF=2
# Slot 6  8695SF    0x200e1100 0x00000000 CPU: BDLB=21 glue=14 SFM: OP=3
TMUX=2 SWIP=23 FAD=16 CF=2
```

If the Dual Port Controller (DPC), BAP Memory Controller (BMC), Port Interface Module (PIM), mirror, loopback, and Feedback Output Queueing (FOQ) firmware revisions are not equivalent to those specified in the list of required firmware files, a firmware update is required.

For information about required files, see [Job aid: required firmware](#) on page 104.

Job aid: required firmware

Use the following information to determine the firmware version required.

Table 5: Firmware release support

Module	FPGA firmware version
R modules with Release 7.2	<ul style="list-style-type: none">• PIM for 8630GBR: 769• FOQ: 267• BMC: 776• DPC: 194
RS and 8800 modules with Release 7.2	<ul style="list-style-type: none">• PIM for 8612XLRS and 8812XL: 1024 and 256• PIM for 8634XGRS and 8834XG: 1024• PIM for 8648GBRS and 8848GB: 1024• PIM for 8648GTRS and 8848GT: 768• FOQ: 270• DPC: 7• BMC: 264• Mirror: 304• Loopback: 274

Replacing a SF/CPU module in a single CPU chassis

Replace a single SF/CPU module in a single chassis to replace a faulty SF/CPU or to upgrade the SF/CPU to a newer model.

If the flash is not accessible on a faulty SF/CPU, obtain the files from another source, which can be another network device, such as a TFTP or FTP server. Alternatively, the files can be rebuilt using the Customer Spec Book or the configuration from the VRRP peer Ethernet Routing Switch 8800/8600.



Electrostatic alert:

Risk of equipment damage

To prevent damage from electrostatic discharge, always wear an antistatic wrist strap connected to an ESD jack.

Prerequisites

- You can access the Console port and the Ethernet Management port.

Procedure steps

1. Save the configuration files.

See [Saving configuration files](#) on page 97.

2. Place all required files onto the external memory card.

See [Job aid: files present on SF/CPU modules](#) on page 106 and [Copying files](#) on page 163.

3. Power down the switch to stop all traffic.
4. Disconnect the cables from the Management and Console ports.
5. Remove the old SF/CPU.

For instructions, see *Avaya Ethernet Routing Switch 8800/8600 Installation — Modules*, (NN46205-304).

6. Insert the new SF/CPU.
7. Reconnect the cables to the Management and Console ports.
8. Replace the external memory card.
9. Connect to the console and open the terminal emulator application.
10. Power up the switch and stop the auto-boot process.

Before the system loads the runtime image, the following message appears:

```
"Loaded boot configuration from file /flash/boot.cfg Attaching network interface lo0... done. Press <Return> to stop autoboot..."
```

11. To stop the auto-boot process, on the keyboard, press Enter.
12. Using the Console port and the CLI, copy all required files from the external memory card to the SF/CPU flash memory.
13. Hide any hidden (.txt) files.

See [Hiding files](#) on page 99.

14. Boot the system with the correct boot monitor:

```
Monitor# boot /flash/p80b7100.img (for 8692 SF/CPU)
```

```
Monitor# boot /flash/p80be7100.img (for 8895 SF/CPU)
```

A message appears stating that the boot flash will be written, and to not interrupt the process. After the system writes the boot flash with the new boot monitor, the system reboots and loads boot.cfg and config.cfg along with the proper runtime software specified within the new configuration. The upgrade is complete.

15. Verify that the image and configuration loaded properly:

```
show sys sw
```

Job aid: files present on SF/CPU modules

The following hidden files can be present on the SF/CPU flash memory of an Ethernet Routing Switch 8800/8600. The files present on the flash depend on the hardware and software configuration present on the switch. See also [New software files](#) on page 46 and the release notes for the most up-to-date file names.

Table 6: Required hidden files

File type	Name
Hidden files	<ul style="list-style-type: none">• ospf_md5key.txt• shadv.txt• snmp_usm.txt• snmp_comm.txt• passwd.txt

Hot swapping the Master SF/CPU module in a dual CPU chassis

Use this procedure to hot swap an Ethernet Routing Switch 8800/8600 module that is in a redundant SF/CPU configuration. You can use this procedure when you upgrade switch fabrics, or when you perform a failover with High Availability (HA) mode enabled.

If you use HA-CPU in a dual SF/CPU system, this procedure minimizes packet loss. If the SF/CPU is in Warm Standby mode, packet loss cannot be avoided; however, this procedure minimizes downtime.

For information about configuring which SF/CPU is the Master, see *Avaya Ethernet Routing Switch 8800/8600 Administration*, (NN46205-605).



Caution:

Risk of traffic loss or corruption

When you hot swap the active SF/CPU module in a redundant SF/CPU system, wait until the new Master stabilizes before you insert any other modules. Do not hot swap I/O modules until the new SF/CPU becomes the Master SF/CPU.

If you have only one SF/CPU and you swap the SF/CPU, all the SNMP password files, including the hidden file, are lost. Either reconfigure the trap receivers and community strings each time you change the SF/CPU module, or save these hidden files to an external memory card.

Do not hot swap or insert modules in a switch while the switch boots. If you do, the switch may not recognize the module, which causes module initialization failure.

Switchover causes an interruption to user traffic.

In HA mode, Avaya strongly recommends that you make the Secondary SF/CPU the Master before you remove the old Master SF/CPU. If you remove the Master SF/CPU before you make the Secondary SF/CPU the Master, traffic may be lost or corrupted.



Electrostatic alert:

Risk of equipment damage

To prevent damage from electrostatic discharge, always wear an antistatic wrist strap connected to an ESD jack.

Procedure steps

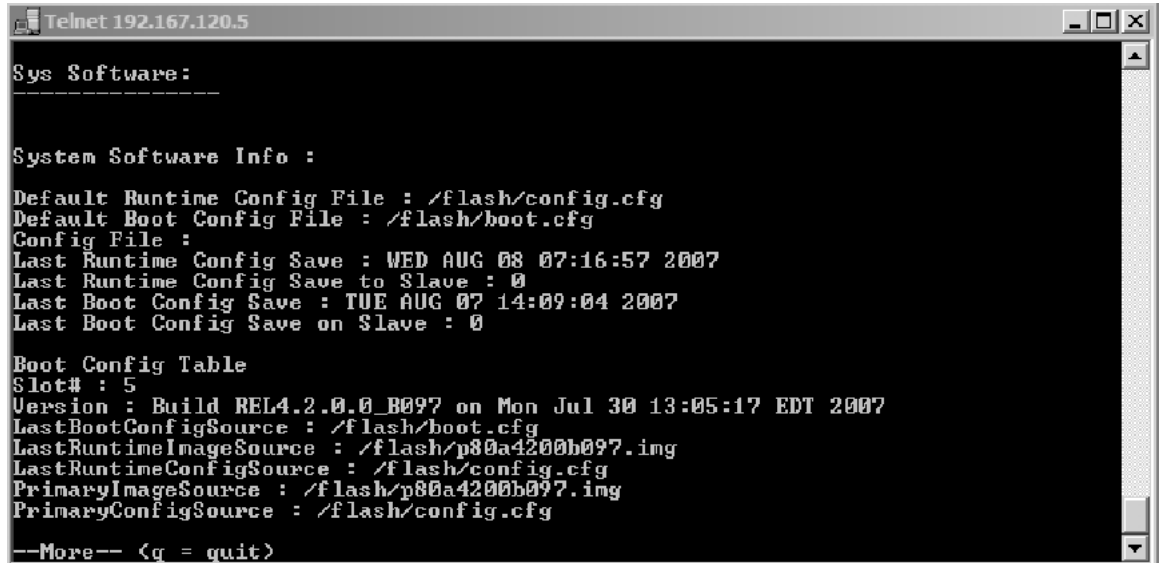
1. Connect to the Master SF/CPU using either Telnet or the console port.

If you use a Telnet session, be aware that it will be disconnected when the Master fails over unless you use the Virtual Management IP address.

2. Determine which slot (5 or 6) contains the Master. On the switch, the Master LED of the Secondary CPU is unlit. Or, you can enter the following command:

```
show tech
```

In the Sys Software, BootConfig Table section, the slot number is indicated.



```

Telnet 192.167.120.5

Sys Software:
-----

System Software Info :
Default Runtime Config File : /flash/config.cfg
Default Boot Config File : /flash/boot.cfg
Config File :
Last Runtime Config Save : WED AUG 08 07:16:57 2007
Last Runtime Config Save to Slave : 0
Last Boot Config Save : TUE AUG 07 14:09:04 2007
Last Boot Config Save on Slave : 0

Boot Config Table
Slot# : 5
Version : Build REL4.2.0.0_B097 on Mon Jul 30 13:05:17 EDT 2007
LastBootConfigSource : /flash/boot.cfg
LastRuntimeImageSource : /flash/p80a4200b097.img
LastRuntimeConfigSource : /flash/config.cfg
PrimaryImageSource : /flash/p80a4200b097.img
PrimaryConfigSource : /flash/config.cfg

--More-- <q = quit>

```

3. Ensure that both SF/CPUs have the same configuration. To do so, enter:

```

save config standby <filename>

save bootconfig standby <filename>

```

4. Perform the switchover:

```

config sys set action cpuswitchover

```

5. Wait for the switchover to complete (about 30 seconds). When it is complete, a logon prompt appears on the console session. On the old Secondary SF/CPU module, the Master LED lights up.

If you were connected by Telnet to the old Master, now logon to the new Master.

6. After the old Secondary becomes the Master, disable the SF/CPU that you are removing.

```

config slot <slotnum> state disable

```

! Important:

The disable command does not disable the CPU, but disables only the switch fabric portion of the SF/CPU module. The LEDs on the front panel do not indicate a state change for the module; the CPU remains active. The only indication of a change is when the console displays a message stating that the module is safe to pull out.

7. Remove the SF/CPU module.
8. Insert the new SF/CPU module.

The chassis automatically enables the new module.

9. Confirm that the new SF/CPU module is operational:

```
peer telnet
show sys perf
```

As well, the Online LED of the SF/CPU module lights up.

10. Ensure that both SF/CPU modules have the same configuration by connecting to the Master and repeating step 3.
11. Confirm that traffic is traversing the switch as normal.

Variable definitions

Use the following table to help you use the commands in this procedure.

Variable	Value
<filename>	Specifies the Secondary destination path and filename in the format /pcmcia/<filename> or /flash/<filename>
<slotnum>	Specifies the slot number of the module to be disabled. SF/CPU modules can reside in slots 5 and 6 of the 6 and 10-slot chassis.

Hot swapping the Secondary SF/CPU module in a dual CPU chassis

Use this procedure to hot swap an Ethernet Routing Switch 8800/8600 module that is in a redundant SF/CPU configuration. You can use this procedure when you upgrade switch fabrics, or when you perform a failover with High Availability (HA) mode enabled.

For information about configuring which SF/CPU is the Master, see *Avaya Ethernet Routing Switch 8600 Administration*, (NN46205-605).

Caution:

Risk of traffic loss or corruption

Do not hot swap or insert modules in a switch while the switch boots. If you do, the switch may not recognize the module, which causes module initialization failure.

Electrostatic alert:

Risk of equipment damage

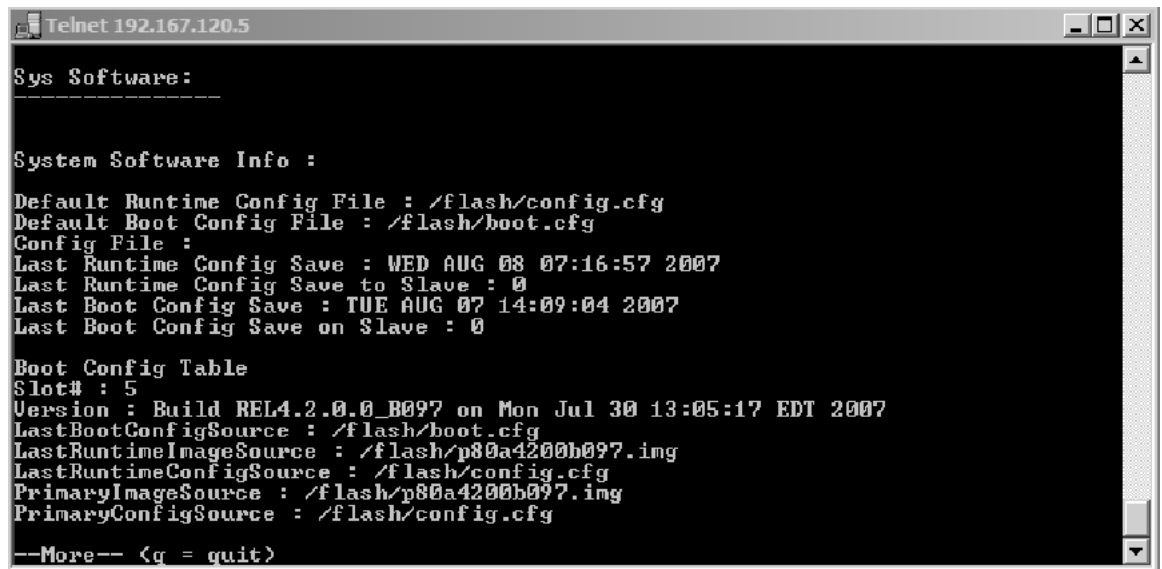
To prevent damage from electrostatic discharge, always wear an antistatic wrist strap connected to an ESD jack.

Procedure steps

1. Connect to the Master SF/CPU.
2. Determine which slot (5 or 6) contains the Master. On the switch, the Master LED of the Secondary CPU is unlit. Or, you can enter the following command:

```
show tech
```

In the Sys Software, BootConfig Table section, the slot number is indicated.



```
Telnet 192.167.120.5

Sys Software:
-----

System Software Info :
Default Runtime Config File : /flash/config.cfg
Default Boot Config File : /flash/boot.cfg
Config File :
Last Runtime Config Save : WED AUG 08 07:16:57 2007
Last Runtime Config Save to Slave : 0
Last Boot Config Save : TUE AUG 07 14:09:04 2007
Last Boot Config Save on Slave : 0

Boot Config Table
Slot# : 5
Version : Build REL4.2.0.0_B097 on Mon Jul 30 13:05:17 EDT 2007
LastBootConfigSource : /flash/boot.cfg
LastRuntimeImageSource : /flash/p80a4200b097.img
LastRuntimeConfigSource : /flash/config.cfg
PrimaryImageSource : /flash/p80a4200b097.img
PrimaryConfigSource : /flash/config.cfg
--More-- <q = quit>
```

3. Disable the Secondary SF/CPU.

```
config slot <slotnum> state disable
```

! Important:

The disable command does not disable the CPU, but disables only the switch fabric portion of the module. The LEDs on the front panel do not indicate a state change for the module; the CPU remains active. The only indication of a change is when the console displays a message stating that the module is safe to pull out.

4. Remove the SF/CPU module.
5. Insert the new SF/CPU module.
- The chassis automatically enables the new module.
6. Confirm that the new SF/CPU module is operational:

```
peer telnet
```

```
show sys perf
```

As well, the Online LED of the SF/CPU module lights up.

7. Ensure that both SF/CPU modules have the same configuration by connecting to the Master and issuing the following commands:

```
save config standby <filename>
```

```
save bootconfig standby <filename>
```

8. Confirm that traffic is traversing the switch as normal.

Variable definitions

Use the following table to help you use the commands in this procedure.

Variable	Value
<filename>	Specifies the secondary destination path and filename in the format /pcmcia/<filename> or /flash/<filename>
<slotnum>	Specifies the slot number of the module to be disabled. SF/CPU modules can reside in slots 5 and 6 in the six and ten-slot chassis.

Hot swapping an I/O module

Use this procedure to hot swap an Ethernet Routing Switch 8800/8600 I/O module. You can use this procedure when you upgrade to the latest modules.

Caution:

Risk of traffic loss or corruption

Do not hot swap or insert modules in a switch while the switch boots. If you do, the switch may not recognize the module, which causes module initialization failure.

Electrostatic alert:

Risk of equipment damage

To prevent damage from electrostatic discharge, always wear an antistatic wrist strap connected to an ESD jack.

Procedure steps

1. Connect to the Master SF/CPU.
2. To reduce the chance of packet loss, Avaya recommends that you disable the module prior to removal, although this is not a strict requirement:

```
config slot <slotnum> state disable
```

3. If you disabled the module, confirm that the module is disabled.

The Online LED of the module is amber when the module is disabled. You can also verify that the module is disabled by using the following command:

```
show tech
```

4. Remove the module.
5. Insert the new module.

The chassis automatically enables the new module.

6. Confirm that the new module is operational:

```
show tech
```

As well, the Online LED of the module lights up.

7. Confirm that traffic is traversing the module as normal.

Variable definitions

Use the following table to help you use the commands in this procedure.

Variable	Value
<slotnum>	Specifies the slot number of the module to be disabled.

Reformatting the 8692 SF/CPU flash memory to 64 MB for a single SF/CPU system

Use this procedure to increase the size of the SF/CPU flash memory to 64 Mbytes (MB), which may be required for a switch upgrade.

This procedure uses a PCMCIA card to back up files. You do not have to use this; you can use any accessible storage device except for the internal flash memory. See [File storage options](#) on page 42.

For information about flash memory size and release support, see [Table 1: Release support for flash memory](#) on page 40.

 **Important:**

If you reformat the flash from 16 MB to 64 MB and then use the `dir` command to check if the reformat was successful, you may see error messages of the following form:

0x42cc8a0 (tShell): dosFsLib.c : Malformed boot sector. Offset 32, value 0.

If this problem occurs, reformat the flash again and reissue the `dir` command. The command output should indicate that 64 MBytes of flash memory is now accessible.

This problem does not occur for reformats from 16 to 40 or 40 to 64 MB.

Prerequisites

- A boot monitor image file (p80b7100.img for 8692 SF/CPU or p80be7100.img for 8895 SF/CPU) from 7.2 must be running on the switch.
- Before you format the flash memory, back up all the existing files.

Procedure steps

1. Log on to the switch.
2. Save the configuration files:

```
save config
save bootconfig
```
3. Back up all necessary files to the PCMCIA card. See [Job aid: files present on SF/CPU modules](#) on page 106.
For instructions about copying files, see [Copying files](#) on page 97.
4. To ensure that the files are successfully copied to the PCMCIA card, use the `dir` command.
5. Format the flash memory:

```
format-flash -y
```



Caution:

Risk of data loss

This action erases all flash contents. Any files that must be used later must be copied to another storage location before you reformat the flash memory.

6. Enter the following command:

```
reset -y
```

This step avoids the generation of incorrect error messages.

7. After the flash memory is reformatted, to ensure 64 MB, enter the `dir` command.
8. Copy each of the files you moved in step 3 back to the flash memory. For example:

```
ERS-8610:6# copy /pcmcia/boot.cfg /flash/boot.cfg
```

9. To ensure that the switch uses the correct files from the flash memory, enter the following commands:

```
config bootconfig choice primary image-file /flash/  
p80axxxx.img
```

For R, RS, and 8800 modules (repeat for each slot):

```
config bootconfig bootp image-name default <slot-number>
```

If you have SuperMezz:

```
config bootconfig mezz-image image-name /flash/p80mxxxx.img
```

If you did not store these files in flash memory, configure the switch to check a different location. See [Configuring boot sources](#) on page 100.

10. Save configuration files:

```
save config
```

```
save bootconfig
```

11. Hide all hidden password, OSPF, and SNMP files. For example:

```
attrib /flash/shadow.txt "+h"
```

12. After the switch resumes normal operations, to ensure proper reformatting and copying, log on and issue the following commands:

```
more boot.cfg
```

```
dir
```

Reformatting the flash memory to 64 MB for a dual SF/CPU system

Use this procedure to increase the size of the SF/CPU flash memory to 64 Mbytes (MB), which may be required for a switch upgrade.

This procedure uses a PCMCIA card to back up files. You do not have to use this; you can use any accessible storage device except for the flash memory. See [File storage options](#) on page 42.

For information about flash memory size and release support, see [Table 1: Release support for flash memory](#) on page 40.

Important:

If you reformat the flash from 16 MB to 64 MB and then use the `dir` command to check if the reformat was successful, you may see error messages of the following form:

```
0x42cc8a0 (tShell): dosFsLib.c : Malformed boot sector. Offset 32, value 0.
```

If this problem occurs, reformat the flash again and reissue the `dir` command. The command output should indicate that 64 MBytes of flash memory is now accessible.

This problem does not occur for reformats from 16 to 40 or 40 to 64 MB.

Prerequisites

- A boot monitor image file (p80b7100.img for 8692 SF/CPU or p80be7100.img for 8895 SF/CPU) from 7.2 must be running on the switch.
- Before you format the flash memory, back up all the existing files.

Procedure steps

1. Perform the procedure [Reformatting the 8692 SF/CPU flash memory to 64 MB for a single SF/CPU system](#) on page 112 on the Secondary SF/CPU.
2. Repeat the procedure on the Master SF/CPU.

Reformatting the 8895 SF/CPU compact flash

Use this procedure to format the 8895 SF/CPU compact flash memory. Avaya supports 2 GB and 4 GB compact flash cards only.

Starting with Release 7.2, you have the choice of using a Windows PC compatible format or retaining the backwards compatible format. Choose carefully because a compact flash formatted for backwards compatibility will not be recognized when the boot flag is set for PC compatibility and vice versa.

 **Note:**

The default format is backwards compatible. If you plan to roll back to a release that does not support this feature and you were using the PC compatible format, save the boot configuration and reset the flag to the default state before you roll back the switch.

 **Important:**

When using Window PC compatible mode, Avaya recommends formatting the compact flash on the 8895 CPU to be recognized by both VxWorks and Windows. If you format the compact flash on a Windows PC, VxWorks on the ERS 8800/8600 may not be able to recognize it.

Prerequisites

- A boot monitor image file (p80be7100.img for 8895 SF/CPU) from 7.2 and above must be running on the switch.

Procedure steps

Procedure

1. Verify the format, by entering one of the following commands. Then, if you need to change the format, continue with this procedure.
 - `config bootconfig flags info`
 - `show bootconfig flags`
2. Back up all the existing files on the compact flash before you format it.
For instructions on copying files, see [Copying files](#) on page 97.
3. To ensure that the files are successfully copied, use the `dir` command.
4. Stop the compact flash card before you remove it by using the following command:

```
dos-stop /pcmcia
```

5. Remove the compact flash interface from the switch.

 **Important:**

Ensure that you remove the compact flash interface from its slot before you modify the **cf-pc-compat** flag. Otherwise the system displays errors.

6. Specify a format by setting the bootconfig flag.
 - To format the compact flash for backwards compatibility, set the flag to **false** with the `config bootconfig flags cf-pc-compat false` command.
 - To format the compact flash for PC compatibility, set the flag to **true** with the `config bootconfig flags cf-pc-compat true` command.

7. Save the boot configuration file, by entering:

```
save bootconfig
```

8. Reinsert the compact flash.
9. Format the compact flash, by entering:

```
dos-format /pcmcia
```

 **Caution:**

Risk of data loss

This action erases all compact flash contents. Any files that must be used later must be copied to another storage location before you reformat the compact flash memory.

10. Restore the files you moved in step 1 back to the compact flash memory. For example:

```
copy <file-path>/boot.cfg /pcmcia/boot.cfg
```

where <file-path> is the path to the storage location of the file.

Downgrading flash and PCMCIA memory

Procedure steps

1. Connect to the SF/CPU by using the console port.
2. Copy your files from internal flash memory to the PCMCIA card. See [Job aid: files present on SF/CPU modules](#) on page 106.

For information about how to copy files, see [Copying files](#) on page 97.

3. Downgrade the boot monitor with an earlier release of the software.
4. When you see the following message, interrupt the autoboot process by pressing Return:

```
Press <Return> to stop auto-boot.
```

5. To format the flash memory, enter the following command:

```
format-flash
```



Caution:

Risk of data loss

This action erases all flash contents. Any files that must be used later must be copied to another storage location before you reformat the flash memory.

At the prompt, enter **y**.

6. To reboot, enter the following command:

```
reset -y
```

7. When you see the following message, interrupt the autoboot process by pressing Return:

```
Press <Return> to stop auto-boot.
```

8. Copy the new runtime images and configuration files from the PCMCIA card back to the internal flash memory. Alter the boot config image-file entry to match the new runtime image.

The runtime image release must match the boot monitor image.

9. Enter the following command at the monitor prompt:

```
boot
```

10. Back up all files from the PCMCIA, and then format the PCMCIA using the following CLI command:

! Important:

This step deletes any files on the PCMCIA device.

```
dos-format /pcmcia
```

11. Move the files back to the PCMCIA.

Verifying the MD5 checksums

Use the MD5 checksums to ensure the integrity of the new software files before you use them to upgrade. Corrupted files can cause the upgrade to fail.

For more information about the `md5` command, see [MD5 checksums](#) on page 50.

Procedure steps

1. To calculate the message digest for files in internal flash memory or on an external memory card, and to display the output on screen, enter the following command:

```
md5 <filename>
```

For example:

```
md5 *.img
```

2. If, for any file, the checksum does not match, retransfer the file and run the `md5` command again.

Variable definitions

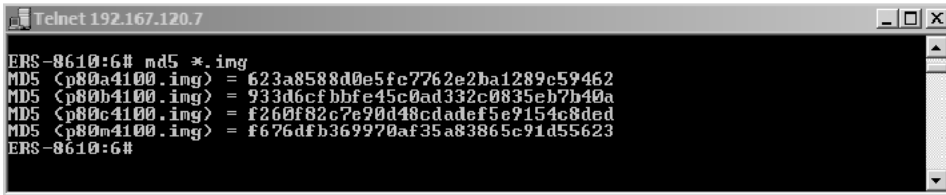
Use the data in the following table to help you use the `md5 <filename>` command.

Variable	Value
wildcard character (<code>*</code>)	Calculates the MD5 checksum of all files.
<code>-a</code>	Adds data to the output file instead of overwriting it. You cannot use the <code>-a</code> option with the <code>-c</code> option.

Variable	Value
-c	<p>Compares the checksum of the specified file by <i><filename></i> with the MD5 checksum present in the checksum file name. You can specify the checksum file name using the -f option. When the checksum file name is not specified, the file /flash/checksum.md5 is used for comparison.</p> <p>If the checksum file name and the default file are not available in flash memory, the following error message is displayed:</p> <pre>Error: Checksum file <filename> not present.</pre> <p>The -c option also:</p> <ul style="list-style-type: none"> • calculates the checksum of files specified by <i>filename</i> • compares the checksum with all keys in the checksum file, even if the file names do not match • shows the results of the comparison
-f <checksum-file-name>	<p>Stores the result of MD5 checksum to a file in internal flash memory or on an external memory card.</p> <p>If the output file specified with the -f option is one of the:</p> <ul style="list-style-type: none"> • reserved file names on the switch, the command fails and the error message is displayed: <pre>Error: Invalid operation.</pre> • files for which MD5 checksum is to be computed, the command fails and the error message is displayed: <pre>Error: Invalid operation on file <filename></pre> <p>If the checksum file name specified by the -f option already exists on the switch (and is not one of the reserved file names), the following message is shown: <pre>File exists. Do you wish to overwrite? (y/n)</pre></p>
-r	<p>Reverses the output and can be used with -f option to store the output to a file.</p> <p>The -r option cannot be used with the -c option.</p>

Example of verifying MD5 checksums

The following are examples of generated output used with **md5** command options.

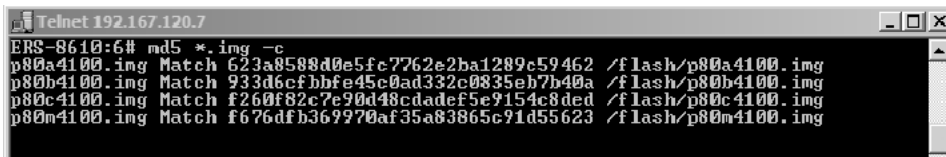


```

Telnet 192.167.120.7
ERS-8610:6# md5 *.img
MD5 (p80a4100.img) = 623a8588d0e5fc7762e2ba1289c59462
MD5 (p80b4100.img) = 933d6cfbbfe45c0ad332c0835eb7b40a
MD5 (p80c4100.img) = f260f82c7e90d48cdadef5e9154c8ded
MD5 (p80m4100.img) = f676dfb369970af35a83865c91d55623
ERS-8610:6#

```

The following figure shows that the MD5 checksums match; the files transferred properly.



```

Telnet 192.167.120.7
ERS-8610:6# md5 *.img -c
p80a4100.img Match 623a8588d0e5fc7762e2ba1289c59462 /flash/p80a4100.img
p80b4100.img Match 933d6cfbbfe45c0ad332c0835eb7b40a /flash/p80b4100.img
p80c4100.img Match f260f82c7e90d48cdadef5e9154c8ded /flash/p80c4100.img
p80m4100.img Match f676dfb369970af35a83865c91d55623 /flash/p80m4100.img

```

Determining the number of chassis MAC addresses

Before you upgrade the number of chassis MAC addresses, ensure that your chassis needs the upgrade.

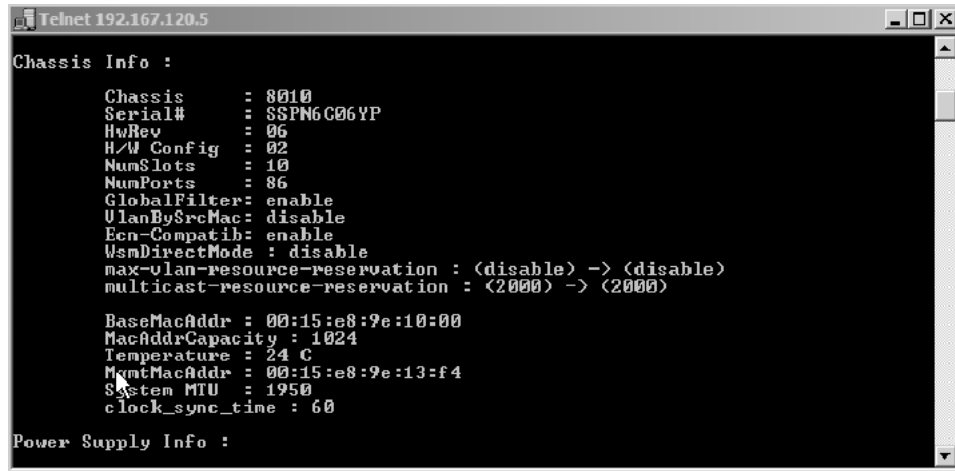
All new chassis come with 4096 MAC address capability.

Procedure steps

1. Access the boot monitor or run-time CLI.
2. Enter the following command:

```
show sys info
```

MAC address support is indicated in the Chassis Info section as MacAddrCapacity.



```
Telnet 192.167.120.5

Chassis Info :
  Chassis      : 8010
  Serial#      : SSPN6C06YP
  HwRev        : 06
  H/W Config   : 02
  NumSlots     : 10
  NumPorts     : 86
  GlobalFilter : enable
  UlanBySrcMac : disable
  Ecn-Compatib : enable
  WsmDirectMode : disable
  max-ulan-resource-reservation : <disable> -> <disable>
  multicast-resource-reservation : <2000> -> <2000>

  BaseMacAddr  : 00:15:e8:9e:10:00
  MacAddrCapacity : 1024
  Temperature  : 24 C
  MgmtMacAddr  : 00:15:e8:9e:13:f4
  System MTU   : 1950
  clock_sync_time : 60

Power Supply Info :
```

3. If MacAddrCapacity is not 4096, proceed to upgrade to 4096 MAC addresses.

Upgrading to 4096 MAC addresses

Upgrade the number of MAC addresses so that the switch can use a greater number of IP interfaces (that is, improve routed VLAN scaling). You can use the CLI to upgrade to 4096 MAC addresses. The CLI command used to upgrade the number of MAC addresses is a hidden command; it does not show in response to the ? command.

The part number for the upgrade kit is DS1411015. This upgrade is supported on the following Ethernet Routing Switch 8000 Series chassis:

- Ethernet Routing Switch 8010co
- Ethernet Routing Switch 8010
- Ethernet Routing Switch 8006
- Ethernet Routing Switch 8003-R

All new chassis come with 4096 MAC address capability.

To prevent overlapping MAC addresses, the new block of 4096 MAC addresses overwrites the old block of 1024 MAC addresses.

Caution:

Risk of data loss

Each Additional MAC Addresses License allows you to upgrade one switch. If you enter the same license code on two switches, both switches will have the same MAC address, which will result in serious networking issues.

Prerequisites

Caution:

Risk of service interruption

Upgrading the chassis to 4096 MAC addresses requires a system reboot. Schedule the upgrade accordingly.

- The chassis does not have 4096 address support (see [Determining the number of chassis MAC addresses](#) on page 121)
- License code
- Base MAC address of your new block of MAC addresses

Job aid: MAC address kit contents

The MAC address kit contains:

- an Additional MAC Addresses License
- two labels printed with the base MAC address of the new block of MAC Addresses
- documentation

Procedure steps

Caution:

Risk of equipment damage

This upgrade requires a chassis EEPROM reprogram. Do not turn off power or press reset until the upgrade process is complete. Otherwise, the chassis EEPROM may be permanently damaged.

1. Access the boot monitor or runtime CLI.
2. Enter the following command, using the base MAC address and license code provided with your license:

```
config bootconfig upgrade-mac-addr <base-mac-addr>  
<licensecode>
```

The following information appears:

```
Base MAC address: <base-mac-addr>
```

```
License Code: <licensecode>
Are you sure you want to upgrade the Mac addresses (y/n)?
```

3. If the information is correct, enter **y**.

If you enter **n**, the system returns you to the prompt line.

After the MAC address upgrade successfully completes, the system displays the following information:

```
You have successfully completed reprogramming the Chassis with 4096 MAC
addresses. Please write down the Chassis Serial number as displayed below
in the upgrade kit sent to you for your records.
Chassis serial number is: (ddddddddd)
Please place the supplied MAC address barcode label on the right side of
the chassis. Please place the second supplied MAC address label (number
only) over the existing label on the front of the chassis.
Need to reboot the switch for the upgraded MAC address kit to take effect.
Do you want to reboot the switch now?
(y/n)
```

4. To reboot, enter **y**

The system displays the following information:

```
For Dual CPU, SLAVE CPU also needs to be re-booted.
```

This message appears even if the Secondary SF/CPU is inactive or if you are using a 3-slot chassis.

5. To show the base MAC address, enter:

```
show sys info
```

Ensure that the correct address is shown.

6. Place the MAC address barcode label on the right side of the chassis near the serial and order number labels.

Place the other label (number only) on the front of the chassis over the existing label.

Not all chassis already have a label on the front.

Variable definitions

Use the data in the following table to help you use the **config bootconfig upgrade-mac-addr** command to upgrade the number of MAC addresses.

Variable	Value
<base-mac-addr>	Specifies s the base MAC address shown on the Additional MAC Addresses License. Enter this address in the format xx:xx:xx:xx:xx:xx

Variable	Value
<licensecode>	Specifies the license code shown on the Additional MAC Addresses License

Chapter 8: Avaya Ethernet Routing Switch 8800/8600 SF/CPU, R, RS, and 8800 module upgrade using the ACLI

Upgrade software to add new functionality to your Ethernet Routing Switch.

Upgrade times using the ACLI are the same as for using the CLI. See [Ethernet Routing Switch upgrade time requirements](#) on page 66.

Prerequisites

Caution:

Risk of service interruption

If you do not have a redundant SF/CPU system, the upgrade can cause an interruption to normal switch operation.

Important:

All upgrade procedures assume that files use the default names. Use caution in any procedure if the file names are non-default. Ensure that all parameters associated with file names take into consideration the use of nondefault values.

- Read the latest Release Notes.
- Read the section [Translations of Safety Messages](#) on page 199.
- Remove all non-supported classic modules, including E and M modules, 8691 SF/CPU modules, and 8692 SF/CPU modules without SuperMezz. (The 8692 SF/CPU is supported if equipped with SuperMezz.)

Upgrade all power supplies to either 8004 or 8005 level power supplies.

- Read the section [Avaya Ethernet Routing Switch 8800/8600 upgrade considerations and concepts](#) on page 29.

- You must be able to access the new software from the site www.avaya.com/support. You need a valid user or site ID and password.
- If necessary, schedule a time for the switch to be non-operational.

Ethernet Routing Switch 8800/8600 SF/CPU, R, RS, and 8800 module upgrade using the ACLI tasks

This task flow shows you the sequence of tasks you perform to upgrade the Ethernet Routing Switch 8800/8600.

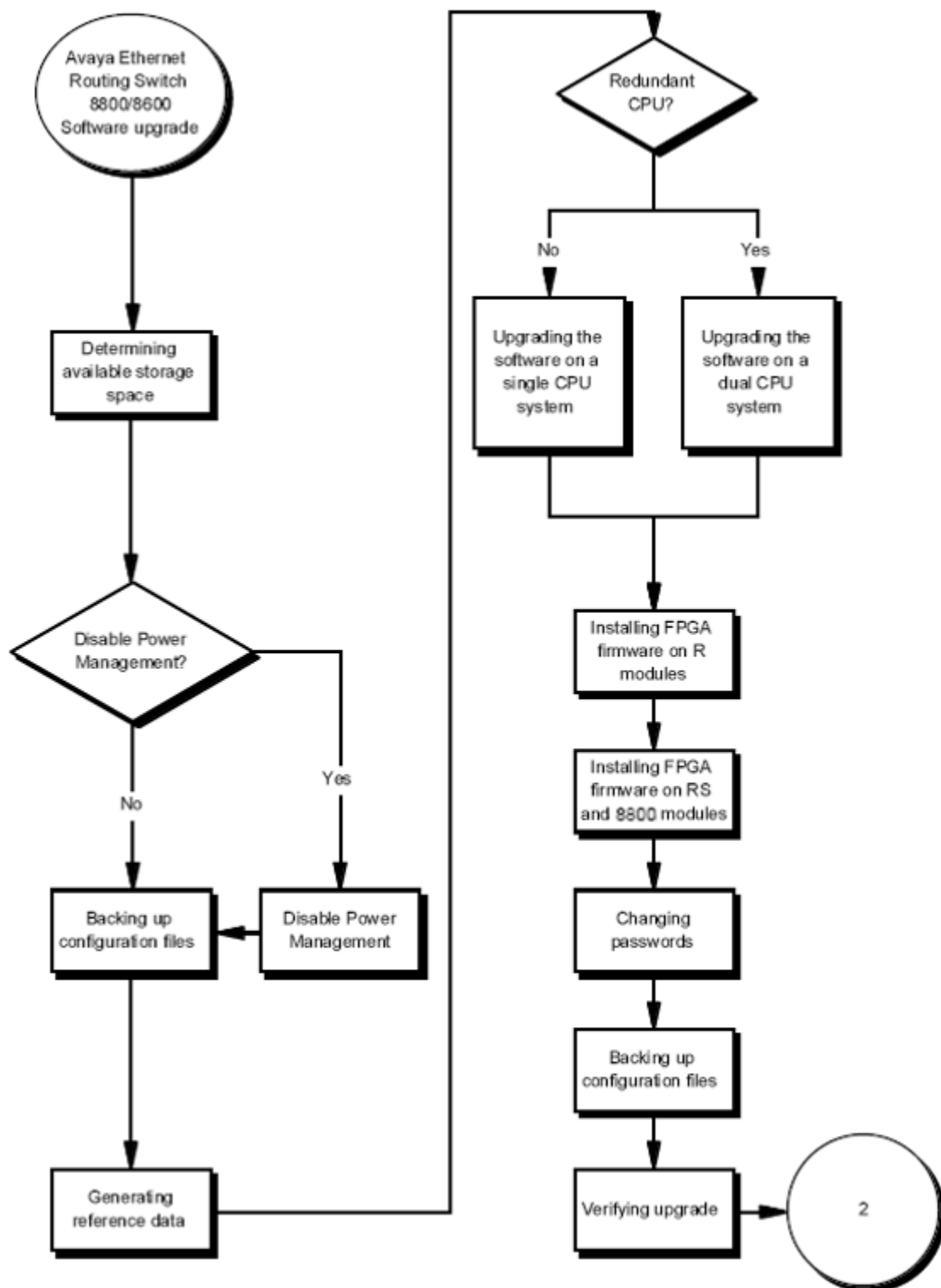


Figure 6: Ethernet Routing Switch 8800/8600 SF/CPU, R, RS, and 8800 module upgrade using the ACLI tasks 1

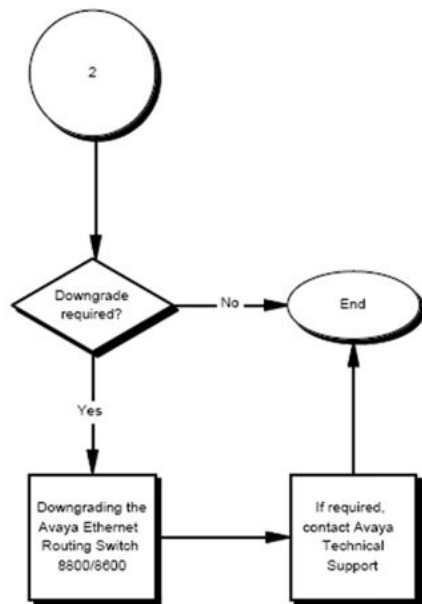


Figure 7: Ethernet Routing Switch 8800/8600 SF/CPU, R, RS, and 8800 module upgrade using the ACLI tasks 2

Determining available storage space

Determine whether the switch has enough storage space to store the new software.

Prerequisites

- Access Privileged EXEC mode.

Procedure steps

1. To view the free space and files in flash memory, enter the following command:

```
dir
```

The bottom of the table shows available space:

```
total: 64155648 used: 40067072 free: 24088576 bytes
```

2. If you must remove files to make space, use the remove command:

```
rm <WORD 1-99> [-y]
```

! Important:

Older load, boot, and configuration files may be required if the upgrade is unsuccessful. Make sure you back up these files to a safe place before you remove them.

Consult Avaya Support for recommendations about deleting old image (.img), log (.txt), PCAP (.cap), or bootconfig (.cfg) files.

Variable definitions

Use the data in the following table to help you use the **rm** command.

Variable	Value
<WORD 1-99>	<WORD 1-99> specifies the file to remove.
-y	Skip the confirm question.

Disabling Power Management

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

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

You can calculate the number of power supplies required for your Ethernet Routing Switch 8800/8600 system. To determine the number of power supplies required for your switch configuration, use the *Power Supply Calculator for Avaya ERS 8800/8600*, (NN48500-519). This is available on the Avaya Technical Support Web site at www.avaya.com/support.

! Important:

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

1. Save the pre-7.1 configuration file.

```
save <file-name.cfg>
```

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

- Use the ACLI to edit the file on the switch (the switch has a built-in VI-like editor). Use the `edit config.cfg` command.
- Save the file as an ASCII file and transfer to another device for editing with a text editor like Notepad.
- Transfer the file to a device and edit with VI or EMACS-like editor.

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

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

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

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

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

Job aid: configuration file and command placement

```
#
# THU APR 12 12:11:04 2012 UTC
# box type           : ERS-8006
# software version   : REL7.2.0.0_B001
# monitor version    : 7.2.0.0/xxx
# cli mode           : ACLI
#
#
# Asic Info :
# SlotNum|Name      |CardType  |MdaType    |Parts Description
#
# Slot 1  --        0x00000001 0x00000000
# Slot 2  8812XL    0x25b25122 0x00000000 PRS:RSP=27 F2I=4 F2E=5 FTMUX=17 CC=33281
FOQ=270 DPC=7 BMC =264 PIM=256 MAC=1112670281 Mirror=304 Loopback=274
# Slot 3  8634XGRS 0x24325122 0x00000000 PRS:RSP=26 F2I=4 F2E=5 FTMUX=17 CC=33281
FOQ=270 DPC=7 BMC =264 PIM=1024 MAC=1112670281/1112670281/303177837 Mirror=304
Loopback=274
# Slot 4  8648GTR   0x24220130 0x00000000 RSP=25 CLUE=2 F2I=1 F2E=1 FTMUX=17 CC=3
FOQ=267 DPC=184 BM C=776 PIM=3 MAC=2
# Slot 5  --        0x00000001 0x00000000
# Slot 6  8695SF    0x200e1100 0x00000000 CPU: BDLB=21 glue=14 SFM: OP=3 TMUX=2
SWIP=23 FAD=16 CF=1
#
#!flags global-filter-ordering false
#!resource-reservation max-vlan false
#!resource-reservation multicast 2048
#!flags multicast-check-packet true

#!flags system-monitor true
#!system-monitor monitoring-enable true
#!system-monitor detection-time 30
#!power power-check-enable false      <----- ADD THIS LINE
#!power fan-check-enable false        <----- ADD THIS LINE
```

Backing up configuration files

Before you upgrade your switch software, make copies of the configuration files. If an upgrade is unsuccessful, use backup configuration files to return the switch to its previous state.

You should have several copies of backup files. See [Switch behavior during boot cycle and redundant configuration files](#) on page 43.

Prerequisites

- If you are using FTP or TFTP, ensure that the switch allows Trivial File Transfer Protocol (TFTP) or File Transfer Protocol (FTP) access. See [Enabling FTP and TFTP](#) on page 99.
- For more details about copying files, see [Copying files](#) on page 163.
- Access Privileged EXEC mode.

Procedure steps

1. Determine the configuration file names:

```
show boot config choice
```

2. Save the configuration files. Assuming the files use the default file names, enter:

```
save config
```

```
save bootconfig
```

```
save config standby config.cfg
```

```
save bootconfig standby boot.cfg
```

If the SaveToStandby flag is true, then you do not need to save the files to the Secondary.

3. Copy the files to a safe place. For example, to copy to an external memory card:

```
copy /flash/boot.cfg /pcmcia/boot_backup.cfg
```

```
copy /flash/config.cfg /pcmcia/config_backup.cfg
```

Generating reference data

Use show commands to generate data to determine if the software upgrade is successful. After upgrade, the switch and network should operate as they did before the upgrade. Avaya recommends that you keep track of important parameters and ensure that they are unchanged after an upgrade. The following procedure gives examples of how to generate reference data. Choose the parameters that are most important to your network.

If these parameters remain unchanged before and after the upgrade, the upgrade is likely successful. Otherwise, you may need to downgrade to a previous release or perform troubleshooting procedures. For downgrade information, see [Downgrade considerations](#) on page 58.

Prerequisites

- Access Privileged EXEC mode.

Procedure steps

1. Determine the number of routes in the routing table:

```
show ip route
```

Record the number of routes.

2. Determine Address Resolution Protocol (ARP) information:

```
show ip arp
```

3. Determine Border Gateway Protocol (BGP) parameters; note the total number of routes:

```
show ip bgp summary
```

4. Determine the total number of Internet Group Management Protocol (IGMP) groups:

```
show ip igmp group
```

5. Determine the total number of multicast routes:

```
show ip mroute interface
```

```
show ip mroute route
```

6. Determine Open Shortest Path First (OSPF) parameters:

```
show ip ospf
```

```
show ip ospf neighbors
```

7. Use the following command to view other IP show commands that you can use:

```
show ip ?
```

Upgrading the software on a single SF/CPU system

Use this procedure to upgrade the SF/CPU software on a nonredundant Ethernet Routing Switch 8800/8600 SF/CPU. This procedure shows how to upgrade using the flash memory as the file storage location; you can use other storage locations. For information about storage options, see [File storage options](#) on page 42.



Caution:

Risk of bootconfig file corruption

Operating a system with different versions of the runtime image and boot monitor image can cause a corrupt bootconfig file. If the boot.cfg file is corrupt, replace it with a saved version or recreate the file.



Important:

The 8692 SF/CPU requires a SuperMezz module with release 7.1. You must format the system flash memory to 64 MB. The new software requires significant memory space. If you do not have 64 MB and you use SuperMezz, you cannot load the files from the flash. Format the flash memory to make all of the memory space available.

See [Reformatting the 8692 SF/CPU flash memory to 64 MB for a single SF/CPU system](#) on page 112.



Important:

Before you configure the switch to run the new software, ensure the integrity of the new software by checking the MD5 checksums. This is part of the following upgrade procedure.

Prerequisites

- Back up the switch configuration files. See [Backing up configuration files](#) on page 133.
- You must be able to access www.avaya.com/support.

- If you determined you must disable Power Management, ensure that the configuration file is edited appropriately and saved on the switch. See [Disabling Power Management](#) on page 131.
- Access Global Configuration mode.

Procedure steps

1. Download the new software.

For instructions, see [Downloading the software](#) on page 78.

2. Connect to the Ethernet Routing Switch 8800/8600 ACLI interface by using the management console port, Secure Shell (SSH), or a Telnet session.
3. Copy the required software files to flash memory. If you use TFTP or FTP, use the IP address of the SF/CPU.

For instructions about copying files, see [Copying files](#) on page 163.

4. Confirm that the software files are successfully copied by using the `dir` command. Ensure that the new files are listed.
5. Ensure that the new files are error-free. See [Verifying the MD5 checksums](#) on page 185.
6. Configure the boot source to point to the new runtime image file:

```
boot config choice primary image-file /flash/p80a7100.img (for
8692 SF/CPU)
```

```
boot config choice primary image-file /flash/p80ae7100.img (for
8895 SF/CPU)
```

7. Ensure that the switch loads the new Mezz image from the flash:

```
boot config mezz-image image-name /flash/p80m7100.img
```

8. Ensure that the switch uses the correct R, RS, and 8800 module driver files from the flash memory (repeat for each slot):

```
boot config bootp Primary default <1-4,7-10>
```

9. Save the configuration files:

```
save bootconfig
```

```
save config
```

10. To verify that the changed primary image file settings are in the boot.cfg file, enter the following command :

```
show boot config choice
```

Confirm that the image location and name are correct.

11. To boot the Ethernet Routing Switch 8800/8600 with the new boot-monitor image, enter the following command:

```
boot /flash/p80b7100.img (for 8692 SF/CPU)
```

```
boot /flash/p80be7100.img (for 8895 SF/CPU)
```

If you interrupt the auto-boot process, you may have to issue the `boot` command again.

This step causes an interruption to user traffic.

The switch boots using the new image file. The system takes a longer time to come up than a normal reboot because the system must write the new boot monitor to flash memory.

12. For upgrades from pre-Release 5.0 software, after the switch boots and runs the Release 5.0 or later software for the first time, perform the following steps to use the new DOSFS.

 **Important:**

The following DOS reformat steps are only required the first time a switch is upgraded to a 5.0 or later release.

- Back up all files from the flash and PCMCIA.
- Format the flash and PCMCIA:

 **Important:**

This step deletes any files on these devices.

```
dos-format /flash
```

```
dos-format /pcmcia
```

- Move all files back to the flash and PCMCIA.

13. If you upgrade to release 7.1 or later from a release prior to 5.1, you must specify the location of your license file in the boot configuration file. If you do not specify the location of your license file, you can encounter issues with your licensed features. To specify the license file location, enter the following command:

```
boot config choice primary license-file <file>
```

Variable definitions

Use the information in the following table to help you perform this procedure.

Variable	Value
<1-4, 7-10>	Specifies the slots that have installed R, RS, or 8800 modules.

Upgrading the software on a dual SF/CPU system

Use this procedure to upgrade the SF/CPU software on a system that contains redundant SF/CPU. This procedure shows how to upgrade using the flash memory as the file storage location; you can use other storage locations. For information about storage options, see [File storage options](#) on page 42.



Caution:

Risk of configuration loss

Avaya does not support different software versions, for example, Releases 7.0 and 7.1, on the Master and Secondary SF/CPU except for during an upgrade process. An exception to this rule occurs for a switch in High Availability mode, where both the Master and Secondary SF/CPU must run the same software release (see following Caution). Also, operating a system with different versions of the runtime image and boot monitor image can corrupt the bootconfig file. If the boot.cfg file is corrupt, replace it with a saved version, or recreate the file.

The Master and Secondary SF/CPU must have the same amount of memory.



Caution:

Risk of system instability

If you use High Availability mode, to upgrade, you must use one of two options:

1. Keep HA enabled; upgrade the switch software. During the upgrade procedure, reboot the standby CPU, then immediately reboot the Master SF/CPU.

The Standby and Master SF/CPU must simultaneously run the same software version, or system instability can result.

2. Disable HA, reboot the system; upgrade the switch software; enable HA; reboot the system.

These options are both included in this procedure. Choose one and follow the appropriate steps.



Important:

The 8692 SF/CPU requires a SuperMezz module with release 7.1.0.0. You must format the system flash memory to 64 MB. The new software requires significant memory space. If you do not have 64 MB and you use SuperMezz, you cannot load the files from the flash. Format the flash memory to make all of the memory space available.

See [Reformatting the flash memory to 64 MB for a dual SF/CPU system](#) on page 115.

! Important:

Before you configure the switch to run the new software, ensure the integrity of the new software by checking the MD5 checksums. This is part of the following upgrade procedure.

Prerequisites

- Back up the switch configuration files. See [Backing up configuration files](#) on page 133.
- You must be able to access www.avaya.com/support.
- If TFTP or FTP is required, ensure they are enabled. See [Enabling FTP and TFTP](#) on page 99.
- Access Global Configuration mode.

Procedure steps

1. Download the new software.

For instructions, see [Downloading the software](#) on page 78.

2. Connect to the Master SF/CPU ACLI interface by using the management console port, SSH, or a Telnet session.
3. If you use High Availability mode and chose the second HA upgrade option, disable HA:

```
no boot config flags ha-cpu
reset
```

4. Copy the required software files to flash memory. Use the management IP address of the SF/CPU.

For instructions about copying files, see [Copying files](#) on page 163.

5. To confirm that the software files are successfully copied, use the `dir` command.
6. Ensure that the new files are error-free. See [Verifying the MD5 checksums](#) on page 185.
7. Copy the runtime image file (and all other files copied to the Master SF/CPU flash) to the Secondary SF/CPU.

For example:

```
copy /flash/p80a7200.img <IP address of standby  
CPU>:p80a7200.img (for 8692 SF/CPU)
```

```
copy /flash/p80ae7200.img <IP address of standby  
CPU>:p80ae7200.img (for 8895 SF/CPU)
```

Use the management IP address of the Master SF/CPU.

8. Configure the boot source to point to new runtime image file:

```
boot config choice primary image-file /flash/p80a7200.img (for  
8692 SF/CPU)
```

```
boot config choice primary image-file /flash/p80ae7200.img (for  
8895 SF/CPU)
```

9. Ensure that the switch loads the new Mezz image from the flash:

```
boot config mezz-image image-name /flash/p80m7200.img
```

10. Ensure that the switch uses the correct R, RS, and 8800 module driver files from the flash memory (repeat for each slot):

```
boot config bootp Primary default <1-4,7-10>
```

11. Save the configuration on both the Master and the Secondary SF/CPU:

```
save bootconfig standby boot.cfg
```

```
save config standby config.cfg
```

12. To verify that the changed primary image file settings are in the boot.cfg file, enter the following command:

```
show boot config choice
```

Verify that the primary image file is p80a7200.img (for 8692 SF/CPU) or p80ae7200.img (for 8895 SF/CPU).

13. To log on to the Secondary SF/CPU, enter the following command and log on:

```
peer telnet
```

14. To verify that the changed primary image file settings are in the boot.cfg file, enter the following command:

```
show boot config choice
```

Confirm that the image location and name are correct.

15. Boot the Secondary SF/CPU.

 **Important:**

Boot the Secondary SF/CPU first and immediately after that, boot the Master SF/CPU (following step). Do not wait for the Secondary SF/CPU to come up

completely before booting the Master SF/CPU, or the Secondary SF/CPU may hang.

To boot the Secondary SF/CPU with the new boot monitor image, enter the following command:

```
boot /flash/p80b7200.img (for 8692 SF/CPU)
```

```
boot /flash/p80be7200.img (for 8895 SF/CPU)
```

During the booting of the Secondary SF/CPU, the Telnet session stops responding and takes some time to time out. To quickly exit the peer Telnet session, enter `CTRL +]`. Next, when prompted, enter `q`.

16. To upgrade the Master SF/CPU with the new boot monitor image, enter the following command:

```
boot /flash/p80b7200.img (for 8692 SF/CPU)
```

```
boot /flash/p80be7200.img (for 8895 SF/CPU)
```

If you interrupt the auto-boot process, you may have to issue the `boot` command again.

If you are connecting remotely, the session stops responding. You will have to reconnect.

17. For upgrades from pre-Release 5.0 software, after the switch boots and runs the Release 5.0 or later software for the first time, perform the following steps to use the new DOSFS.

 **Important:**

The following DOS reformat steps are only required the first time a switch is upgraded to a 5.0 or later release.

- Back up all files from the Secondary flash and PCMCIA.
- Format the Secondary flash and PCMCIA:

 **Important:**

This step deletes any files on these devices.

```
dos-format /flash
```

```
dos-format /pcmcia
```

- Move all files back to the Secondary flash and PCMCIA.
- Back up all files from the Master flash and PCMCIA.
- Format the Master flash and PCMCIA:

 **Important:**

This step deletes any files on these devices.

```
dos-format /flash
```

```
dos-format /pcmcia
```

- Move all files back to the Master flash and PCMCIA.

18. If you use High Availability mode, and you are using the second HA upgrade option, after both SF/CPU's come back online, reenable HA:

```
boot config flags ha-cpu
```

19. To run in HA mode, you must reboot the switch.

20. If you upgrade to release 7.1 or later from a release prior to 5.1, you must specify the location of your license file in the boot configuration file. If you do not specify the location of your license file, you can encounter issues with your licensed features. To specify the license file location, enter the following command:

```
boot config choice primary license-file <file>
```

Variable definitions

Use the information in the following table to help you perform this procedure.

Variable	Value
<1-4, 7-10>	Specifies the slots that have installed R, RS, or 8800 modules.

Downloading the software

Download the new software to upgrade the switch.

Installing FPGA firmware on R modules

For proper operation, review and, if required, update the field programmable gate array (FPGA) firmware revisions on every R module.

 **Caution:****Avoid an outage**

Before any software firmware upgrade, Avaya strongly recommends that you consider rerouting traffic away from that particular switch module. Do not perform a firmware upgrade on an in-service module.

 **Caution:****Risk of service loss**

Before a firmware upgrade, Avaya strongly recommends that you verify the file MD5 checksums. If you upgrade using a corrupted file, module functionality can be affected and require a return manufacturing agreement (RMA).

 **Important:**

After the update process begins, do not enter commands or reset the module or switch during the process. If any failure occurs, retry the updates or contact Avaya before you reset the module or switch.

You can only update firmware for one slot at a time. For example, BAP Memory Controller (BMC) must be completed for a slot before you complete Dual Port Controller (DPC).

If you do not enter a file name the default file name is shown. Do not interrupt the update process, which is approximately ten minutes in length. Wait until the FPGA UPDATE SUCCESS message appears for each slot that you update. The success message is appended to the log file.

 **Important:**

While upgrading FPGA on a line card with active ports in a live environment, certain warnings may be seen. Once the upgrade is complete, the warnings stop.

Do not download an image or multiple images to different modules at the same time. Only download one image to one module at one time.

Prerequisites

- Access Global Configuration mode.

Procedure steps

1. Determine if a firmware update is required.

See [Checking firmware revisions](#) on page 103.

2. Copy the following files to the SF/CPU flash memory on the chassis that contains R modules:
 - foqyyy.xsvf
 - dpcyyy.xsvf
 - bmcyyy.xsvf
 - PI_yyy.xsvf (only for 8630GBR modules)
3. For each R module slot, enter each of the following commands (given in steps 3 to 6).

Update Feedback Output Queuing (FOQ):

```
fpga update <1-4,7-10> foq [WORD <1-40>]
```

OR

```
default fpga update <1-4,7-10> foq
```

You can use the **default** command if you have not changed the image file names, moved the files from flash, and are upgrading to the latest release.

The following messages appear:

```
Starting the update Process, will take a few minutes
Don't reset the card or box during the process A SUCCESS message will
display on the console and will get appended to the log file upon
completion of the update.
ERS-8610:5# CPU5 [02/08/05 18:55:31] SW ERROR R module Slot<1> is unable
to Process Async messages and Slot Reset is Disabled!!
ERS-8610:5# CPU5 [04/12/05 14:05:38] COP-SW INFO Slot 1:
FPGA UPDATE SUCCESS
```

Disregard the message SW ERROR unable to Process Async messages and Slot Reset is Disabled!! The message disappears after the system reboot.

4. Update the BMC:

```
fpga update <1-4,7-10> bmc [WORD <1-40>]
```

OR

```
default fpga update <1-4,7-10> bmc
```
5. Update the DPC:

```
fpga update <1-4,7-10> dpc [WORD <1-40>]
```

OR

```
default fpga update <1-4,7-10> dpc
```
6. If you are upgrading an 8630GBR module, update the Port Interface Module (PIM):

```
fpga update <1-4,7-10> pim [WORD <1-40>]
```

OR

```
default fpga update <1-4,7-10> pim
```

7. After all modules are updated, for the updates to take effect, you have three choices:

a. Reboot the switch.

Before you boot, wait at least 30 seconds after the FPGA UPDATE SUCCESS message appears.

b. Any module can be unseated and reseated for the change to take effect.

c. You can use the `slot reset <slotList>` command (Privileged EXEC mode) for the change to take effect.

An enable/disable of the slot is not sufficient for the change to take effect.

The `show sys-infoasic` command does not display the updated firmware revisions until after you have performed one of these three options.

Variable definitions

Use the data in the following table to help you use the update commands.

Variable	Value
<WORD 1-40>	<WORD 1-40> specifies the FPGA image file name.
<1-4, 7-10>	Specifies the R module slot number. Slots 5 and 6 are for SF/CPU's.

Installing FPGA firmware on RS and 8800 modules

For proper operation, review and, if required, update the field programmable gate array (FPGA) firmware revisions on every RS and 8800 module.

Caution:

Avoid an outage

Before any software firmware upgrade, Avaya strongly recommends that you consider rerouting traffic away from that particular switch module. Do not perform a firmware upgrade on an in-service module.

 **Caution:**

Risk of service loss

Before a firmware upgrade, Avaya strongly recommends that you verify the file MD5 checksums. If you upgrade using a corrupted file, module functionality can be affected and require a return manufacturing agreement (RMA).

 **Important:**

After the update process begins, do not enter commands or reset the module or switch during the process. If any failure occurs, retry the updates or contact Avaya before you reset the module or switch.

If you do not enter a file name the default file name is shown. Do not interrupt the update process, which is approximately ten minutes in length. Wait until the FPGA UPDATE SUCCESS message appears for each slot that you update. The success message is appended to the log file.

 **Important:**

While upgrading FPGA on a line card with active ports in a live environment, certain warnings may be seen. Once the upgrade is complete, the warnings stop.

Do not download an image or multiple images to different modules at the same time. Only download one image to one module at one time.

Prerequisites

- Access Global Configuration mode.

Procedure steps

1. Determine if a firmware update is required.
See [Checking firmware revisions](#) on page 103.
2. Copy the required files to the SF/CPU flash memory on the chassis that contains RS or 8800 modules:
 - rs_dpm_fpga.bin (for all RS and 8800 modules—contains DPC, BMC, FOQ, Mirror, Loopback firmware)
 - pim8612XLRS.bin (only for the 8612XLRS module)
 - pim8634XGRS.bin (only for 8634XGRS and 8634XG modules)
 - pim8648GBRS.bin (only for 8648GBRS and 8648GB modules)
 - pim8648GTRS.bin (only for 8648GTRS and 8648GT modules)

3. For each RS and 8800 module slot, enter the following command:

```
fpga update <1-4,7-10> rs-module-dpm [<WORD 1-40>]
```

OR

```
default fpga update <1-4,7-10> rs-module-dpm
```

You can use the **default** command if you have not changed the image file names, moved the files from flash, and are upgrading to the latest release.

This command reprograms all five subcomponents.

4. For each RS or 8800 module slot, update the PIM FPGA firmware with the appropriate PIM file:

```
fpga update <1-4,7-10> pim [WORD <1-40>]
```

OR

```
default fpga update <1-4,7-10> pim
```

5. After all modules are updated, for the updates to take effect, you have three choices:

- a. Reboot the switch.

Before you boot, wait at least 30 seconds after the FPGA UPDATE SUCCESS message appears.

- b. Any module can be unseated and reseated for the change to take effect.

- c. You can use the **slot reset <slotList>** command (Privileged EXEC mode) for the change to take effect.

An enable/disable of the slot is not sufficient for the change to take effect.

The **show sys-infoasic** command does not display the updated firmware revisions until after you have performed one of these three options.

Variable definitions

Use the information in the following table to help you perform this procedure.

Variable	Value
<WORD 1-40>	Specifies the appropriate file, if the file is not named the default name.
<1-4,7-10>	Specifies the slots that have installed RS or 8800 modules. Slots 5 and 6 are for SF/CPUs.

Changing passwords

Change passwords after an upgrade to maintain the highest security levels.

 **Important:**

Passwords are stored in an encrypted format in a system file, rather than in the configuration file. Passwords are maintained across an upgrade, assuming that the hidden files are not modified. If required, change the passwords after upgrade to secure your system. All passwords are case-sensitive.

Prerequisites

- Access Global Configuration mode.

Procedure steps

1. To change a password, use one of the following commands as required:

```
cli password <WORD 1-20> read-only [<WORD 0-20>]
```

```
cli password <WORD 1-20> read-write [<WORD 0-20>]
```

```
cli password <WORD 1-20> read-write-all [<WORD 0-20>]
```

2. To view other password options, use the **cli password ?** command.

Variable definitions

Use the information in the following table to help you perform this procedure.

Variable	Value
<WORD 1-20>	Specifies the user name.
<WORD 0-20>	Specifies the password for the user. For more password options, enter cli password <WORD 1-20> ?

Backing up post-upgrade configuration files

After you complete the upgrade, save the new config.cfg and boot.cfg files to the external memory card or another safe place. See [Backing up configuration files](#) on page 133.

Verifying the upgrade

Verify your upgrade to ensure proper switch operation.

Prerequisites

- Access Privileged EXEC mode.

Procedure steps

1. Repeat the procedure used in [Generating reference data](#) on page 134 and regenerate the same data.

Compare the results. If you see substantial differences in this data, you may have to downgrade to the previous version and/or commence troubleshooting procedures.

2. To view bootconfig flags, enter the following command:

```
show boot config flags
```

Ensure that the flags are set correctly.

3. To view mode flags, enter the following command:

```
show sys flags
```

Ensure that the flags are set correctly.

4. To view RADIUS settings, enter the following command:

```
show radius
```

Ensure that the settings are correct.

5. To check for alarms or unexpected errors, enter one the following commands:

```
show log file tail  
show log file severity
```

Upgrading from Release 5.x to Release 7.x

There are two different procedures that you can use to upgrade from Release 5.x to Release 7.x. The major difference between the following procedures is how the SuperMezz image is selected:

- [Software-specified SuperMezz image](#) on page 152
- [User-specified SuperMezz image](#) on page 153

Important:

The SuperMezz image must match the run-time image.

If the pointer to the SuperMezz image is incorrect, the switch tries to boot up using the SuperMezz image that does not match the run-time image. This mismatch causes the switch to hang or default the system.

Because it is critical that the `dld` and `mezz` images match the run-time image, Avaya recommends using the first procedure: [Software-specified SuperMezz image](#) on page 152. This procedure allows the software to select the correct SuperMezz image, involves less steps, and provides fewer opportunities to introduce errors.

Note:

In addition to installing the software upgrade, you must install an Enterprise enhanced CPU daughter card (also called SuperMezz) on the 8692 SF/CPU module. The SuperMezz has dual 1 GHz Power PC processors that off-load processor intensive tasks from the 333 MHz processor located on the 8692 SF/CPU motherboard. For information on installing the SuperMezz, see *Avaya Ethernet Routing Switch 8800/8600 Installation — Modules*, (NN47205-304).

Upgrading R modules from Release 5.1.1.10/11 to 7.2.10.1

Use this procedure to upgrade the R modules in your switch.

Important:

This procedure is for R modules **only**. If you have any RS modules that require upgrading, use the following procedure but use the RS `bin` modules provided via software.

Procedure

1. Use the following command to verify that the `mezz` flag is set to `true`:

```
show boot config flags
```

2. Check the version of the Dual Port Controller (DPC) FPGA firmware for the 8630GBR, 8648GTR and 8683XLR/8683XZR.

```
show sys info asic
```

*** Note:**

If the version is below 184, follow Step 3.

3. Upgrade the FPGA firmware. During this process, do not press `Enter` or interrupt this process.

*** Note:**

In the following example, `<slot-number>` refers to the slot that the module is in so enter the appropriate number.

```
config diag update fpga dpc <slot-number> /flash/dpc184.xsvf
```

Make sure you receive a log message on the console stating that the upgrade of the FPGA was successful.

4. Repeat Step 3 for any other modules that need upgrading of their DPC FPGA.
5. Repeat Steps 2 and 3, but replace DPC with the appropriate FPGA type to upgrade the FOQ, BMC, and PIM firmware.

*** Note:**

PIM is not applicable for the 8648GTR.

6. Set the `mezz` flag to `true`:

```
config boot config flag mezz true
```

7. Save the boot configuration file.

8. Boot the switch and press `y` to confirm.

```
boot
```

9. After the switch restarts, verify that the ASIC is the correct version make sure the SuperMezz is detected and it is up.

```
show sys info asic
```

```
show sys info
```

10. Copy the 7.2.10.1 images to flash and set the primary image file to point to `p80a72101.img`.
11. Save the boot configuration file.
12. Restart the switch.

*** Note:**

Do not interrupt the boot ROM upgrade process.

```
boot /flash/p80b72101.img
```

13. **After the boot rom is upgraded and the system is ready to boot /flash/p80a72101.img, interrupt the process if the /flash was formatted to a pre 5.0.0.0 version and follow these steps:**
 - a. Copy the necessary files over to pcmcia.
 - b. Format the flash.
 - c. Copy all the files back to /flash.
14. At the monitor prompt, enter the following command and let the switch boot through normally.

```
/flash/p80a72101.img
```
15. After the system is fully functional in 7.2.10.1, repeat Step 3 at the console prompt to upgrade the line cards to dpc version 194. However, instead of dpc 184, you are going upgrade to 194. During this process, do not interrupt the upgrade. After you see a message stating that the upgrade of the FPGA was successful, repeat this same procedure for the rest of the modules.
16. Reboot the switch and press *y* to confirm.

```
boot
```
17. After the system is fully operational, verify that all the R modules *dpc* is set to 194.

```
show sys info asic
```

Software-specified SuperMezz image

Use this procedure to enable the 7.x software to detect the correct SuperMezz image to boot from.

*** Note:**

Use the commands listed in this procedure only. Do not use any other boot configuration commands that explicitly define image names such as `config boot config bootp`

```
image-name /flash/p80j72100.dld 1 or config boot config mezz-image
image-name /flash/p80m72100.img.
```

Before you begin

1. Power down the switch running the 5.x software release.
2. Install the SuperMezz.
3. Power up the switch.

Procedure

1. Remove the image name from the boot image.

```
config boot config mezz-image image-name ""
```

This step enables the software to detect the presence of the `mezz` image on either the flash or PCMCIA and boots accordingly.
2. Set the boot flag with the 5.1.1.10 image running.

```
config boot config flags mezz true
```
3. Set the boot parameters.

```
config boot config choice primary-image /flash/p80a72100.img
```
4. **Use the following command to make sure that no boot configuration parameters for the line card dld files or mezz images are set.**

```
show boot config config
```
5. Save the boot configuration file.
6. DO NOT enable an IPv6 configuration or any feature that uses the SuperMezz currently running 5.1.1.10 code.
7. Boot from flash.

```
boot /flash/p80b72100.img -y
```

The switch boots, updates the bootrom sectors, and loads the run-time image /flash/p80a72100.img. Then the SuperMezz CPU takes over and boots the line cards.
8. Make sure the previous configuration is fully functional before you add any new features.
9. Save the configuration file.

User-specified SuperMezz image

Use this procedure to explicitly define the correct SuperMezz image to boot from.

 **Important:**

In this procedure, it is very important that you match the `dld` and `mezz` images with the run-time image.

 **Note:**

Use the commands listed in this procedure only. Do not use any other boot configuration commands such as `config boot config bootp image-name /flash/p80j72100.dld 1` or `config boot config mezz-image image-name /flash/p80m72100.img`.

Before you begin

1. Power down the switch running the 5.x software release.
2. Install the SuperMezz.
3. Power up the switch.

Procedure

1. Set the boot flag with the 5.1.1.10 image running.
`config boot config flags mezz true`
2. Save the boot configuration file.
3. Make sure that the mezz image, `p80m51110.img` is present on either `/flash/` or `/pcmcia`.
`show boot config config`
4. Boot the system. This example shows how to boot from flash.
`boot /flash/p80m51110.img`
The switch boots the CPU with the SuperMezz, which is now fully operational.
At this point, you can build an IPv6 configuration if you want. Make it functional and save the configuration.
5. Download the 7.2.10.0 images (`a`, `b`, `j`, `k`, `m`, and `des` and `aes`) to the `/flash/` or `/pcmcia/`.
6. Set the boot configuration.
`config boot config choice primary-image /flash/p80a72100.img`
7. Save the boot configuration file.
8. Boot the system. This example shows how to boot from flash.
`boot /flash/p80b72100.img`
The switch updates the boot sectors, loads the run-time image, `/flash/p80a72100.img` and then the mezz image takes over.

9. Make sure the previous configuration is fully functional before you add any new features and save the configuration file.

Upgrading from 8692 SF/CPU with SuperMezz to 8895 SF/CPU

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

Prerequisites

- You must be local to the switch with a console connection.
- Upgrade the Ethernet Routing Switch 8800/8600 to 7.2 code with the 8692 SF/CPU with SuperMezz as master and slave.
- Download the p80ae7100.img and p80be7100.img software images to the master 8692 SF/CPU.

Procedure steps

1. Disable the slot for the slave SF/CPU. For example:

```
ERS-8010:5(config)# slot shutdown x (where slot x is the slot
of the slave 8692 SF/CPU)
```

2. Remove the slave 8692 SF/CPU with SuperMezz.
3. Insert the 8895 SF/CPU into the chassis, and immediately after inserting the 8895 SF/CPU, stop the boot process at the boot monitor when prompted.
4. Copy the running configuration file (config.cfg), boot configuration file (boot.cfg), images and dld files (p80ae7100.img, p80be7100.img, p80j7100.dld, p80k7100.dld) from the current master 8692 SF/CPU to the 8895 SF/CPU using the internal IP for the copy command: 127.0.0.X, where X is the slot number of the 8692 SF/CPU. For example:

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

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

```
monitor:5# choice primary image-file p80ae7100.img
```

```
monitor:5# save
```

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

```
monitor:5# boot /flash/ p80be7100.img
```

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

```
ERS-8010:5# sys action cpu-switch-over
```

8. After the 8895 SF/CPU becomes the master, remove the slave 8692 SF/CPU with SuperMezz.
9. Insert another 8895 SF/CPU into the chassis, and immediately after inserting the 8895 SF/CPU, stop the boot process at the boot monitor when prompted.
10. Copy the running configuration file (config.cfg), boot configuration file (boot.cfg), images and dld files (p80ae7100.img, p80be7100.img, p80j7100.dld, p80k7100.dld) from the current master 8895 SF/CPU to the new 8895 SF/CPU using the internal IP for the copy command: 127.0.0.X, where X is the slot number of the master 8895 SF/CPU. For example:

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

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

```
monitor:5# boot/flash/ p80be7100.img
```

Upgrading an 8630GBR with an 8648GBRS or 8848GB

You cannot directly replace an 8630GBR I/O module with an 8648GBRS or 8848GB I/O module. Because the 8630GBR module has a different port layout, the run-time configuration will not load onto the new module. To upgrade the 8630GBR module, carefully read the considerations below and then follow the procedure.

Before you begin

- If you have an 8006 or 8010 chassis, ensure that a high-speed fan tray is installed. The 8003R and 8010co chassis do not require a different fan type to support RS and 8800 modules.
- The run-time image for RS and 8800 modules is different from that used for the R modules. Ensure that the correct image is loaded in flash in the same location as other run-time images. Refer to the ERS 8600/8800 Release Notes for the list of images to use.
- To run R, RS and 8800 I/O modules at high performance in all slots of the 8006, 8010 and 8010C0 chassis, ensure that the chassis is a high-performance chassis. The table below provides some guidance to determine whether or not the chassis is a high-performance chassis:

Table 7: Chassis hardware revision

Chassis Model	Hardware Revision*	Hardware Configuration
8006	05 or greater indicates high-performance chassis	02 or greater
8010	06 or greater indicates high-performance chassis	02 or greater
8010co	05 or greater indicates high-performance chassis	02 or greater

* Hardware revision 05 (and above) indicate a starting point for EUED (-E5 or -E6) compliant hardware on the ERS 8000 platforms.

About this task

Before you upgrade, consider the following architectural differences:

- The 8630GBR module distributes ports across three datapath lanes:
 - Ports 1-10 are in the left lane.
 - Ports 11-20 are in the center lane.
 - Ports 21-30 are in the right lane.
- The 8648GBRS or 8848GB has more ports so there are 16 ports per lane:
 - Ports 1-16 are in the left lane.
 - Ports 17-32 are in the center lane.
 - Ports 33-48 are in the right lane.

When you move ports from the 8630GBR to an 8648GBRS or 8848GB, Avaya recommends that ports 1-10 move to ports 1-10 on the replacement, ports 11-20 move to ports 17-26 and ports 21-30 move to ports 33-42 to ensure proper distribution of the ports across the three datapath lanes.

Procedure

1. Review the considerations above and plan/document the necessary changes in port configuration.
2. Back up the existing configuration off the switch and also capture the output of `show tech` in a file.
3. Load the applicable run-time image files in the same location in flash as the other boot image files.
4. Use the following commands to display the slot configuration and then document it as shown in the example below for slot 3.


```
show config module stg
show config module port
```

Pay special attention to brouter ports. If brouter ports are used, routing interfaces and static routes will also be deleted.

```
show config module mlt
```

```
show port info vlan port 3/1-3/30
```

```
show config module qos
```

5. To avoid possible packet loss, Avaya recommends disabling the module prior to replacing it, although this is not strictly required:

```
config slot <slotnum> disable
```

6. Remove the 8630GBR I/O module.
7. Insert the replacement 8648GBRS or 8848GB I/O module.
8. Disable all ports on the I/O module.

```
config ethernet 3/1-3/48 state disable
```

9. Reconfigure the ports based on collected information. Depending on the new I/O module configuration, not all ports may map directly one-for-one and some reallocation may be required as previously described.

```
STG config
```

```
Port config
```

```
MLT config
```

```
VLAN config
```

```
QOS config
```

10. Enable all applicable ports on the new I/O module.

```
config ethernet <portnum> state enable
```
 11. Enable the module, if disabled.

```
config slot <slotnum> enable
```
 12. Verify MLT, IST, Port, VLAN, MLT, STG, and QoS settings.
 13. Save the running configuration to flash.

```
save config
```
 14. Use an ASCII file comparison tool to compare the two configurations. If anything is missing from the new configuration, add those parts of the configuration back.
 15. Run `show tech` and compare the output with the prior output for any other differences.
-

Downgrading the Ethernet Routing Switch 8800/8600

Downgrade the Ethernet Routing Switch 8800/8600 if an upgrade is not successful.

Prerequisites

- You must remove any installed 8800 series I/O modules.
- If you are downgrading to a pre-7.2 release, you must remove any installed 8895 SF/CPU modules.
- You need the previously saved configuration files (boot.cfg and config.cfg) for the release to which you intend to downgrade.
- For I/O modules, you need compatible firmware versions for the release to which you intend to downgrade. See the Upgrades document for the target release to identify the required firmware.
- Read [Downgrade considerations](#) on page 58.

Procedure steps

1. Install an older version of software.

Use the procedure found in the *Upgrades* document that corresponds to the software release you intend to install. Ensure that you use the previously saved configuration files for that release.

2. Downgrade the flash memory if necessary.

To downgrade, use the procedure [Downgrading flash and PCMCIA memory](#) on page 118. To determine whether to downgrade, see [Flash memory and PCMCIA card file systems](#) on page 39.

3. Install an older version of compatible firmware on R modules.

See [Installing FPGA firmware on R modules](#) on page 142.

4. Install an older version of compatible firmware on RS modules.

See [Installing FPGA firmware on RS and 8800 modules](#) on page 145.

Migrating to standard SPBM using the ACLI

! Important:

If you are running Release 7.2 or later, ignore this procedure because you are already compliant with the IEEE 802.1aq standard.

Use the following procedure to migrate your SPBM network from a pre-7.1.3 release to the IEEE 802.1aq standard compliant Release 7.1.3. This upgrade enables SPBM to interoperate with future SPBM releases and third party SPB products. Your existing configuration will continue to be valid after the upgrade to Release 7.1.3.

It is very important to understand the following upgrade considerations:

- Releases prior to 7.1.3 support draft SPBM only.
- Release 7.1.3 and 7.1.3.x support both draft and standard SPBM.
- Release 7.2 and later support standard SPBM only.

! Important:

To ensure minimum interruption of services, apply the following procedure to each switch in the network one switch at a time. DO NOT upgrade any switch to a release above 7.1.3 until you apply the procedures below to all the switches in the network.

* Note:

Multicast over SPBM is a feature of release 7.2. In order to use Multicast over SPBM, you must first upgrade all switches to release 7.2.

Prerequisites

! Important:

- DO NOT use this migration procedure until you upgrade all the nodes in the network running SPBM to 7.1.3 code.
- DO NOT use the `spbm version <draft|802.1aq>` command until told to do so in the procedure. SPBM operates in the draft mode by default.

Procedure steps

1. If the switch you are upgrading is part of an IST cluster, disable all NNI, IST and SMLT ports.
2. From the Interface MLT or Interface Gigabit Ethernet Configuration mode, disable IS-IS globally by using the following command:

```
no isis enable
```

3. Set the version to standard SPBM:

```
spbm version 802.1aq
```

*** Note:**

This command is available in release 7.1.3 only, which is a bridge release to migrate your SPBM network from draft 802.1aq to standard 802.1aq.

4. Enable IS-IS globally:

```
isis enable
```

5. If the switch you are upgrading is part of an IST cluster, enable all NNI, IST and SMLT ports.

6. Wait for adjacencies to be established.

7. Verify that all the services are restored:

```
show isis spbm
```

8. Change the SPBM ethertype from the default to the standard value:

```
config spbm ethertype 0x88a8
```

*** Note:**

- The default Ethertype used by SPBM NNI links is 0x8100. You can optionally change the Ethertype to 0x88a8, which is the value for PBB (802.1ah) encapsulated packets. This may be required for interoperability with other vendor products that support SPBM and only process packets with Ethertype of 0x88a8.
- ERS 8800 accepts and processes ingress packets with an Ethertype of either 0x8100 or 0x88a8, and uses the configured Ethertype value in the egress packets.
- Changing the Ethertype does not impact service because you can change it dynamically. Also, because SPBM accepts both values on ingress, you do not have to change values at both ends of a link at the same time.
- SPBM networks that have NNI links traversing non-SPBM capable switches or MAN/WAN services that are not SPBM-aware should use Ethertype 0x8100 to ensure compatibility.

Variable definitions

Use the data in the following table to configure the SPBM and IS-IS parameters.

Variable	Value
[no] [default] spbm	Enables or disables SPBM globally on the switch. Use the no or default options to disable SPBM globally.
spbm version <draft 802.1aq>	Sets the SPBM version to the draft (pre-standard) or to the 802.1aq (standard) version. The 802.1aq version is in full compliance with the IEEE.


Job aid

The following table describes the fields in the output for the **show isis spbm** command.

Parameter	Description
SPBM INSTANCE	Indicates the SPBM instance identifier. You can only create one SPBM instance.
B-VID	Indicates the SPBM B-VLAN associated with the SPBM instance.
PRIMARY VLAN	Indicates the primary SPBM B-VLAN associated with the SPBM instance.
NICK NAME	Indicates the SPBM node nickname. The nickname is used to calculate the I-SID multicast MAC address.
LSDB TRAP	Indicates the status of the IS-IS SPBM LSDB update trap on this SPBM instance. The default is disable.
IP	Indicates the status of SPBM IP Shortcuts on this SPBM instance. The default is disable.
MULTICAST	Indicates the status of IP Multicast on this SPBM instance. The default is disable.
SPBM INSTANCE	Indicates the SPBM instance identifier. You can only create one SPBM instance.
SMLT-SPLIT-BEB	Specifies whether the switch is the primary or secondary IST peer.
SMLT-VIRTUAL-MAC	Specifies a virtual MAC address that can be used by both peers.
SMLT-PEER-SYSTEM-ID	Specifies the IST peer BMAC address.

Job aid

The following table describes the fields in the output for the **show spbm** command.

Parameter	Description
spbm	Shows whether SPBM is enabled or disabled on the switch.
ethertype	Indicates the SPBM ethertype. The default value is 0x8100. <div>  Note: After you change the SPBM version to standard, Avaya recommends that you change ethertype to the standard value (0x88a8). </div>

Chapter 9: Operational procedures using the ACLI

The following sections describe common operational procedures that you can use for the Avaya Ethernet Routing Switch 8800/8600. You can use these procedures during upgrade or as part of normal system operations.

Saving configuration files

Save configuration files in the mode that you want to use. Although you cannot convert configuration files from one mode to another, you can save them in either CLI or ACLI mode.

Prerequisites

- Access Privileged EXEC mode.

Procedure steps

1. When in ACLI mode, to save configuration files in ACLI mode, enter:

```
save config
```

```
save bootconfig
```

2. When in ACLI mode, to save a configuration file in CLI mode, enter:

```
save config mode cli
```

```
save bootconfig mode cli
```

Copying files

Copy files as part of an upgrade procedure to back up files or to move files to another location.

When you copy files, you can rename the files. Use caution. All procedures in this document use the default file names. Upgrades can be unsuccessful if the wrong file names are used.

 **Important:**

If a failure occurs while you copy a file using TFTP (for example, a TFTP server is not available), the file is deleted.

Prerequisites

- Access Privileged EXEC mode.

Procedure steps

1. Use the **copy** command:

```
copy <file> <file>
```

For example:

```
copy /flash/config.cfg /pcmcia/config_backup.cfg
```

The first parameter you specify is where the file resides, and the second parameter is the location for the new file.

2. To copy files using a TFTP server, ensure that the TFTP server is operating and then use the following command:

```
copy <tftp IP address>:<filename> /<location>/
```

For example:

```
copy 111.111.1.11:p80a4100.img /flash/p80a4100.img
```

Hiding files

Hide files for security reasons and to keep them safe from accidental deletion.

Prerequisites

- Access Privileged EXEC mode.

Procedure steps

To hide files, use the attribute "+h" command. For example, to hide a file located on the internal flash named shadov.txt:

```
attrib /flash/shadov.txt "+h"
```

Enabling FTP and TFTP

Enable FTP and TFTP to use these protocols on the Ethernet Routing Switch 8800/8600. You can use FTP or TFTP servers to store upgrade files. To save a file to a Secondary SF/CPU, enable TFTP on the Secondary SF/CPU. Reboot the switch to enable FTP or TFTP.

Prerequisites

- Access Global Configuration mode.

Procedure steps

1. To enable the FTP daemon, enter the following command:

```
boot config flags ftpd
```

2. To enable the TFTP daemon, enter the following command:

```
boot config flags tftpd
```

3. To save the boot configuration file, enter the following command:

```
save config standby boot.cfg
```

4. Reboot the SF/CPU so that the changes take effect, and the protocols are enabled:

```
boot
```

Configuring boot sources

If the boot source location or image name is not default, specify its location or name. To specify boot source locations and file names, use the following procedure. You can also use these commands to change the order in which the boot sources (internal flash memory, external memory card, FTP or TFTP server) are accessed. If you move a .dld file from its default location, be sure to specify its new location. For more information about boot sources, see [Boot sources](#) on page 43.

Important:

R, RS, and 8800 modules require that the switch loads a .dld image on each module. See [DLD file considerations](#) on page 45.

The R module image is p80jxxxx.dld and the RS and 8800 module image is p80kxxxx.dld.

Prerequisites

- Access Global Configuration mode.

Procedure steps

1. To change the runtime configuration file locations, use the following command:

```
boot config choice <primary|secondary|tertiary> [config-file
<WORD 0-255>|backup-config-file <WORD 0-255>|image-file
<WORD 0-255>]
```

For example, to specify the configuration file in internal flash memory as the primary, use the following command:

```
boot config choice primary config-file /flash/config.cfg
```

2. To set the location for the R, RS, or 8800 module driver image for the BootStrap protocol:

```
boot config bootp <Primary|Secondary> <WORD 0-127> <1-10>
```

For example, to specify the R module driver file in internal flash memory, use the following command:

```
boot config bootp Primary /flash/p80j41xx.dld 2
```

! Important:

Avaya recommends that you store .dld files in internal flash memory, and that you always set the image-name to default.

3. To set the boot source location for the SuperMezz image:

```
boot config mezz-image image-name <file>
```

For example:

```
boot config mezz-image image-name /flash/p80m41xx.img
```

4. To configure boot configuration system flags, use:

```
boot config flags <flag-name>
```

To disable a flag, use the `no` operator before the command.

For example, use:

```
boot config flags cf-pc-compat, to enable the flag.
```

```
no boot config flags cf-pc-compat, to disable the flag.
```

To set a flag to default value, use the `default` operator with the command.

5. Save the `boot.cfg` file and reboot the switch.

Variable definitions

Use the data in the following table to help you use the `boot config choice <primary|secondary|tertiary>` command.

Variable	Value
backup-config-file <WORD 0-255>	Identifies the backup boot configuration file; <WORD 0-255> is the device and file name, up to 256 characters including the path.
config-file <WORD 0-255>	Identifies the boot configuration file; <WORD 0-255> is the device and file name, up to 256 characters including the path.
image-file <WORD 0-255>	Identifies the image file; <WORD 0-255> is the device and file name, up to 256 characters including the path.

Use the data in the following table to help you use the `boot config mezz-image` commands.

Variable	Value
image-name <WORD 0-256>	Identifies the image. <WORD 0-256> is the device and file name, up to 256 characters including the path.

Use the data in the following table to help you use the **boot config bootp** commands.

Variable	Value
<Primary Secondary> <WORD 0-127> <1-10>	Identifies the primary or secondary image file for R, RS, and 8800 modules. <WORD 0-127> is the device and file name, including the path, of up to 128 characters. <1-10> is the slot number. To ensure that the .dld image loaded is the same as the running software image, configure the image-name to default.

Use the data in the following table to help you use the **config bootconfig flags** command.

Variable	Value
flags <flag-name>	Identifies boot configuration system flags. <flag-name> indicates the name of the flag.
info	Shows the current value of the boot configuration flag.

Example of configuring primary and secondary sources

This example configures the primary and secondary sources as per Avaya recommendation.

1. Configure the primary configuration file choices:

```
boot config choice primary config-file /flash/<primary config filename.cfg>
```

```
boot config choice primary config-file /pcmcia/<primary config filename.cfg>
```

2. Configure the secondary configuration file choices:

```
boot config choice secondary config-file /flash/<secondary config filename.cfg>
```

```
boot config choice secondary backup-config-file /pcmcia/<secondary config filename.cfg>
```

Checking firmware revisions

To determine if an update to the firmware is required, check the current firmware revisions on the slot containing an R, RS, or 8800 module.

Prerequisites

- Access Privileged EXEC mode.

Procedure steps

Enter the following command:

```
show sys-info asic
```

```
#
# Asic Info :
# SlotNum|Name      |CardType  |MdaType    |Parts Description
#
# Slot 1  --        0x00000001 0x00000000
# Slot 2 8812XL     0x25b25122 0x00000000 PRS:RSP=27 F2I=4 F2E=5 FTMUX=17
CC=33281 FOQ=270 DPC=7 BMC =264 PIM=256 MAC=1112670281 Mirror=304
Loopback=274
# Slot 3  --        0x00000001 0x00000000
# Slot 4 8648GTR    0x24220130 0x00000000 RSP=25 CLUE=2 F2I=1 F2E=1 FTMUX=17
CC=3 FOQ=267 DPC=184 BM C=776 PIM=3 MAC=2
# Slot 5 8895SF     0x200e1100 0x00000000 CPU: BDLB=21 glue=14 SFM: OP=3
TMUX=2 SWIP=23 FAD=16 CF=2
# Slot 6 8895SF     0x200e1100 0x00000000 CPU: BDLB=21 glue=14 SFM: OP=3
TMUX=2 SWIP=23 FAD=16 CF=2
```

If the Dual Port Controller (DPC), BAP Memory Controller (BMC), Port Interface Module (PIM), and Feedback Output Queueing (FOQ) firmware revisions are not equivalent to those specified in the list of required firmware files, a firmware update is required.

For information about required files, see [Job aid: required firmware](#) on page 169.

Job aid: required firmware

Use the following information to determine the firmware version required.

Table 8: Firmware release support

Module	FPGA firmware version
R modules with Release 7.2	<ul style="list-style-type: none"> • PIM for 8630GBR: 769 • FOQ: 267 • BMC: 776 • DPC: 194
RS and 8800 modules with Release 7.2	<ul style="list-style-type: none"> • PIM for 8612XLRS and 8812XL: 1024 and 256 • PIM for 8634XGRS and 8834XG: 1024 • PIM for 8648GBRS and 8848GB: 1024 • PIM for 8648GTRS and 8848GT: 768 • FOQ: 270 • DPC: 7 • BMC: 264 • Mirror: 304 • Loopback: 274

Replacing an SF/CPU module in a single CPU chassis

Replace a single SF/CPU module in a single chassis to replace a faulty SF/CPU or to upgrade the SF/CPU to a newer model.

If the internal flash is not accessible on a faulty SF/CPU, obtain the files from another source, which can be another network device, such as a TFTP or FTP server. Alternatively, the files can be rebuilt using the Customer Spec Book or the configuration from the VRRP peer Ethernet Routing Switch 8800/8600.



Electrostatic alert:

Risk of equipment damage

To prevent damage from electrostatic discharge, always wear an antistatic wrist strap connected to an ESD jack.

Prerequisites

- You can access the Console port and the Ethernet Management port.
- Access Privileged EXEC mode.

Procedure steps

1. Save the configuration files.

See [Saving configuration files](#) on page 163.

2. Place all required files onto the external memory card.

See [Job aid: files present on SF/CPU modules](#) on page 106.

3. Power down the switch to stop all traffic.
4. Disconnect the cables from the Management and Console ports.
5. Remove the old SF/CPU.

For instructions, see *Avaya Ethernet Routing Switch 8800/8600 Installation — Modules*, (NN46205-304).

6. Insert the new SF/CPU.
7. Reconnect the cables to the Management and Console ports.
8. Replace the external memory card.
9. Connect to the console and open the terminal emulator application.
10. Power up the switch and stop the auto-boot process.

Before the system loads the runtime image, the following message appears:

```
"Loaded boot configuration from file /flash/boot.cfg Attaching network interface lo0... done. Press <Return> to stop autoboot..."
```

11. To stop the auto-boot process, on the keyboard, press Enter.
12. Using the Console port, copy all required files from the external memory card to the SF/CPU flash memory.
13. Hide any hidden (.txt) files.

See [Hiding files](#) on page 164.

14. Boot the system with the correct boot monitor:

```
Monitor# boot/flash/p80b7100.img (for 8692 SF/CPU)
```

```
Monitor# boot/flash/p80be7100.img (for 8895 SF/CPU)
```

A message appears stating that the boot flash will be written, and to not interrupt the process. After the system writes the boot flash with the new boot monitor, the system reboots and loads boot.cfg and config.cfg along with the proper runtime software specified within the new configuration. The upgrade is complete.

15. Verify that the image and configuration loaded properly:

```
show sys software
```

Job aid: files present on SF/CPU modules

The following hidden files can be present on the SF/CPU flash memory of an Ethernet Routing Switch 8800/8600. The files present on the flash depend on the hardware and software configuration present on the switch. See also [New software files](#) on page 46 and the release notes for the most up-to-date file names.

Table 9: Required hidden files

File type	Name
Hidden files	<ul style="list-style-type: none"> • ospf_md5key.txt • shadv.txt • snmp_usm.txt • snmp_comm.txt • passvord.txt

Hot swapping the Master SF/CPU module in a dual CPU chassis

Use this procedure to hot swap an Ethernet Routing Switch 8800/8600 module that is in a redundant SF/CPU configuration. You can use this procedure when you upgrade switch fabrics, or when you perform a failover with High Availability (HA) mode enabled.

If you use HA-CPU in a dual SF/CPU system, this procedure minimizes packet loss. If the SF/CPU is in Warm Standby mode, packet loss cannot be avoided; however, this procedure minimizes downtime.

For information about configuring which SF/CPU is the Master, see *Avaya Ethernet Routing Switch 8800/8600 Administration*, (NN46205-605).

 **Caution:**

Risk of traffic loss or corruption

When you hot swap the active SF/CPU module in a redundant SF/CPU system, wait until the new Master stabilizes before you insert any other modules. Do not hot swap I/O modules until the new SF/CPU becomes the Master SF/CPU.

If you have only one SF/CPU and you swap the SF/CPU, all the SNMP password files, including the hidden file, are lost. Either reconfigure the trap receivers and community strings each time you change the SF/CPU module, or save these hidden files to an external memory card.

Do not hot swap or insert modules in a switch while the switch boots. If you do, the switch may not recognize the module, which causes module initialization failure.

Switchover causes an interruption to user traffic.

In HA mode, Avaya strongly recommends that you make the Secondary SF/CPU the Master before you remove the old Master SF/CPU. If you remove the Master SF/CPU before you make the Secondary SF/CPU the Master, traffic may be lost or corrupted.

 **Electrostatic alert:**

Risk of equipment damage

To prevent damage from electrostatic discharge, always wear an antistatic wrist strap connected to an ESD jack.

Prerequisites

- Access Global Configuration mode.

Procedure steps

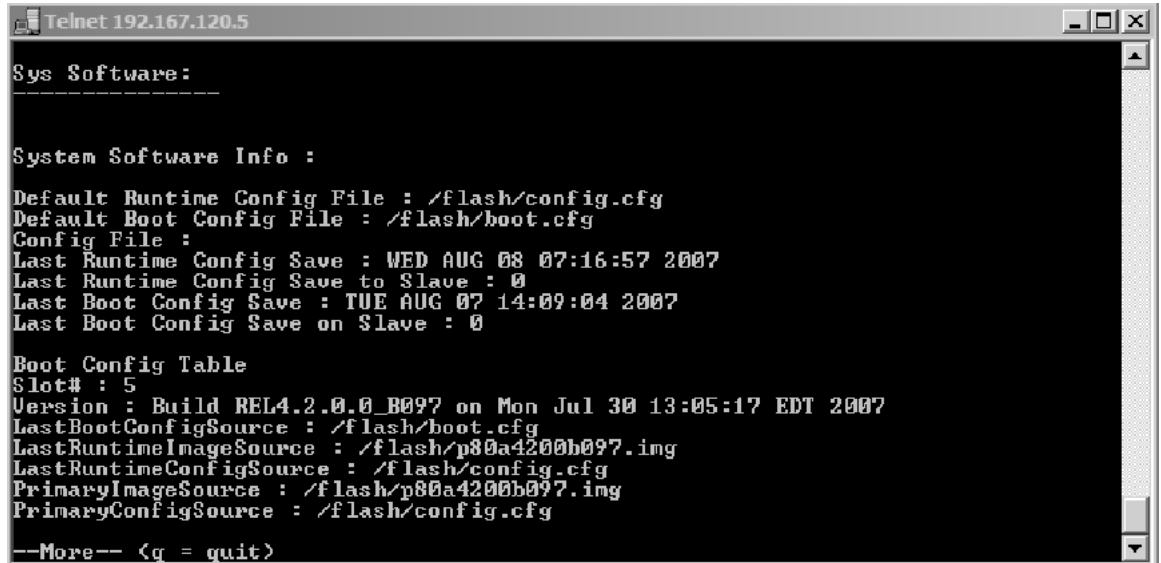
1. Connect to the Master SF/CPU using either Telnet or the console port.

If you use a Telnet session, be aware that it will be disconnected when the Master fails over unless you use the Virtual Management IP address.

2. Determine which slot (5 or 6) contains the Master. On the switch, the Master LED of the Secondary CPU is unlit. Or, you can enter the following command:

```
show tech
```

In the Sys Software, BootConfig Table section, the slot number is indicated.



```

Telnet 192.167.120.5

Sys Software:
-----

System Software Info :
Default Runtime Config File : /flash/config.cfg
Default Boot Config File : /flash/boot.cfg
Config File :
Last Runtime Config Save : WED AUG 08 07:16:57 2007
Last Runtime Config Save to Slave : 0
Last Boot Config Save : TUE AUG 07 14:09:04 2007
Last Boot Config Save on Slave : 0

Boot Config Table
Slot# : 5
Version : Build REL4.2.0.0_B097 on Mon Jul 30 13:05:17 EDT 2007
LastBootConfigSource : /flash/boot.cfg
LastRuntimeImageSource : /flash/p80a4200b097.img
LastRuntimeConfigSource : /flash/config.cfg
PrimaryImageSource : /flash/p80a4200b097.img
PrimaryConfigSource : /flash/config.cfg

--More-- <q = quit>

```

3. Ensure that both SF/CPUs have the same configuration. To do so, enter:

```

save config standby <WORD 1-99>

save bootconfig standby <WORD 1-99>

```

4. Perform the switchover:

```

sys action cpu-switch-over

```

5. Wait for the switchover to complete (about 30 seconds). When it is complete, a logon prompt appears on the console session. On the old Secondary SF/CPU module, the Master LED lights.

If you were connected by Telnet to the old Master, now logon to the new Master.

6. After the old Secondary becomes the Master, disable the SF/CPU that you are removing. Access Global Configuration mode and then enter the following command:

```

shutdown <1-10>

```

Important:

The shutdown command does not disable the CPU, but disables only the switch fabric portion of the SF/CPU module. The LEDs on the front panel do not indicate a state change for the module; the CPU remains active. The only indication of a change is when the console displays a message stating that the module is safe to pull out.

7. Remove the SF/CPU module.
8. Insert the new SF/CPU module.

The chassis automatically enables the new module.

9. Confirm that the new SF/CPU module is operational:

```
peer telnet  
  
show sys performance
```

As well, the Online LED of the SF/CPU module lights up.

10. Ensure that both SF/CPU modules have the same configuration by connecting to the Master and repeating Step 3.
11. Confirm that traffic is traversing the switch as normal.

Variable definitions

Use the following table to help you use the commands in this procedure.

Variable	Value
<WORD 1-99>	Specifies the secondary destination path and filename in the format /pcmcia/<filename> or /flash/<filename>
<1-10>	Specifies the slot number of the module to be disabled. SF/CPU modules can reside in slots 5 and 6 of the 6 and 10-slot chassis.

Hot swapping the Secondary SF/CPU module in a dual CPU chassis

Use this procedure to hot swap an Ethernet Routing Switch 8800/8600 module that is in a redundant SF/CPU configuration. You can use this procedure when you upgrade switch fabrics, or when you perform a failover with High Availability (HA) mode enabled.

For information about configuring which SF/CPU is the Master, see *Avaya Ethernet Routing Switch 8600 Administration*, (NN46205-605).



Caution:

Risk of traffic loss or corruption

Do not hot swap or insert modules in a switch while the switch boots. If you do, the switch may not recognize the module, which causes module initialization failure.



Electrostatic alert:

Risk of equipment damage

To prevent damage from electrostatic discharge, always wear an antistatic wrist strap connected to an ESD jack.

Prerequisites

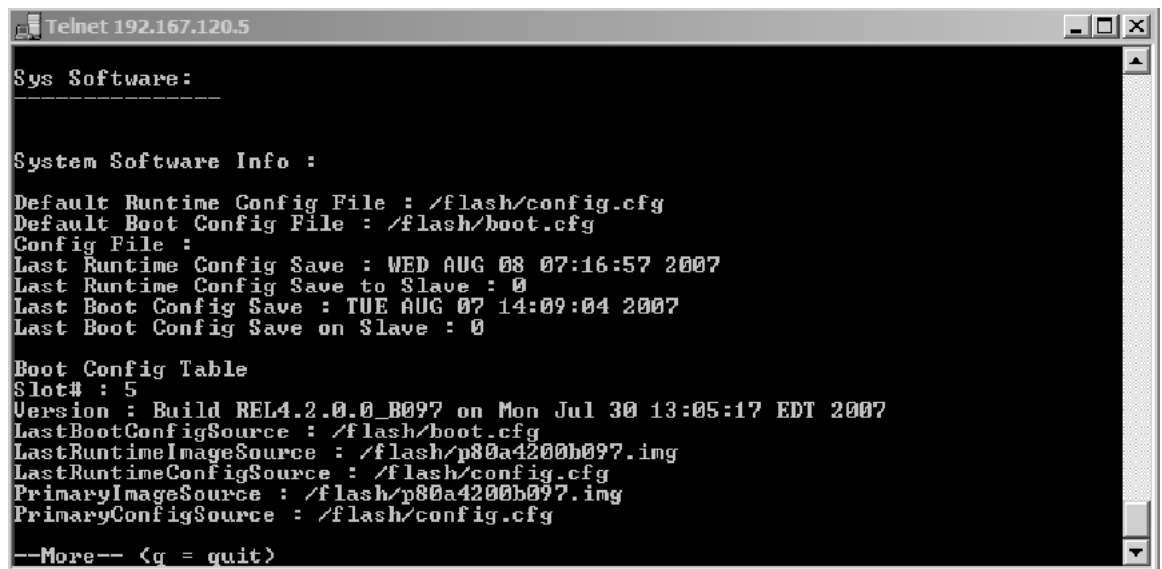
- Access Global Configuration mode.

Procedure steps

1. Connect to the Master SF/CPU.
2. Determine which slot (5 or 6) contains the Master. On the switch, the Master LED of the Secondary CPU is unlit. Or, you can enter the following command:

```
show tech
```

In the Sys Software, BootConfig Table section, the slot number is indicated.

A screenshot of a Telnet window titled 'Telnet 192.167.120.5'. The window shows the output of the 'show tech' command. The output is as follows:

```
Sys Software:
-----

System Software Info :
Default Runtime Config File : /flash/config.cfg
Default Boot Config File : /flash/boot.cfg
Config File :
Last Runtime Config Save : WED AUG 08 07:16:57 2007
Last Runtime Config Save to Slave : 0
Last Boot Config Save : TUE AUG 07 14:09:04 2007
Last Boot Config Save on Slave : 0

Boot Config Table
Slot# : 5
Version : Build REL4.2.0.0_B097 on Mon Jul 30 13:05:17 EDT 2007
LastBootConfigSource : /flash/boot.cfg
LastRuntimeImageSource : /flash/p80a4200b097.img
LastRuntimeConfigSource : /flash/config.cfg
PrimaryImageSource : /flash/p80a4200b097.img
PrimaryConfigSource : /flash/config.cfg
--More-- <q = quit>
```

3. Disable the Secondary SF/CPU. Enter the following command:

```
shutdown <1-10>
```

Important:

The disable command does not disable the CPU, but disables only the switch fabric portion of the module. The LEDs on the front panel do not indicate a state change for the module; the CPU remains active. The only indication of a change is when the console displays a message stating that the module is safe to pull out.

4. Remove the SF/CPU module.
5. Insert the new SF/CPU module.

The chassis automatically enables the new module.

6. Confirm that the new SF/CPU module is operational:

```
peer telnet  
  
show sys performance
```

As well, the Online LED of the SF/CPU module lights up.

7. Ensure that both SF/CPU modules have the same configuration by connecting to the Master and issuing the following commands:

```
save config standby <WORD 1-99>  
  
save bootconfig standby <WORD 1-99>
```

8. Confirm that traffic is traversing the switch as normal.

Variable definitions

Use the following table to help you use the commands in this procedure.

Variable	Value
<WORD 0-64>	Specifies the secondary destination path and filename in the format /pcmcia/<filename> or /flash/<filename>
<1-10>	Specifies the slot number of the module to be disabled. SF/CPU modules can reside in slots 5 and 6 in the six and ten-slot chassis.

Hot swapping an I/O module

Use this procedure to hot swap an Ethernet Routing Switch 8800/8600 I/O module. You can use this procedure when you upgrade to the latest modules.

 **Caution:**

Risk of traffic loss or corruption

Do not hot swap or insert modules in a switch while the switch boots. If you do, the switch may not recognize the module, which causes module initialization failure.



Electrostatic alert:

Risk of equipment damage

To prevent damage from electrostatic discharge, always wear an antistatic wrist strap connected to an ESD jack.

Prerequisites

- Access Global Configuration mode.

Procedure steps

1. Connect to the Master SF/CPU.
2. To reduce the chance of packet loss, Avaya recommends that you disable the module prior to removal, although this is not a strict requirement:

```
shutdown <1-10>
```

3. If you disabled the module, confirm that the module is disabled.

The Online LED of the module is amber when the module is disabled. You can also verify that the module is disabled by using the following command:

```
show tech
```

4. Remove the module.
5. Insert the new module.

The chassis automatically enables the new module.

6. Confirm that the new module is operational:

```
show tech
```

As well, the Online LED of the module lights up.

7. Confirm that traffic is traversing the module as normal.

Variable definitions

Use the following table to help you use the commands in this procedure.

Variable	Value
<1-10>	Specifies the slot number of the module to be disabled.

Reformatting the 8692 SF/CPU flash memory to 64 MB for a single SF/CPU system

Use this procedure to increase the size of the 8692 SF/CPU flash memory to 64 Mbytes (MB), which may be required for a switch upgrade.

This procedure uses a PCMCIA card to back up files. You do not have to use this; you can use any accessible storage device except the internal flash memory. See [File storage options](#) on page 42.

Important:

If you reformat the flash from 16 MB to 64 MB and then use the `dir` command to check if the reformat was successful, you may see error messages of the following form:

```
0x42cc8a0 (tShell): dosFsLib.c : Malformed boot sector. Offset 32, value 0.
```

If this problem occurs, reformat the flash again and reissue the `dir` command. The command output should indicate that 64 MBytes of flash memory is now accessible.

This problem does not occur for reformats from 16 to 40 or 40 to 64 MB.

For information about flash memory size and release support, see [Table 1: Release support for flash memory](#) on page 40.

Prerequisites

- A boot monitor image file (p80b7100.img for 8692 SF/CPU or p80be7100.img for 8895 SF/CPU) from 7.2 must be running on the switch.
- Before you format the flash memory, back up all the existing files. This procedure lists important files to back up, but if you have additional important files in flash memory, back them up as well.
- Enter Global Configuration mode.

Procedure steps

1. Save the configuration files:

```
save config
```

```
save bootconfig
```

2. Back up the necessary files to the PCMCIA card. See [Job aid: files present on SF/CPU modules](#) on page 172.

For instructions about copying files, see [Copying files](#) on page 163.

3. To ensure that the files are successfully copied to the PCMCIA card, use the `dir` command.
4. Format the flash memory:

```
format-flash
```

5. Enter the following command:

```
reset
```

This step avoids the generation of incorrect error messages.

6. After the flash memory is reformatted, to ensure 64 MB, enter the `dir` command.
7. Copy each of the files you moved in step 3 back to the flash memory. For example:

```
copy /pcmcia/boot.cfg /flash/boot.cfg
```

8. To ensure that the switch uses the correct files from the flash memory, enter the following commands:

```
boot config choice primary image-file default
```

For R, RS, and 8800 modules (repeat for each slot):

```
boot config bootp <Primary|Secondary> default <1-10>
```

For SuperMezz:

```
boot config mezz-image image-name /flash/p80mxxxxx.img
```

If you did not store these files in flash memory, configure the switch to check a different location. See [Configuring boot sources](#) on page 166.

9. Save configuration files:

```
save config
```

```
save bootconfig
```

10. Hide all hidden password, OSPF, and SNMP files. For example:

```
attrib /flash/shadow.txt "+h"
```

11. Reset the switch:

```
reset -y
```

This step causes an interruption in normal switch operations.

12. After the switch resumes normal operations, to ensure proper reformatting and copying, log on and issue the following command:

```
show tech
```

Reformatting the flash memory to 64 MB for a dual SF/CPU system

Use this procedure to increase the size of the SF/CPU flash memory to 64 Mbytes (MB), which may be required for a switch upgrade.

This procedure uses a PCMCIA card to back up files. You do not have to use this; you can use any accessible storage device except the flash memory. See [File storage options](#) on page 42.

Important:

If you reformat the flash from 16 MB to 64 MB and then use the `dir` command to check if the reformat was successful, you may see error messages of the following form:

```
0x42cc8a0 (tShell): dosFsLib.c : Malformed boot sector. Offset 32, value 0.
```

If this problem occurs, reformat the flash again and reissue the `dir` command. The command output should indicate that 64 MBytes of flash memory is now accessible.

This problem does not occur for reformats from 16 to 40 or 40 to 64 MB.

For information about flash memory size and release support, see [Table 1: Release support for flash memory](#) on page 40.

Prerequisites

- A boot monitor image file (p80b7100.img for 8692 SF/CPU or p80be7100.img for 8895 SF/CPU) from 7.2 must be running on the switch.
- Before you format the flash memory, back up all the existing files. This procedure lists important files to back up, but if you have additional important files in flash memory, back them up as well.

Procedure steps

1. Perform the procedure [Reformatting the 8692 SF/CPU flash memory to 64 MB for a single SF/CPU system](#) on page 179 for the Secondary SF/CPU.
2. Repeat the procedure for the Master SF/CPU.

Reformatting the 8895 SF/CPU compact flash

Use this procedure to format the 8895 SF/CPU compact flash memory. Avaya supports 2 GB and 4 GB compact flash cards only.

Starting with Release 7.2, you have the choice of using a Windows PC compatible format or retaining the backwards compatible format. Choose carefully because a compact flash formatted for backwards compatibility will not be recognized when the boot flag is set for PC compatibility and vice versa.

 **Note:**

The default format is backwards compatible. If you plan to roll back to a release that does not support this feature and you were using the PC compatible format, save the boot configuration and reset the flag to the default state before you roll back the switch.

 **Important:**

When using Window PC compatible mode, Avaya recommends formatting the compact flash on the 8895 CPU to be recognized by both VxWorks and Windows. If you format the compact flash on a Windows PC, VxWorks on the ERS 8800/8600 may not be able to recognize it.

Prerequisites

- A boot monitor image file (p80be7100.img for 8895 SF/CPU) from 7.2 and above must be running on the switch.

Procedure steps

Procedure

1. Verify the format, by entering `show boot config flags`. Then, if you need to change the format, continue with this procedure.

2. Back up all the existing files on the compact flash before you format it.
For instructions on copying files, see [Copying files](#) on page 163.
3. To ensure that the files are successfully copied, use the `dir` command.
4. Stop the compact flash card before you remove it by using the following command:
`dos-stop /pcmcia`
5. Remove the compact flash interface from the switch.

 **Important:**

Ensure that you remove the compact flash interface from its slot before you modify the `cf-pc-compat` flag. Otherwise the system displays errors.

6. Go to the Global Configuration mode.
7. Specify a format by setting the bootconfig flag.
 - To format the compact flash for backwards compatibility, set the flag to the default with the `no boot config flags cf-pc-compat` command.
 - To format the compact flash for PC compatibility, set the flag with the `boot config flags cf-pc-compat` command.
8. Save the boot configuration file, by entering:
`save bootconfig`
9. Reinsert the compact flash.
10. Format the compact flash, by entering:
`dos-format /pcmcia`

 **Caution:**

Risk of data loss

This action erases all compact flash contents. Any files that must be used later must be copied to another storage location before you reformat the compact flash memory.

11. Restore the files you moved in step 1 back to the compact flash memory. For example:
`copy <file-path>/boot.cfg /pcmcia/boot.cfg`
where `<file-path>` is the path to the storage location of the file.

Downgrading flash and PCMCIA memory

Prerequisites

- Access Global Configuration mode.

Procedure steps

1. Connect to the SF/CPU by using the console port.
2. Copy your files from internal flash memory to the PCMCIA card. See [Job aid: files present on SF/CPU modules](#) on page 172.

For information about how to copy files, see [Copying files](#) on page 97.

3. Downgrade the boot monitor with an earlier release of the software.
4. When you see the following message, interrupt the autoboot process by pressing Return:

```
Press <Return> to stop auto-boot.
```

5. To format the flash memory, enter the following command:

```
format-flash
```

At the prompt, enter **y**.

6. To reboot, enter the following command:

```
reset -y
```

7. When you see the following message, interrupt the autoboot process by pressing Return:

```
Press <Return> to stop auto-boot.
```

8. Copy the new runtime images and configuration files from the PCMCIA card back to the internal flash memory. Alter the boot config image-file entry to match the new runtime image.

The runtime image release must match the boot monitor image.

9. Enter the following command at the monitor prompt:

```
boot
```

10. Back up all files from the PCMCIA, and then format the PCMCIA using the following ACLI command:

! Important:

This step deletes any files on the PCMCIA device.

```
dos-format /pcmcia
```

11. Move the files back to the PCMCIA.

Verifying the MD5 checksums

Use the MD5 checksums to ensure the integrity of the new software files before you use them to upgrade. Corrupted files can cause the upgrade to fail.

For more information about the `md5` command, see [MD5 checksums](#) on page 50.

Prerequisites

- Access Global Configuration mode.

Procedure steps

1. To calculate the message digest for files in internal flash memory or on an external memory card, and to display the output on screen, enter the following command:

```
md5 <filename>
```

For example: `md5 *.img`

It takes some time to compute the message digest.

2. If, for any file, the checksum does not match, retransfer the file and run the `md5` command again.

Variable definitions

Use the data in the following table to help you use the `md5 <filename>` command.

Variable	Value
wildcard character (*)	Calculates the MD5 checksum of all files.
-a	Adds data to the output file instead of overwriting it. You cannot use the -a option with the -c option.
-c	<p>Compares the checksum of the specified file by <i><filename></i> with the MD5 checksum present in the checksum file name. You can specify the checksum file name using the -f option. When the checksum file name is not specified, the file /flash/checksum.md5 is used for comparison.</p> <p>If the checksum file name and the default file are not available in internal flash memory, the following error message is displayed:</p> <pre>Error: Checksum file <filename> not present.</pre> <p>The -c option also:</p> <ul style="list-style-type: none"> • calculates the checksum of files specified by <i>filename</i> • compares the checksum with all keys in the checksum file, even if the file names do not match • shows the results of the comparison
-f <checksum-file-name>	<p>Stores the result of MD5 checksum to a file in internal flash memory or on a external memory card.</p> <p>If the output file specified with the -f option is one of the:</p> <ul style="list-style-type: none"> • reserved file names on the switch, the command fails and the error message is displayed: <pre>Error: Invalid operation.</pre> <ul style="list-style-type: none"> • files for which MD5 checksum is to be computed, the command fails and the error message is displayed: <pre>Error: Invalid operation on file <filename></pre> <p>If the checksum file name specified by the -f option already exists on the switch (and is not one of the reserved file names), the following message is shown:</p> <pre>File exists. Do you wish to overwrite? (y/n)</pre>
-r	<p>Reverses the output and can be used with -f option to store the output to a file.</p> <p>The -r option cannot be used with the -c option.</p>

Determining the number of chassis MAC addresses

Before you upgrade the number of chassis MAC addresses, ensure that your chassis needs the upgrade.

All new chassis come with 4096 MAC address capability.

Prerequisites

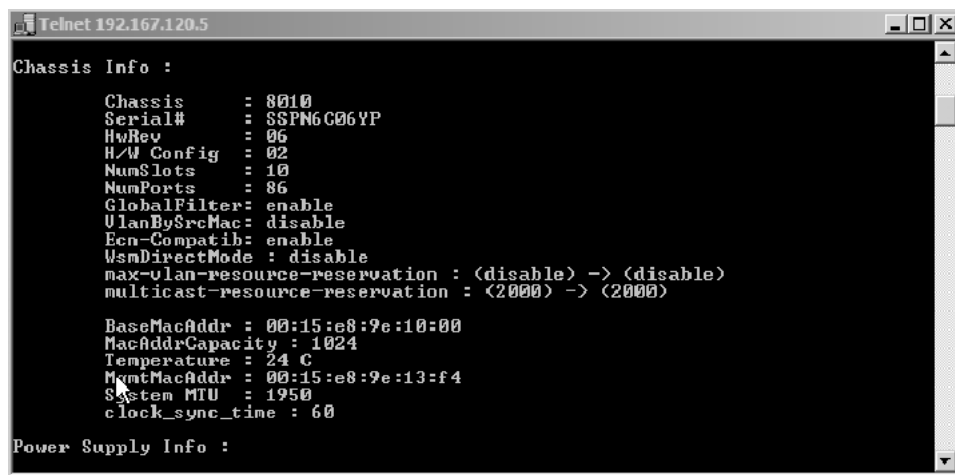
- Access Privileged EXEC mode.

Procedure steps

1. Enter the following command:

```
show sys-info
```

MAC address support is indicated in the Chassis Info section as MacAddrCapacity.



```

Telnet 192.167.120.5
Chassis Info :
  Chassis      : 8010
  Serial#     : SSPN6C06YP
  HwRev       : 06
  H/W Config  : 02
  NumSlots    : 10
  NumPorts    : 86
  GlobalFilter: enable
  UlanBySrcMac: disable
  Ecn-Compatih: enable
  WsmDirectMode: disable
  max-ulan-resource-reservation : (disable) -> (disable)
  multicast-resource-reservation : (2000) -> (2000)

  BaseMacAddr  : 00:15:e8:9e:10:00
  MacAddrCapacity : 1024
  Temperature  : 24 C
  MgmtMacAddr  : 00:15:e8:9e:13:f4
  System MTU   : 1950
  clock_sync_time : 60

Power Supply Info :
  
```

2. If MacAddrCapacity is not 4096, proceed to upgrade to 4096 MAC addresses.

Upgrading to 4096 MAC addresses

Upgrade the number of MAC addresses so that the switch can use a greater number of IP interfaces (that is, improve routed VLAN scaling). You can use the ACLI to install the new block

of MAC addresses. The ACLI command used to upgrade the number of MAC addresses is a hidden command; it does not show in response to the ? command.

This upgrade is supported on the following Ethernet Routing Switch 8000 Series chassis:

- Ethernet Routing Switch 8010co
- Ethernet Routing Switch 8010
- Ethernet Routing Switch 8006
- Ethernet Routing Switch 8003-R

All new chassis come with 4096 MAC address capability.

To prevent overlapping MAC addresses, the new block of 4096 MAC addresses overwrites the old block of 1024 MAC addresses.

The upgrade kit part number is DS1411015. For information about the upgrade kit, see [Job aid: MAC address kit contents](#) on page 123.

 **Caution:**

Risk of data loss

Each Additional MAC Addresses License allows you to upgrade one switch. If you enter the same license code on two switches, both switches will have the same MAC address, which results in serious networking issues.

Prerequisites

 **Caution:**

Risk of service interruption

Upgrading the chassis to 4096 MAC addresses requires a system reboot. Schedule the upgrade accordingly.

- The chassis does not have 4096 address support (see [Determining the number of chassis MAC addresses](#) on page 187)
- License code
- Base MAC address of your new block of MAC addresses
- Access Global Configuration mode.

Procedure steps

Caution:

Risk of equipment damage

This upgrade requires a chassis EEPROM reprogram. Do not turn off power or press reset until the upgrade process is complete. Otherwise, the chassis may be permanently damaged.

1. At the prompt, enter:

```
boot config upgrade-mac-addr <base-mac-addr> <licensecode>
```

The following information appears:

```
Base MAC address: <base-mac-addr>
License Code: <licensecode>
Are you sure you want to upgrade the Mac addresses (y/n)?
```

2. Enter **y**.

If you enter **n**, the system returns you to the prompt line.

After the MAC address upgrade successfully completes, the system displays the following information:

```
You have successfully completed reprogramming the Chassis with 4096 MAC
addresses. Please write down the Chassis Serial number as displayed below
in the upgrade kit sent to you for your records.
Chassis serial number is: (ddddddddd) Please place the supplied MAC
address barcode label on the right side of the chassis. Please place the
second supplied MAC address label (number only) over the existing label on
the front of the chassis.
Need to reboot the switch for the upgraded MAC address kit to take effect.
Do you want to reboot the switch now? (y/n)
```

3. To reboot the switch, enter **y**.

The system displays the following information:

```
For Dual CPU, SLAVE CPU also needs to be re-booted.
```

This message appears even if the Secondary SF/CPU is inactive or if you are working on a 3-slot chassis.

4. To show the base MAC address, enter:

```
show sys-info
```

or

```
show tech
```

Ensure that the correct address is shown.

5. Place the MAC address barcode label on the right side of the chassis near the serial and order number labels.

Place the other label (number only) on the front of the chassis over the existing label.

Not all chassis already have a label on the front.

Variable definitions

Use the data in the following table to help you use the `boot config upgrade-mac-addr` command to upgrade to 4096 MAC addresses.

Variable	Value
<base-mac-addr>	Specifies the base MAC address shown on the Additional MAC Addresses License. Enter this address in the format xx:xx:xx:xx:xx:xx
<licensecode>	Specifies the license code shown on the Additional MAC Addresses License

Appendix A: Supported migration matrix

Migration matrix

Table 10: Migration Matrix (7.1 only)

Base Config		Target Config		Migration Supported	Notes
CPU	I/O	CPU	I/O		
8691	E/M	8692/no M	E/M	Not supported	Target config is not supported in 7.1
8691	E/M	8692/no M	R/RS	Not supported	Target config is not supported in 7.1
8691	E/M	8692/M	E/M	Not supported	Target config is not supported in 7.1
8691	E/M	8692/M	R/RS	Reconfigure from scratch	The only way such a migration can happen is by reconfiguring the system from scratch. Some media legacy modules to R modules replacement is possible but the pre-existing configuration is not supported.
8691	E/M	8895	E/M	Not supported	Target config is not supported in 7.1
8691	E/M	8895	R/RS	Reconfigure from scratch	The only way such a migration can happen is by reconfiguring the system from scratch. Some media legacy modules to R modules replacement is possible but the pre-existing configuration is not supported.
8691	R/RS	8692/no M	E/M	Not supported	Base config is not supported in any release
8691	R/RS	8692/no M	R/RS	Not supported	Base config is not supported in any release
8691	R/RS	8692/M	E/M	Not supported	Base config is not supported in any release

Base Config		Target Config		Migration Supported	Notes
CPU	I/O	CPU	I/O		
8691	R/RS	8692/M	R/RS	Not supported	Base config is not supported in any release.
8691	R/RS	8895	E/M	Not supported	Base config is not supported in any release
8691	R/RS	8895	R/RS	Not supported	Base config is not supported in any release
8692/no M	E/M	8692/no M	E/M	Not supported	Target config is not supported in 7.1
8692/no M	E/M	8692/no M	R/RS	Not supported	Target config is not supported in 7.1
8692/no M	E/M	8692/M	E/M	Not supported	Target config is not supported in 7.1
8692/no M	E/M	8692/M	R/RS	Reconfigure from scratch	The only way such a migration can happen is by reconfiguring the system from scratch. Some media legacy modules to R modules replacement is possible but the pre-existing configuration is not supported.
8692/no M	E/M	8895	E/M	Not supported	Target config is not supported in 7.0
8692/no M	E/M	8895	R/RS	Reconfigure from scratch	The only way such a migration can happen is by reconfiguring the system from scratch. Some media legacy modules to R modules replacement is possible but the pre-existing configuration is not supported.
8692/no M	E/M/R/R S	8692/no M	E/M	Not supported	Target config is not supported in 7.1
8692/no M	E/M/R/R S	8692/no M	R/RS	Not supported	Target config is not supported in 7.1
8692/no M	E/M/R/R S	8692/M	E/M	Not supported	Target config is not supported in 7.1
8692/no M	E/M/R/R S	8692/M	R/RS	Supported	1. Load software that is supported for 7.1. 2. Swap the redundant CPU with 8692/M 3. Switchover to the redundant CPU 4. Swap new redundant CPU (Previously master) to

Base Config		Target Config		Migration Supported	Notes
CPU	I/O	CPU	I/O		
					8692/M 5. Replace E/M modules with appropriate R/RS modules and perform configuration 6. Verify configuration 7. Upgrade to 7.1
8692/no M	E/M/R/R S	8895	E/M	Not supported	Target config is not supported in 7.1
8692/no M	E/M/R/R S	8895	R/RS	Supported	1. Load software that is supported for 7.1. 2. Replace E/M modules with appropriate R/RS modules and perform configuration 3. Verify configuration and copy file to external media such as compact flash (an intermediate step will be required) or tftp server. 4. Power down chassis and replace 8692/noM with 8895. 5. Boot 8895 with 7.1 image with configuration from compact flash or tftp server.
8692/no M	R/RS	8692/no M	E/M	Not supported	Target config is not supported in 7.1
8692/no M	R/RS	8692/no M	R/RS	Not supported	Target config is not supported in 7.1
8692/no M	R/RS	8692/M	E/M	Not supported	Target config is not supported in 7.1
8692/no M	R/RS	8692/M	R/RS	Supported	1. Load software that is supported for 7.1. 2. Swap the redundant CPU with 8692/M (OR) remove the redundant CPU, install supermezz, and reinsert in the same slot. 3. Switchover to the redundant CPU 4. Swap new redundant CPU (Previously master) to 8692/M (OR) remove the redundant CPU, install supermezz, and reinsert in the same slot. 5. Upgrade to 7.1
8692/no M	R/RS	8895	E/M	Supported	1. Verify configuration and copy to external media such as flash (an intermediate step will be required) or tftp server. 2.

Base Config		Target Config		Migration Supported	Notes
CPU	I/O	CPU	I/O		
					Power down the chassis 3. Remove 8692/noM and replace it with 8895 CPU 4. Power up the chassis while ensuring that the config is loaded from external media such as compact flash or tftp server. 5. Review warning messages, verify configuration, save config, and create a copy.
8692/noM	R/RS	8895	R/RS	Supported	1. Load software that is supported for 7.1. 2. Verify configuration and copy file to external media such as compact flash (an intermediate step will be required) or tftp server. 3. Power down chassis and replace 8692/noM with 8895 4. Boot 8895 with 7.1 image with configuration from compact flash or tftp server.
8692/M	E/M	8692/noM	E/M	Not supported	Target config is not supported in 7.1
8692/M	E/M	8692/noM	R/RS	Not supported	Target config is not supported in 7.1
8692/M	E/M	8692/M	E/M	Not supported	Target config is not supported in 7.1
8692/M	E/M	8692/M	R/RS	Reconfigure from scratch	The only way such a migration can happen is by reconfiguring the system from scratch. Some media legacy modules to R modules replacement is possible but pre-existing configuration is not supported.
8692/M	E/M	8895	E/M	Not supported	Target config is not supported in 7.1
8692/M	E/M	8895	R/RS	Reconfigure from scratch	The only way such a migration can happen is by reconfiguring the system from scratch. Some media legacy modules to R modules replacement is possible but pre-existing configuration is not supported.

Base Config		Target Config		Migration Supported	Notes
CPU	I/O	CPU	I/O		
8692/M	E/M/R/R S	8692/no M	E/M	Not supported	Target config is not supported in 7.1
8692/M	E/M/R/R S	8692/no M	R/RS	Not supported	Target config is not supported in 7.1
8692/M	E/M/R/R S	8692/M	E/M	Not supported	Target config is not supported in 7.1
8692/M	E/M/R/R S	8692/M	R/RS	Supported	1. Load software that is supported for 7.1. 2. Replace E/M modules with appropriate R/RS modules and perform configuration 3. Verify configuration 4. Upgrade to 7.1
8692/M	E/M/R/R S	8895	E/M	Not supported	Target config is not supported in 7.1
8692/M	E/M/R/R S	8895	R/RS	Supported	1. Load software that is supported for 7.1. 2. Replace E/M modules with appropriate R/RS modules and perform configuration 3. Verify configuration and copy file to external media such as compact flash (an intermediate step will be required) or tftp server. 4. Upgrade the system to 7.1 software and verify config. 5. Insert 8895 in redundant CPU slot. 6. Save the running config on the redundant CPU. 7. Switchover to the redundant CPU so it becomes master and verify config. 8. Replace the new redundant CPU with 8895 9. Save the running config on the redundant CPU.
8692/M	R/RS	8692/no M	E/M	Not supported	Target config is not supported in 7.1
8692/M	R/RS	8692/no M	R/RS	Not supported	Target config is not supported in 7.1
8692/M	R/RS	8692/M	E/M	Not supported	Target config is not supported in 7.1
8692/M	R/RS	8692/M	R/RS	Supported	1. Load software that is supported for 7.1. 2. Copy 7.1

Base Config		Target Config		Migration Supported	Notes
CPU	I/O	CPU	I/O		
					software to the master flash as well as redundant CPU flash 3. Make changes to the bootconfig to point to the new software files. 4. Save config and bootconfig on master as well as redundant CPU and verify configs on both. Make sure savetostandby flag is set to true. 5. Upgrade redundant CPU to 7.1 image 6. Upgrade master CPU to 7.1. This will cause a switchover to redundant CPU, which will now become master.
8692/M	R/RS	8895	E/M	Not supported	Target config is not supported in 7.1
8692/M	R/RS	8895	R/RS	Supported	1. Load software that is supported for 7.1. 2. Copy configuration file to external media such as compact flash (an intermediate step will be required) or tftp server. 3. Upgrade the system to 7.1 software and verify config. 4. Insert 8895 in redundant CPU slot. 5. Save the running config on the redundant CPU. 6. Switchover to the redundant CPU so it becomes master and verify config. 7. Replace the new redundant CPU with 8895 8. Save the running config on the redundant CPU.
8895	E/M	Any	Any	Not supported	Base config is not supported in 7.1
8895	E/M/R/R S	Any	Any	Not supported	Base config is not supported in 7.1
8895	R/RS	8692/no M	E/M	Not supported	Target config is not supported in 7.1
8895	R/RS	8692/no M	R/RS	Not supported	Target config is not supported in 7.1

Base Config		Target Config		Migration Supported	Notes
CPU	I/O	CPU	I/O		
8895	R/RS	8692/M	E/M	Not supported	Target config is not supported in 7.1
8895	R/RS	8692/M	R/RS	Supported	1. Load software that is supported for 7.1 upgrade . 2. Copy configuration file to external media such as compact flash (an intermediate step will be required) or tftp server. 3. Upgrade the system to 7.1 software and verify config. 4. Insert 8692/M in redundant CPU slot. 5. Save the running config on the redundant CPU. 6. Switchover to the redundant CPU so it becomes master and verify config. 7. Replace the new redundant CPU with 8692/M 8. Save the running config on the redundant CPU.
8895	R/RS	8895	E/M	Not supported	Target config is not supported in 7.1
8895	R/RS	8895	R/RS	No Action	No action required

Appendix B: Translations of Safety Messages

This section contains translations of caution, warning, and danger messages that appear in this document.

Electromagnetic interference caution statement

 **Caution:**

This device is a Class A product. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users are required to take appropriate measures necessary to correct the interference at their own expense.

 **Caution:**

ATTENTION

Le périphérique est un produit de Classe A. Le fonctionnement de cet équipement dans une zone résidentielle risque de causer des interférences nuisibles, auquel cas l'utilisateur devra y remédier à ses propres frais.

 **Caution:**

ACHTUNG

Dies ist ein Gerät der Klasse A. Bei Einsatz des Geräts in Wohngebieten kann es Störungen des Radio- und Fernsehempfangs verursachen. In diesem Fall muss der Benutzer alle notwendigen Maßnahmen ergreifen, die möglicherweise nötig sind, um die Störungen auf eigene Rechnung zu beheben.

 **Caution:**

PRECAUCIÓN

Este es un producto clase A. El uso de este equipo en áreas residenciales puede causar interferencias nocivas, en cuyo caso, se requerirá que los usuarios tomen cualquier medida necesaria para corregir la interferencia por cuenta propia.

 **Caution:**

CUIDADO

Este dispositivo é um produto Classe A. Operar este equipamento em uma área residencial provavelmente causará interferência prejudicial; neste caso, espera-se que os usuários tomem as medidas necessárias para corrigir a interferência por sua própria conta.



Caution:

ATTENZIONE

Questo dispositivo è un prodotto di Classe A. Il funzionamento di questo apparecchio in aree residenziali potrebbe causare interferenze dannose, nel cui caso agli utenti verrà richiesto di adottare tutte le misure necessarie per porre rimedio alle interferenze a proprie spese.

Electrostatic discharge caution statement

This section translates the electrostatic discharge caution message.



Electrostatic alert:

Risk of equipment damage

To prevent damage from electrostatic discharge, always wear an antistatic wrist strap connected to an ESD jack.



Electrostatic alert:

ATTENTION

Risque d'endommagement de l'équipement

To prevent damage from electrostatic discharge, always wear an antistatic wrist strap connected to an ESD jack.



Electrostatic alert:

ACHTUNG

Risiko eines Geräteschadens

Um Schäden durch elektrostatische Entladung zu verhindern, tragen Sie bei der Instandhaltung dieses Produkts immer ein antistatisches Band am Handgelenk, welches mit einer ESD-Buchse verbunden ist.



Electrostatic alert:

PRECAUCIÓN

Riesgo de daño del equipo

Para prevenir el daño producido por una descarga electrostática, use siempre una pulsera antiestática conectada a un enchufe ESD.

 **Electrostatic alert:**

CUIDADO

Risco de danos ao equipamento

Para evitar danos com descarga eletrostática, sempre use uma pulseira antiestática que esteja conectada a uma tomada ESD.

 **Electrostatic alert:**

ATTENZIONE

Rischio di danni all'apparecchiatura

Per evitare danni derivanti da scariche elettrostatiche, indossare sempre un polsino antistatico collegato a una presa ESD.

