

UNCLASSIFIED

**IDENTIFICATION OF VOLATILE
AND NON-VOLATILE STORAGE
AND
SANITIZATION OF SYSTEM
COMPONENTS**

**JUNIPER NETWORKS
SRX-SERIES
SRX240H**

**REVISION 2.0
May 12, 2011**

UNCLASSIFIED

TABLE OF CONTENTS

1 Introduction 1

 1.1 Purpose 1

 1.2 Scope 1

2 Equipment Overview..... 1

 2.1 Identification of Chassis..... 1

 2.2 Description of Components 2

 2.2.1 System Motherboard 3

 2.2.2 Physical Interface Module Slot 3

 2.2.3 Internal Power Supply Adapter (12V) 3

 2.2.4 Cooling Subsystem..... 4

3 Power Down and Removal of Non-Volatile Storage 4

 3.1 System Power Down 4

 3.2 Removal of the non-volatile storage devices from the System
Motherboard..... 5

 3.3 Removal of USB Storage from the Chassis..... 6

4 Encryption keys 6

TABLE OF FIGURES

Figure 2-1: SRX240H Chassis different views 2

Figure 3-1: Identification of volatile and non-volatile storage devices on
SRX240H..... 6

1 INTRODUCTION

1.1 Purpose

The purpose of this document is to provide direction to identify volatile and non-volatile storages and remove non-volatile (NV) storage from the Juniper Networks' Secure Services Gateway SRX240H security platform.

1.2 Scope

This document only addresses the SRX240H security platform. While other platforms offered by Juniper Networks may contain similar hardware components, this document only applies to the SRX240H. Furthermore, this document only provides direction for the identification and removal of NV storage components. It does not address destruction procedures for those components. As all of the NV storage components used in the SRX Series product family are commercial off-the-shelf (COTS) components, directions for destruction of those components are left to the governing Department, Agency, or Office.

2 EQUIPMENT OVERVIEW

2.1 Identification of Chassis

The SRX240H is a 1U chassis with 16 fixed 10/100/1000 Mbps, four front-facing mini Physical Interface Module (mPIM) slot for additional port capacity, and one rear-facing AC power inlet Jack for 100V-230V power. The chassis is fixed with system motherboard, with two front-facing Universal Serial Bus (USB) interfaces, internal NAND Flash, internal Dynamic Random Access Memory (DRAM), Boot flash chip, IDEEPROM and Renesas chips, which are soldered on the system motherboard. The volatile and non-volatile memories can not be accessed without removing the top cover of the chassis and these are soldered to the motherboard except the USB storage devices. Users are not advised to remove these internal memories unless they want to scrap the system. If the user wants to remove them, the user has to de-solder these chips.

The following pictures show the different views of SRX240H model:





Figure 2-1: SRX240H Chassis different views

2.2 Description of Components

The following major components are installed in the SRX240H chassis.

2.2.1 System Motherboard

The System Motherboard is the large printed circuit board located inside the chassis. The NAND flash, NOR Flash, IDEEPROM, Renesas and DRAM Chips are soldered directly to the motherboard (refer to the figure below). The System Motherboard also has the encryption acceleration chip and mPIM interface slot.

The SRX240H has the following non-volatile memory devices:

- Anti-counterfeit security chip's internal EEPROM (U16) – stores signature of the security chip. No user data is stored here.
- IDEEPROM (U33)– only used to store FRU identification data. No user data is stored here.
- Boot flash for Processor (U45) – stores the boot loader image for the Processor, no user data.
- NAND Flash (U44) – stores the JUNOS image and user data
- FPGA internal flash (U46) - stores FPGA image, no user data is stored.

In addition, the SRX240H has two USB ports, into which the user can install an external USB disk device to store core dumps, system configuration, software images, etc. The system does not store any user data onto storage devices attached to these ports.

All other components of the SRX240H are volatile, so they do not store any information after power is lost, following are the volatile memory present on SRX240H

- DDR2 DIMM memory (J3) – stores user data here
- Regex chip (U49)- stores user data here
- Processor Internal Cache memory and registers (U21) – stores operational data here

No other sub-components on the motherboard contain any storage elements, either volatile or non-volatile

2.2.2 Physical Interface Module Slot

The mPIM provides expanded input/output (I/O) capability for the SRX240H. There is a large variety of mPIMs available for the SRX Series family. Some of the mPIMs have volatile or/and non-volatile memories, but none of them contain any user data.

2.2.3 Internal Power Supply Adapter (12V)

The SRX240H uses the internal power supply adapter and the adapter contains no storage elements, either volatile or non-volatile.

2.2.4 Cooling Subsystem

The Cooling Subsystem consists of six fans. The Cooling Subsystem contains no storage elements, either volatile or non-volatile.

3 POWER DOWN AND REMOVAL OF NON-VOLATILE STORAGE

In order to ensure that no data remains resident on an SRX240H platform in volatile memory, power must be removed from the system to clear all volatile storage.

Normally, the user will not be able to destroy user data stored in non-volatile memory as non-volatile memory chips are soldered on system motherboard. However, if the user wants to destroy such data, the user needs to follow the steps below, but it is not advised unless the user wants to scrap the system.

1. The internal NAND flash must be removed from the motherboard by desoldering the chips. This is not advised unless the user wants to scrap the system.
2. All external USB storage devices must be removed from the chassis

A detailed process is included in the following sections.

3.1 System Power Down

The SRX240H should be powered down gracefully if time exists to do so. A graceful power down takes less than a minute to complete. To perform a graceful power down of an SRX platform, complete the following steps:

1. Execute the "request system power-off" command from the command line. Wait for positive feedback that the shutdown is complete. If connected via the console, you will see the message "The operating system has halted. Please press any key to reboot." If connected via Telnet or SSH, your session will be disconnected before the SRX completes the power down process. You can verify via the console or observe the LEDs on the front of the chassis. If monitoring the LEDs, ensure the Power LED is off (not solid on or flashing).
2. The user can power off the system via pressing and releasing the power button on front panel. This shuts down the system gracefully.
3. The user can power off the system by pressing the power button on the front panel for 10sec. The system will shut down immediately. The user can verify this via observing the Power LED. Please ensure the power LED is off.
4. Unplug the External power adapter cable from the SRX240H system.

An emergency power down of a JUNOS system can be performed by omitting step 1 and 2, simply performing step 3, and 4 in the process above. Note that an

emergency power down could possibly corrupt the operating system and configurations stored on the NV media. Once the system has been powered down, all volatile storage is clear.

3.2 Removal of the non-volatile storage devices from the System Motherboard

It is not advised that the user remove NAND storage devices which are soldered to the motherboard of the SRX240H. If the user wants to remove them, the user needs to follow the steps below after powering down the system motherboard.

1. If the SRX240H chassis is rack mounted, remove it from the rack and remove the rack mount bracket from the side of the unit using a #1 Phillips screw driver.
2. Attach an electrostatic discharge (ESD) grounding strap to your bare wrist and connect the strap to one of the ESD points on the working table. Make sure the SRX240H unit is attached to a proper earth ground.
3. Use a #1 Phillips screwdriver to remove the twelve screws that secure the cover to the top of the chassis. Four screws are located on the top of the cover along the rear of the chassis. The other eight are located at the sides of the chassis.
4. Lift the top cover upwards from the rear area of the chassis and drag it towards rear to remove it.
5. Unplug the fan connector from the header mounted on the mother board assembly.
6. Use a #2 Phillips screw driver to remove the fourteen screws that secure the motherboard assembly with chassis base.
7. Place the motherboard assembly on a smooth ESD surface. Identify the NAND flash (Reference Designator "U44", which is soldered on the top side of the motherboard.
8. De-solder the device from the mother board assembly.

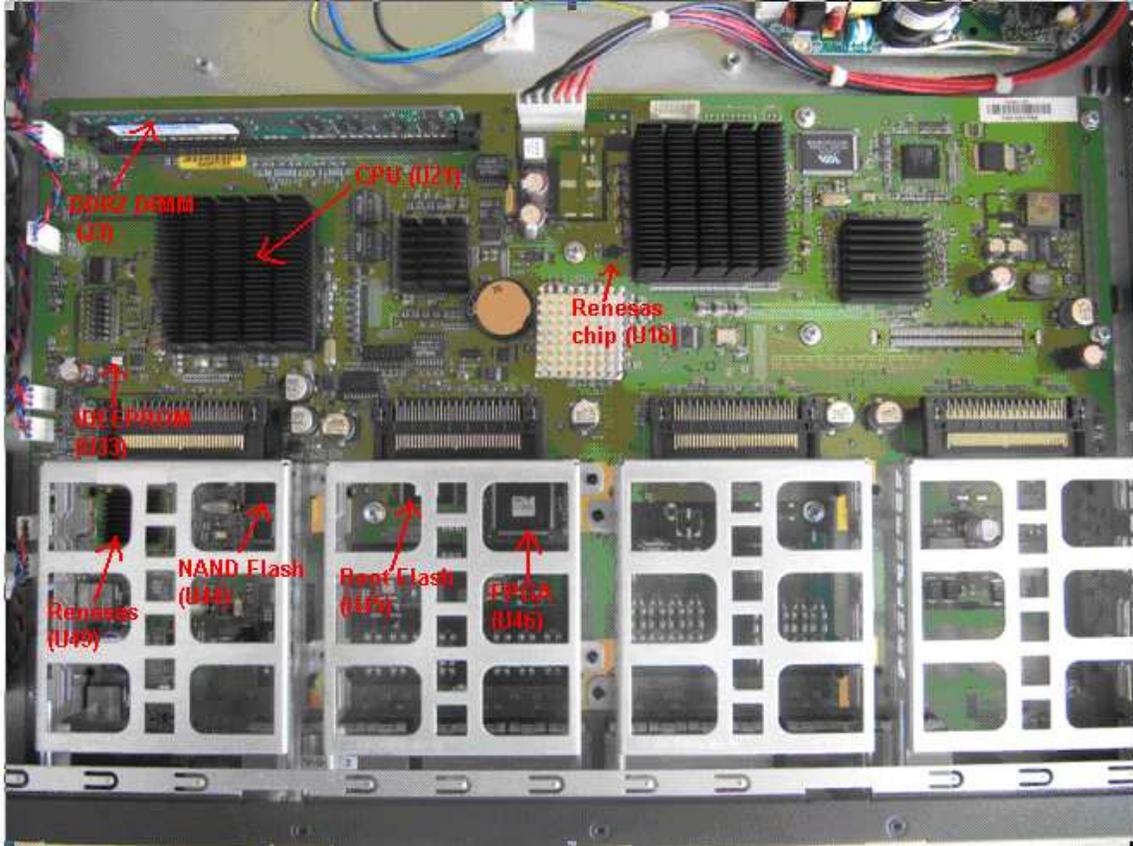


Figure 3-1: Identification of volatile and non-volatile storage devices on SRX240H

3.3 Removal of USB Storage from the Chassis

There are two USB interfaces on the front of the SRX240H chassis. They are labeled “0” and “1”, and are located directly to the right of the RJ45 ports. With the unit powered off, gently pull any attached media devices away from the SRX240H chassis to remove them.

This completes the sanitization process for the SRX240H.

4 ENCRYPTION KEYS

The Encryption Keys are stored in DRAM, when system is running, and will be lost after the system is powered off.