

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

**JUNIPER NETWORKS
EX4400-24X**

**REVISION 1.0
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1 INTRODUCTION

1.1 Purpose

This document outlines the process for identifying, sanitizing, and removing non-volatile (NV) storage from the Juniper Networks EX4400-24X platform. Non-volatile storage is a type of memory that retains data even when the system is not powered, while volatile storage only retains data while the system is powered. The purpose of this document is to provide guidance for the non-volatile storage components.

1.2 Scope

This document only applies to the Juniper Networks EX4400-24X platform and provides guidance for identifying, sanitizing, non-volatile storage components in these devices. It does not provide instructions for destroying the components, which should be determined by the governing department, agency, or office.

2 EQUIPMENT OVERVIEW

2.1 Identification of Chassis

The Juniper Networks EX4400 Ethernet Switch is a high-density switch designed for use in small, medium, and large campus and branch offices. It features 24 10-Gigabit Ethernet ports and 2 100-Gigabit Ethernet ports. The switch runs Junos OS, providing both layer 2 and layer 3 switching services. The EX4400-24X is designed to fit in a standard 19" rack and is equipped with 10Gbps Ethernet network ports.



Figure 2-1: EX4400-24X

2.2 Description of Field Replaceable Units (FRU)

The power supply, fan tray, extension modules and transceivers in the Juniper Networks EX4400 Ethernet Switch are hot-swappable, which means they can be removed and replaced without shutting down the system or disrupting its functions. This provides flexibility and ease of maintenance for the device.

3 NON-VOLATILE MEMORIES

This section of the document is focused on identifying all the memory components in the Juniper Networks EX4400-24X system.

CPU Board

The table below identifies all the memory locations on the CPU board.

CPU Board						
Type of Memory	Size	Reference Designat or	Volatile/Non-Volatile	Removable Memory	Function	Sanitization Procedure
ID EEPROM	2Kb	U8	Non-Volatile	No	CPU board Information	NA
SPI Flash Primary & Secondary	16MB	U2056 U2057	Non-Volatile	No	BIOS	NA
RECPLD	NA	U2063	Non-Volatile	No	CPLD config memory	NA
Back-up Flash	2Mb	U2001	Non-Volatile	No	CPLD config memory	NA
DDR4 memory	4GB	J9	Volatile	Yes	Processor main memory	Remove Power
eMMC (System storage) –	20GB	U4	Non-Volatile	No	OS & stores user data	Secure erase

Main Board

The table below identifies all the memory locations on the Main board.

Main Board						
Type of Memory	Size	Reference Designator	Volatile/N on-Volatile	Remova ble Memory	Function	Sanitization Procedure
ID EEPROM	2Kb	U28	Non-Volatile	No	Switch board Information	NA
System CPLD	NA	U10	Non-Volatile	No	CPLD config memory	NA
Back-up Flash	2Mb	U29	Non-Volatile	No	CPLD config memory	NA
TD3 PCIe Flash memory	512Mb	U41	Non-Volatile	No	MAC device config	NA
NIC configuration Flash	2Kb	U40	Non-Volatile	No	NIC Device config	NA

Annexure of the document will include a detailed process to locate non-volatile storage components in the Juniper Networks EX4400-24X system

4 CHASSIS POWER DOWN, SANITIZATION PROCESS

To ensure that all user data and system configurations are removed from the Juniper Networks EX4400-24X platform, the following steps must be taken.

1. The eMMC Chip must be sanitized in accordance with instructions provided in the document.
2. Power must be removed from the system to clear all volatile storage. This can be done by disconnecting the power cards from the power supply.

These steps will ensure that all user data and system configurations are securely removed from the platform.

4.1 eMMC Drive Sanitization process and associated Junos commands.

Use SW secure erase command for the specified device [eMMC (System storage)] as specified in CPU Board table above!

Here is required cli command-

- request system zeroize media – removes config and other sensitive user data.

The command “request system zeroize media” is used to erase all user data, including configuration, and log files on a Juniper network device. It is important to note that the system will reboot twice to complete the zeroizing process.

Example log:

```
root> request system zeroize media
```

```
warning: System will be rebooted and may not boot without configuration.  
Erase all data, including configuration and log files? In the case of Dual RE  
system, both Routing Engines will be zeroized [yes, no] (no) yes.
```

5 ANNEXURE

5.1 System Power Down

To Power down the Juniper Networks EX4400-24X system, the first step is to remove any connected power cords from the power supply. This will shut down the system and ensure that all electrical power to the device is discontinued.

5.2 Disassembly of the EX4400-24X Chassis and Identification of NV storage

The non-volatile storage in the Juniper Networks EX4400-24X can be accessed by removing the ear mounts, power supply, blank PSU, and fan modules. The blank PSU is unfastened by captive screws, unlatched, and pulled out of the chassis. The non-volatile storage component is soldered to the system board and located at location U4.



Figure 5-1: PSU FRUs, FAN FRUs

To remove the top cover and locate non-volatile memory eMMC(U4) of the Juniper Networks EX4400-24X, follow these steps:

1. Remove twelve screws on top side of the device (Figure 5-2).

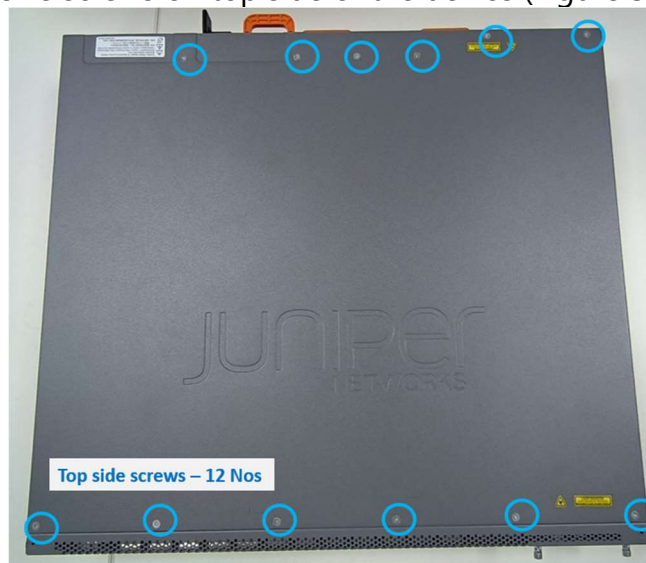


Figure 5-2: Top cover screws

Letter of Volatility EX4400-24X

2. Remove six screws on both left and right sides of the top cover (Figure 5-3)



Side screws



Side screws

Figure 5-3: Side screws of Top Cover

3. Locate Volatile memory DIMM on the CPU Board (Figure 5-4)

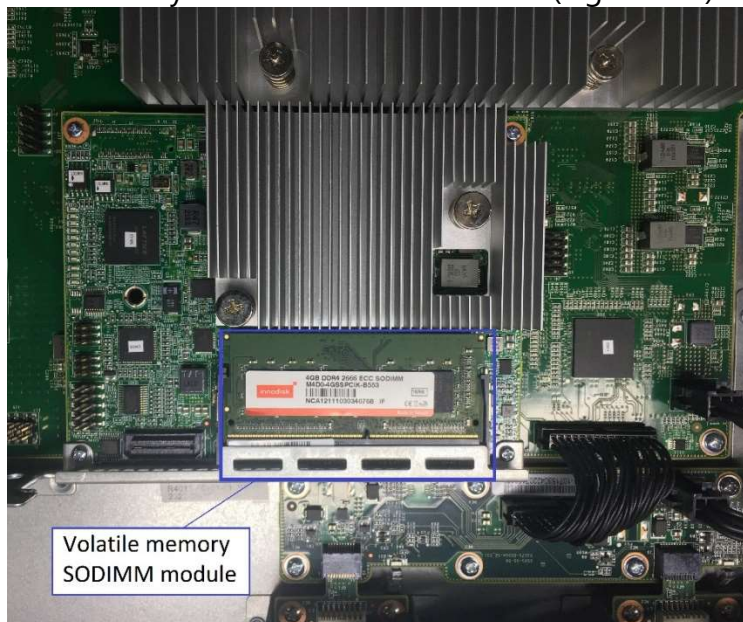


Figure 5-4: Locate SODIMM

Letter of Volatility EX4400-24X

4. Locate Non-volatile storage U4 eMMC, soldered to the CPU board (Figure 5-5)



Figure 5-5: Locate NV storage (eMMC)

Follow the assembly procedure in reverse order to assemble the EX4400-24X Chassis.