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# **JUNIPER EX SERIES SWITCHES SECURITY TECHNICAL IMPLEMENTATION GUIDE (STIG) OVERVIEW**

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**Developed by Juniper Networks and DISA for the DOD**

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## 1. INTRODUCTION

### 1.1 Executive Summary

The Juniper EX Series Switches Security Technical Implementation Guide (STIG) provides security policy and technical configuration requirements for the use of the Juniper EX range of L3 Ethernet switches in the Department of Defense (DOD). The Juniper EX STIG comprises the following individual STIGs:

- Juniper EX Network Device Management (NDM) STIG.
- Juniper EX Layer 2 (L2) Switch STIG.
- Juniper EX Router STIG.

The Juniper EX switches use the Junos operating system (OS), which provides a policy framework that is a collection of Junos OS policies that allows a user to control flows of routing information and packets. All platforms share a common design architecture consisting of a Routing Engine (RE) and a Packet Forwarding Engine (PFE). Juniper EX portfolio is a range of L3 Ethernet switches that can be deployed in various ways to build wired Ethernet local area networks.

Hardware ranges from small, inexpensive, fixed configuration devices to large chassis-based devices. Interfaces depend on the model but range from 10/100/1000 Mbps and 2.5G/5G/10G copper and 1G through 100G Optical SFP. All devices have a local RJ-45 console port and an out-of-band Ethernet port for out-of-band management and can be managed in-band via a management virtual local area network (VLAN). Management is via the Junos OS Command Line Interface (CLI) and optionally for some devices, a web-based graphical user interface (GUI) or a Juniper management appliance. Remote management is via SSHv2 (i.e., CLI) or monitoring via Simple Network Management Protocol (SNMPv3). Junos will not allow configuration changes via SNMPv3. Although a web UI exists for Junos OS, it does not meet DOD trust requirements; thus, use is not permitted.

### 1.2 Authority

Department of Defense Instruction (DODI) 8500.01 requires that “all IT [information technology] that receives, processes, stores, displays, or transmits DOD information will be [...] configured [...] consistent with applicable DOD cybersecurity policies, standards, and architectures.” The instruction tasks that DISA “develops and maintains control correlation identifiers (CCIs), security requirements guides (SRGs), security technical implementation guides (STIGs), and mobile code risk categories and usage guides that implement and are consistent with DOD cybersecurity policies, standards, architectures, security controls, and validation procedures, with the support of the NSA/CSS [National Security Agency/Central Security Service], using input from stakeholders, and using automation whenever possible.” This document is provided under the authority of DODI 8500.01.

Although the use of the principles and guidelines in these SRGs/STIGs provides an environment that contributes to the security requirements of DOD systems, applicable NIST SP 800-53 cybersecurity controls must be applied to all systems and architectures based on the Committee on National Security Systems (CNSS) Instruction (CNSSI) 1253.

### 1.3 Vulnerability Severity Category Code Definitions

Severity Category Codes (referred to as CAT) are a measure of vulnerabilities used to assess a facility or system security posture. Each security policy specified in this document is assigned a Severity Category Code of CAT I, II, or III.

**Table 1-1: Vulnerability Severity Category Code Definitions**

| Category | DISA Category Code Guidelines  |
|----------|--|
| CAT I    | Any vulnerability, the exploitation of which will <b>directly and immediately</b> result in loss of Confidentiality, Availability, or Integrity. |
| CAT II   | Any vulnerability, the exploitation of which <b>has a potential</b> to result in loss of Confidentiality, Availability, or Integrity.            |
| CAT III  | Any vulnerability, the existence of which <b>degrades measures</b> to protect against loss of Confidentiality, Availability, or Integrity.       |

### 1.4 STIG Distribution

Parties within the DOD and federal government's computing environments can obtain the applicable STIG from the DOD Cyber Exchange website at <https://cyber.mil/>. This site contains the latest copies of STIGs, SRGs, and other related security information. Those without a Common Access Card (CAC) that has DOD Certificates can obtain the STIG from <https://public.cyber.mil/>.

### 1.5 SRG Compliance Reporting

All technical NIST SP 800-53 requirements were considered while developing this STIG. Requirements that are applicable and configurable will be included in the final STIG. A report marked Controlled Unclassified Information (CUI) will be available for items that did not meet requirements. This report will be available to component authorizing official (AO) personnel for risk assessment purposes by request via email to: [disa.stig\\_spt@mail.mil](mailto:disa.stig_spt@mail.mil).

### 1.6 Document Revisions

Comments or proposed revisions to this document should be sent via email to the following address: [disa.stig\\_spt@mail.mil](mailto:disa.stig_spt@mail.mil). DISA will coordinate all change requests with the relevant DOD organizations before inclusion in this document. Approved changes will be made in accordance with the DISA maintenance release schedule.

### 1.7 Other Considerations

DISA accepts no liability for the consequences of applying specific configuration settings made on the basis of the SRGs/STIGs. It must be noted that the configuration settings specified should be evaluated in a local, representative test environment before implementation in a production

environment, especially within large user populations. The extensive variety of environments makes it impossible to test these configuration settings for all potential software configurations.

For some production environments, failure to test before implementation may lead to a loss of required functionality. Evaluating the risks and benefits to a system's particular circumstances and requirements is the system owner's responsibility. The evaluated risks resulting from not applying specified configuration settings must be approved by the responsible AO. Furthermore, DISA implies no warranty that the application of all specified configurations will make a system 100 percent secure.

Security guidance is provided for the DOD. While other agencies and organizations are free to use it, care must be given to ensure that all applicable security guidance is applied at both the device hardening level and the architectural level due to the fact that some settings may not be configurable in environments outside the DOD architecture.

## 1.8 Product Approval Disclaimer

The existence of a STIG does not equate to DOD approval for the procurement or use of a product.

STIGs provide configurable operational security guidance for products being used by the DOD. STIGs, along with vendor confidential documentation, also provide a basis for assessing compliance with cybersecurity controls/control enhancements, which supports system assessment and authorization (A&A) under the DOD Risk Management Framework (RMF). DOD AOs may request available vendor confidential documentation for a product that has a STIG for product evaluation and RMF purposes from [disa.stig\\_spt@mail.mil](mailto:disa.stig_spt@mail.mil). This documentation is not published for general access to protect the vendor's proprietary information.

AOs have the purview to determine product use/approval in accordance with (IAW) DOD policy and through RMF risk acceptance. Inputs into acquisition or pre-acquisition product selection include such processes as:

- National Information Assurance Partnership (NIAP) evaluation for National Security Systems (NSS) (<https://www.niap-ccevs.org/>) IAW CNSSP #11.
- National Institute of Standards and Technology (NIST) Cryptographic Module Validation Program (CMVP) (<https://csrc.nist.gov/groups/STM/cmvp/>) IAW Federal/DOD mandated standards.
- DOD Unified Capabilities (UC) Approved Products List (APL) (<https://www.disa.mil/network-services/ucco>) IAW DODI 8100.04.

## **2. ASSESSMENT CONSIDERATIONS**

### **2.1 Security Assessment Information**

A security assessment of the Juniper EX switch must consist of a security review of both the RE and the PFE services functions. The minimum required documents are the Juniper EX NDM, the Juniper EX L2 Switch, and the Juniper EX Router STIGs.