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VIRTUAL PRIVATE NETWORK (VPN) SECURITY REQUIREMENTS GUIDE (SRG) OVERVIEW

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1. INTRODUCTION

1.1 Executive Summary

DOD mandates Virtual Private Network (VPN) technologies to protect sensitive or higher traffic for remote communications over untrusted networks and for internal network management traffic. This VPN Security Requirements Guide (SRG) is required for all sites that allow users and devices to access DOD networks remotely. It includes site-to-site VPNs and VPNs used for out-of-band communications. It addresses secure use of the remote access and site-to-site VPN protocols. It does not cover Multiprotocol Label Switching (MPLS) because it is used as a backbone VPN protocol in DOD. Coverage for MPLS is in the backbone and enterprise-level STIGs.

A VPN is a service that offers secure, reliable connectivity over a shared public network infrastructure such as the internet. DOD STIGs divide VPN technology into two basic types, remote access VPN and site-to-site VPN. Remote access VPNs use a client-to-host VPN architecture, whereby a client installed on a single host connects to a single server using an encrypted tunneling protocol or suite of protocols.

Remote access VPN Protocols include Internet Protocol Security or IPsec, Layer 2 Tunneling Protocol (L2TP), Point-to-Point Tunneling Protocol (PPTP), Secure Sockets Layer (SSL) and Transport Layer Security (TLS), OpenVPN with FIPS-compliant libraries, and Secure Hash Algorithm (SHA), rather than MD5.

Site-to-Site VPN technology connects two networks together across an untrusted network. Typically, in DOD, these use the IPsec protocol.

The VPN Gateway must use IPsec or TLS to protect message externals. Protecting message externals provides protection against unauthorized disclosure of information. Message externals include, for example, message headers and routing information. This information is sometimes transmitted unencrypted because the information is not properly identified by organizations as having significant value or because encrypting the information can result in lower network performance and/or higher costs.

Note that DOD requires that all traffic flow through the IAP. Site-to-site VPN with non-DOD domains must comply with the PPSM and have DSAWG approval to operate.

1.1.1 Security Requirements Guides (SRGs)

Security Requirements Guides are collections of requirements applicable to a given technology family. They represent an intermediate step between Control Correlation Identifiers (CCIs) and Security Technical Implementation Guides (STIGs). CCIs represent discrete, measurable, and actionable items sourced from Information Assurance (IA) controls defined in a policy, such as the National Institute of Standards and Technology (NIST) Special Publication (SP) 800-53. STIGs provide product-specific information for validating and attaining compliance with requirements defined in the SRG for that product's technology area.

There are four core SRGs: Application, Network, Operating System, and Policy. Each addresses the applicable CCIs in the context of the technology family. Subordinate to the core SRGs, there are Technology SRGs developed to address the technologies at a more granular level.

This VPN SRG is based on the Network SRG. This VPN SRG contains general check and fix information that can be utilized for products for which STIGs do not exist.

The STIGs based on this SRG will provide the product-specific technical implementation guidance for that product. The STIG will contain the specific check and fix information for the product it covers.

SRG Hierarchy example:

```
Application SRG
|__Database SRG
    |__MS SQL Server 2005 STIG
```

The SRG relationship and structure provides the ability to identify requirements that may be considered not applicable for a given technology family and provide appropriate justification. It also provides the structure to identify variations in specific values based on the technology family. These variations will be captured once and will propagate down to the Technology SRGs and then to the STIGs. This will eliminate the need for each product-specific STIG to address items that are not applicable.

1.1.2 SRG Naming Standards

In an effort to establish consistency across the SRGs, a naming standard for the Group Title and STIGIDs has been established.

Technology SRG Naming Standards

For Technology SRG Group Title and STIGIDs the following applies:

{Core SRG value}-{Technology SRG}-{5- or 6-digit numeric sequence number}

Examples:

```
SRG-NET-000001-RTR-000001
SRG-APP-000001-COL-000001
SRG-NET-000001-VVSM-00001
SRG-OS-000001-UNIX-000001
```

Checks/fixes will be included at this level in a general form. These checks and fixes will apply for any STIGs that are created for products that do not have product-specific check and fix guidance.

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.

1.2.1 Relationship to STIGs

The SRG defines the requirements for various technology families, and the STIGs are the technical implementation guidelines for specific products. A single SRG/STIG is not all-inclusive for a given system, which may include but is not limited to Database, Web Server, and Domain Name System (DNS) SRGs/STIGs. For a given system, compliance with all (multiple) SRGs/STIGs applicable to a system is required.

1.2.2 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 directly and immediately result in loss of Confidentiality, Availability, or Integrity.
CAT II	Any vulnerability, the exploitation of which has a potential to result in loss of Confidentiality, Availability, or Integrity.
CAT III	Any vulnerability, the existence of which degrades measures to protect against loss of Confidentiality, Availability, or Integrity.

1.3 SRG and 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/>.

1.4 Document Revisions

Comments or proposed revisions to this document should be sent via email to the following address: 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.

1.5 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.

1.6 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). Department of Defense 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. 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 NIST SP 800-53 Requirements

All applicable baseline technical NIST SP 800-53 requirements and security best practice requirements are included in this SRG.

CNSSI 1253 defines the required controls for DOD systems based on confidentiality, integrity, and availability (baseline) of the given information system. In all cases, CNSSI 1253, along with required baselines, will serve as the policy requirement for any given asset or information system.

2.2 General Procedures

This SRG has procedures that are intended to provide appropriate evaluation and remediation functions for a typically configured system. These procedures are not product specific and are intended for use when a product-specific STIG is not available.

2.3 Security Assessment Information

If the product being reviewed is configured for multiple roles in the architecture (e.g., router, switch, firewall, Intrusion Detection and Prevention Systems [IDPS]) a complete security assessment requires assessing all roles used in the specific DOD implementation using the applicable SRG for that role.

A security assessment of a VPN must consist of a security review of both the management plane and remote traffic functions. Thus, the minimum required documents must also include the Network Device Management (NDM) and the VPN SRG.

The requirements in the VPN SRG address all components, including the VPN Gateway (also called the server, concentrator, or appliance) and VPN client or endpoint. Most requirements begin with “The VPN Gateway must,” which indicates that the requirement applies to both the remote access type of gateway and the site-to-site gateway. If the requirement applies only to one type of gateway, this is specified in the requirement. Some requirements specify the client or endpoint.