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MICROSOFT SQL SERVER 2022 SECURITY TECHNICAL IMPLEMENTATION GUIDE (STIG) OVERVIEW

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Developed by DISA for the DOD

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1. INTRODUCTION

1.1 Executive Summary

The Microsoft SQL Server 2022 Security Technical Implementation Guide (STIG) is published as a tool to improve the security of Department of Defense (DOD) information systems.

The Microsoft SQL Server 2022 STIG is published as two documents, one covering individual databases and the other addressing the database management system (DBMS) instance. The STIG provides the technical security requirements and implementation details for applying security concepts to Microsoft SQL Server 2022. This SQL Server 2022 STIG contains the following STIGs:

- Microsoft SQL Server 2022 Instance STIG.
- Microsoft SQL Server 2022 Database STIG.

This document is meant to be used in conjunction with the Windows (Operating System) STIG, Network STIGs, and other STIGs as applicable to the database host environment. It is based on the Database Security Requirements Guide (SRG), which in turn derives its cybersecurity controls from National Institute of Standards and Technology (NIST) Special Publication (SP) 800-53.

In the Microsoft SQL Server domain, a “database” (often abbreviated as DB) is a logical collection of data stored in files and managed not by the operating system alone but by the DBMS. Multiple databases may exist under one DBMS instance. At least four system databases always support an instance, and usually one database (possibly more) supports an application.

In the Microsoft SQL Server domain, an “instance” is an installed, operational copy of the DBMS software. Although multiple SQL Server instances can coexist on a Windows server, it is customary in a production environment for a single instance to be deployed on a dedicated server.

Microsoft SQL Server is a relational database management system (RDBMS). Applications and tools connect to a SQL Server instance or database and communicate using Transact-SQL (T-SQL).

This STIG requires that the product be deployed on a FIPS-compliant, cryptography-enabled operating system found in the [Cryptographic Module Validation Program](#) or by other means ensure that the DPMS uses FIPS 140-2 or FIPS 140-3 certified OpenSSL libraries.

1.2 Authority

Department of Defense Instruction (DODI) 8500.01 requires that “all IT 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 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. |

1.4 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.

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. 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). 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.

2. ASSESSMENT CONSIDERATIONS

2.1 Security Assessment Information

While the STIG contents are classified as manual guidance, many Checks and Fixes include sample and/or actual code for executing the Checks and Fixes.

This guidance is but one component of a robust defense-in-depth strategy. As noted above, it is to be used along with the applicable Operating System and Network STIGs to provide comprehensive coverage of pertinent vulnerabilities. It is also necessary to train administrative and general users in the importance of good security practices.