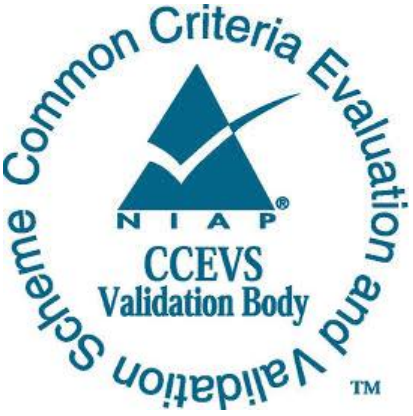
National Information Assurance Partnership

Common Criteria Evaluation and Validation Scheme



Validation Report

Shift5, Inc. Software Full Drive Encryption

Report Number: **CCEVS-VR-VID11628-2025**
Dated: **October 31, 2025**
Version: **1.0**

National Institute of Standards and Technology
Information Technology Laboratory
100 Bureau Drive
Gaithersburg, MD 20899

Department of Defense
ATTN: NIAP, Suite 6982
9800 Savage Road
Fort Meade, MD 20755-6982

ACKNOWLEDGEMENTS

Validation Team

Jerome Myers, Ph.D.
Meredith Martinez
Mike Quintos
The Aerospace Corporation

Common Criteria Testing Laboratory

Matai Spivey
Gossamer Security Solutions, Inc.
Columbia, MD

Table of Contents

1 Executive Summary

This report documents the assessment of the National Information Assurance Partnership (NIAP) validation team of the evaluation of Shift5, Inc. Software Full Drive Encryption solution provided by Shift5, Inc. It presents the evaluation results, their justifications, and the conformance results. This Validation Report is not an endorsement of the Target of Evaluation by any agency of the U.S. government, and no warranty is either expressed or implied.

The evaluation was performed by the Gossamer Security Solutions (Gossamer) Common Criteria Testing Laboratory (CCTL) in Columbia, MD, United States of America, and was completed in October 2025. The information in this report is largely derived from the Evaluation Technical Report (ETR) and associated test reports, all written by Gossamer Security Solutions. The evaluation determined that the product is both Common Criteria Part 2 Extended and Part 3 Conformant, and meets the assurance requirements of the collaborative Protection Profile for Full Drive Encryption Authorization Acquisition, Version 2.0 + Errata 20190201, February 1, 2019 (FDEAAcPP20E), and collaborative Protection Profile for Full Drive Encryption - Encryption Engine, Version 2.0 + Errata 20190201, February 1, 2019 (FDEEEcPP20E).

The Target of Evaluation (TOE) is the Shift5, Inc. Software Full Drive Encryption version 1.2.3.

The Target of Evaluation (TOE) identified in this Validation Report has been evaluated at a NIAP approved Common Criteria Testing Laboratory using the Common Methodology for IT Security Evaluation (Version 3.1, Rev 5) for conformance to the Common Criteria for IT Security Evaluation (Version 3.1, Rev 5). This Validation Report applies only to the specific version of the TOE as evaluated. The evaluation has been conducted in accordance with the provisions of the NIAP Common Criteria Evaluation and Validation Scheme and the conclusions of the testing laboratory in the evaluation technical report are consistent with the evidence provided.

The validation team monitored the activities of the evaluation team, provided guidance on technical issues and evaluation processes, and reviewed the individual work units and successive versions of the ETR. The validation team found that the evaluation showed that the product satisfies all of the functional requirements and assurance requirements stated in the Security Target (ST). Therefore, the validation team concludes that the testing laboratory's findings are accurate, the conclusions justified, and the conformance results are correct. The conclusions of the testing laboratory in the evaluation technical report are consistent with the evidence produced.

The technical information included in this report was obtained from the Shift5, Inc. Software Full Drive Encryption Security Target, Version 0.3, September 24, 2025 and analysis performed by the Validation Team.

2 Identification

The CCEVS is a joint National Security Agency (NSA) and National Institute of Standards and Technology (NIST) effort to establish commercial facilities to perform trusted product evaluations. Under this program, security evaluations are conducted by commercial testing laboratories called Common Criteria Testing Laboratories (CCTLs) using the Common Evaluation Methodology (CEM) in accordance with National Voluntary Laboratory Assessment Program (NVLAP) accreditation.

The NIAP Validation Body assigns Validators to monitor the CCTLs to ensure quality and consistency across evaluations. Developers of information technology products desiring a security evaluation contract with a CCTL and pay a fee for their product's evaluation. Upon successful completion of the evaluation, the product is added to NIAP's Validated Products List.

Table 1 provides information needed to completely identify the product, including:

- The Target of Evaluation (TOE): the fully qualified identifier of the product as evaluated.
- The Security Target (ST), describing the security features, claims, and assurances of the product.
- The conformance result of the evaluation.
- The Protection Profile to which the product is conformant.
- The organizations and individuals participating in the evaluation.

Table 1: Evaluation Identifiers

Item	Identifier
Evaluation Scheme	United States NIAP Common Criteria Evaluation and Validation Scheme
TOE	Shift5, Inc. Software Full Drive Encryption version 1.2.3
Protection Profile	• collaborative Protection Profile for Full Drive Encryption Authorization Acquisition, Version 2.0 + Errata 20190201, February 1, 2019 (FDEAAcPP20E) • collaborative Protection Profile for Full Drive Encryption - Encryption Engine, Version 2.0 + Errata 20190201, February 1, 2019 (FDEEEcPP20E)
ST	Shift5, Inc. Software Full Drive Encryption Security Target, Version 0.3, September 24, 2025
Evaluation Technical Report	Evaluation Technical Report for Shift5, Inc. Software Full Drive Encryption, Version 0.3, October 29, 2025
CC Version	Common Criteria for Information Technology Security Evaluation, Version 3.1, rev 5
Conformance Result	CC Part 2 extended, CC Part 3 extended
Sponsor	Shift5, Inc.
Developer	Shift5, Inc.
Common Criteria Testing Lab (CCTL)	Gossamer Security Solutions, Inc. Columbia, MD
CCEVS Validators	Jerome Myers, Ph.D., Meredith Martinez, Mike Quintos

3 Architectural Information

Note: The following architectural description is based on the description presented in the Security Target.

The TOE provides software Full Drive Encryption of removable drives within the computing system in which it operates.

For the purposes of evaluation, the TOE was tested running on a Shift5 Manifold hardware (which possesses an Intel Atom C3708 CPU and runs the SUSE Linux Micro 6.0 operating system [which includes a 6.11.3 Linux kernel and OpenSSL 3.5.1 with FIPS Provider 3.1.2]).

3.1 TOE Description

The Shift5 SW FDE is a software package that Shift5 integrates into its software images running on their Manifold product line. These products possess a computing system running SUSE Linux Micro 6.0. The Product provides full drive encryption of its removable USB data drive and accepts an administratively provided passphrase to unlock the drive. After receiving the passphrase (the authorization factor), the Product validates the passphrase, and if correct, utilizes it to decrypt the Data Encryption Key ultimately used to encrypt/decrypt derive the data on the removable drive. The Product also uses its SW FDE to additionally encrypt/protect the system/boot drive within the Manifold; however, this application of the FDE does not comply with the FDE protection profile requirements as the Manifold uses its TPM to unlock at boot—as opposed to using an administratively supplied password at each boot. As a result, this evaluation focuses on the FDE protection of the removable drive.

3.2 TOE Evaluated Platforms

Details regarding the evaluated configuration is provided in Section 8 below.

3.3 TOE Architecture

The Product is a locally managed system that provides FDE protection for persistent data stored to a removable drive.

3.4 Physical Boundaries

The TOE is software, but inherits the physical perimeter of the Manifold computing platform upon which it executes.

4 Security Policy

This section summaries the security functionality of the TOE:

1. Cryptographic support

2. User data protection
3. Security management
4. Protection of the TSF

4.1 Cryptographic support

The TOE includes cryptographic functionality for key management, user authentication, and block-based encryption including: symmetric key generation, encryption/decryption, cryptographic hashing, keyed-hash message authentication, and password-based key derivation. These functions are supported with suitable random bit generation, key derivation, salt generation, initialization vector generation, secure key storage, and key destruction. These primitive cryptographic functions are used to encrypt Data-At-Rest (including the generation and protection of keys and key encryption keys) used by the TOE.

4.2 User data protection

The TOE performs Full Drive Encryption on all partitions on the removable drive (so that no plaintext exists) and does so without user intervention.

4.3 Security management

The TOE provides each of required management services to manage the full drive encryption using a locally accessed Web User Interface (WebUI).

4.4 Protection of the TSF

The TOE implements a number of features to protect itself to ensure the reliability and integrity of its security features. It protects key and key material, and includes functions to perform self-tests and software/firmware integrity checking so that it might detect when it is failing or may be corrupt. If any of the self-tests fail, the TOE will not go into an operational mode.

5 Assumptions & Clarification of Scope

Assumptions
The Security Problem Definition, including the assumptions, may be found in the following documents:

- collaborative Protection Profile for Full Drive Encryption Authorization Acquisition, Version 2.0 + Errata 20190201, February 1, 2019 (FDEAAcPP20E)
- collaborative Protection Profile for Full Drive Encryption - Encryption Engine, Version 2.0 + Errata 20190201, February 1, 2019 (FDEEEcPP20E)

That information has not been reproduced here and the FDEAAcPP20E/FDEEEcPP20E should be consulted if there is interest in that material.

The scope of this evaluation was limited to the functionality and assurances covered in the FDEAAcPP20E/FDEEEcPP20E as described for this TOE in the Security Target. Other

functionality included in the product was not assessed as part of this evaluation. All other functionality provided by the devices needs to be assessed separately, and no further conclusions can be drawn about their effectiveness.

Clarification of scope

All evaluations (and all products) have limitations, as well as potential misconceptions that need clarification. This text covers some of the more important limitations and clarifications of this evaluation. Note that:

- As with any evaluation, this evaluation only shows that the evaluated configuration meets the security claims made with a certain level of assurance (the assurance activities specified in the Full Drive Encryption Protection Profiles and performed by the evaluation team).
- This evaluation covers only the specific device models and software as identified in this document, and not any earlier or later versions released or in process.
- Apart from the Admin Guide, additional customer documentation for the specific Full Drive Encryption models was not included in the scope of the evaluation and therefore should not to be relied upon when configuring or operating the device as evaluated.
- This evaluation did not specifically search for, nor attempt to exploit, vulnerabilities that were not "obvious" or vulnerabilities to objectives not claimed in the ST. The CEM defines an "obvious" vulnerability as one that is easily exploited with a minimum of understanding of the TOE, technical sophistication and resources.
- The functionality evaluated is scoped exclusively to the security functional requirements specified in the FDEAAcPP20E/FDEEEcPP20E and applicable Technical Decisions. Any additional security related functional capabilities of the TOE were not covered by this evaluation.

6 Documentation

The following documents were available with the TOE for evaluation:

- Shift5 – Full Disk Encryption (FDE) Administrator Guidance Document, August 19, 2025

Any additional customer documentation provided with the product, or that is available online was not included in the scope of the evaluation and therefore should not to be relied upon when configuring or operating the device as evaluated.

To use the product in the evaluated configuration, the product must be configured as specified in the Guidance Documentation listed above. Consumers are encouraged to download the configuration guides from the NIAP website to ensure the device is configured as evaluated.

7 IT Product Testing

This section describes the testing efforts of the developer and the Evaluation Team. It is derived from information contained in the proprietary Detailed Test Report for Shift5, Inc. Software

Full Drive Encryption, Version 0.3, October 29, 2025 (DTR), as summarized in the evaluation Assurance Activity Report (AAR).

7.1 Developer Testing

No evidence of developer testing is required in the assurance activities for this product.

7.2 Evaluation Team Independent Testing

The evaluation team verified the product according to a Common Criteria Certification document and ran the tests specified in the FDEAAcPP20E/FDEEEcPP20E including the tests associated with optional requirements. Section 1 of the AAR identifies the tested device, and a diagram of the test environment with a list of test tools is provided in Section 3.4.

8 Results of the Evaluation

The results of the assurance requirements are generally described in this section and are presented in detail in the proprietary ETR. The reader of this document can assume that all assurance activities and work units received a passing verdict.

A verdict for an assurance component is determined by the resulting verdicts assigned to the corresponding evaluator action elements. The evaluation was conducted based upon CC version 3.1 rev 5 and CEM version 3.1 rev 5. The evaluation determined the Shift5, Inc. Software Full Drive Encryption TOE to be Part 2 extended, and to meet the SARs contained in the FDEAAcPP20E/FDEEEcPP20E.

8.1 Evaluation of the Security Target (ASE)

The evaluation team applied each ASE CEM work unit. The ST evaluation ensured the ST contains a description of the environment in terms of policies and assumptions, a statement of security requirements claimed to be met by the Shift5, Inc. Software Full Drive Encryption products that are consistent with the Common Criteria, and product security function descriptions that support the requirements.

The validator reviewed the work of the evaluation team, and found that sufficient evidence and justification was provided by the evaluation team to confirm that the evaluation was conducted in accordance with the requirements of the CEM, and that the conclusion reached by the evaluation team was justified.

8.2 Evaluation of the Development (ADV)

The evaluation team applied each ADV CEM work unit. The evaluation team assessed the design documentation and found it adequate to aid in understanding how the TSF provides the security functions. The design documentation consists of a functional specification contained in the Security Target and Guidance documents. Additionally the evaluator performed the assurance activities specified in the FDEAAcPP20E/FDEEEcPP20E related to the examination of the information contained in the TSS.

The validator reviewed the work of the evaluation team, and found that sufficient evidence and justification was provided by the evaluation team to confirm that the evaluation was conducted in accordance with the requirements of the CEM, and that the conclusion reached by the evaluation team was justified.

8.3 Evaluation of the Guidance Documents (AGD)

The evaluation team applied each AGD CEM work unit. The evaluation team ensured the adequacy of the user guidance in describing how to use the operational TOE. Additionally, the evaluation team ensured the adequacy of the administrator guidance in describing how to securely administer the TOE. All of the guides were assessed during the design and testing phases of the evaluation to ensure they were complete.

The validator reviewed the work of the evaluation team, and found that sufficient evidence and justification was provided by the evaluation team to confirm that the evaluation was conducted in accordance with the requirements of the CEM, and that the conclusion reached by the evaluation team was justified.

8.4 Evaluation of the Life Cycle Support Activities (ALC)

The evaluation team applied each ALC CEM work unit. The evaluation team found that the TOE was identified.

The validator reviewed the work of the evaluation team, and found that sufficient evidence and justification was provided by the evaluation team to confirm that the evaluation was conducted in accordance with the requirements of the CEM, and that the conclusion reached by the evaluation team was justified.

8.5 Evaluation of the Test Documentation and the Test Activity (ATE)

The evaluation team applied each ATE CEM work unit. The evaluation team ran the set of tests specified by the assurance activities in the FDEAAcPP20E/FDEEEcPP20E and recorded the results in a Test Report, summarized in the AAR.

The validator reviewed the work of the evaluation team, and found that sufficient evidence and justification was provided by the evaluation team to confirm that the evaluation was conducted in accordance with the requirements of the CEM, and that the conclusion reached by the evaluation team was justified.

8.6 Vulnerability Assessment Activity (VAN)

The evaluation team applied each AVA CEM work unit. The vulnerability analysis is in the Detailed Test Report (DTR) prepared by the evaluator. The vulnerability analysis includes a public search for vulnerabilities. The search was performed on October 29, 2025, and a summary is included in Section 3.5 of the AAR. The public search for vulnerabilities did not uncover any residual vulnerability.

The evaluator searched the (National Vulnerability Database (https://web.nvd.nist.gov/vuln/search, ref NVD), MITRE CVE Database, National

Vulnerability Database, and CVE details (https://www.cve.org/, https://web.nvd.nist.gov/vuln/search, and https://www.cvedetails.com/vulnerability-search.php, ref CVE), Known Vulnerability Exploit Catalog (https://www.cisa.gov/known-exploited-vulnerabilities-catalog, ref KEV) Vulnerability Notes Database (http://www.kb.cert.org/vuls/, ref VND), on 10/29/2025 (from 2/1/2020) with the following search terms: "Intel Atom C3708 CPU ", "drive encryption", "disk encryption", "key destruction", "key sanitization", "Key caching", "Password caching", "Shift5", "SUSE Linux Micro 6.0 ", "OpenSSL 3.5.1", "LUKS2", "Libgcrypt", "kernel cryptography ", "Opal management software", "SED management software", "Self Encrypting Drive (SED)", "OPAL".

The validator reviewed the work of the evaluation team, and found that sufficient evidence and justification was provided by the evaluation team to confirm that the evaluation was conducted in accordance with the requirements of the CEM, and that the conclusion reached by the evaluation team was justified.

8.7 Summary of Evaluation Results

The evaluation team's assessment of the evaluation evidence demonstrates that the claims in the ST are met. Additionally, the evaluation team's testing also demonstrated the accuracy of the claims in the ST.

The validation team's assessment of the evidence provided by the evaluation team is that it demonstrates that the evaluation team followed the procedures defined in the CEM, and correctly verified that the product meets the claims in the ST.

9 Validator Comments/Recommendations

The validation team notes that the evaluated configuration is dependent upon the TOE being configured per the guidance document listed in Section 6. The functionality evaluated is scoped exclusively to the security functional requirements specified in the Security Target. Other functionality included in the product were not assessed as part of this evaluation.

For this evaluation, the TOE was tested on the hardware specified in the ST and in Section 3 of this report. No other versions of the TOE, either earlier or later, were evaluated.

All other items and scope issues have been sufficiently addressed in other sections of this document.

10 Annexes

Not applicable

11 Security Target

The Security Target is identified as: *Shift5, Inc. Software Full Drive Encryption Security Target, Version 0.3, September 24, 2025*.

12 Glossary

The following definitions are used throughout this document:

- **Common Criteria Testing Laboratory (CCTL)**. An IT security evaluation facility accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) and approved by the CCEVS Validation Body to conduct Common Criteria-based evaluations.
- **Conformance**. The ability to demonstrate in an unambiguous way that a given implementation is correct with respect to the formal model.
- **Evaluation**. The assessment of an IT product against the Common Criteria using the Common Criteria Evaluation Methodology to determine whether or not the claims made are justified; or the assessment of a protection profile against the Common Criteria using the Common Evaluation Methodology to determine if the Profile is complete, consistent, technically sound and hence suitable for use as a statement of requirements for one or more TOEs that may be evaluated.
- **Evaluation Evidence**. Any tangible resource (information) required from the sponsor or developer by the evaluator to perform one or more evaluation activities.
- **Feature.** Part of a product that is either included with the product or can be ordered separately.
- **Target of Evaluation (TOE)**. A group of IT products configured as an IT system, or an IT product, and associated documentation that is the subject of a security evaluation under the CC.
- **Validation**. The process carried out by the CCEVS Validation Body leading to the issue of a Common Criteria certificate.
- **Validation Body**. A governmental organization responsible for carrying out validation and for overseeing the day-to-day operation of the NIAP Common Criteria Evaluation and Validation Scheme.

13 Bibliography

The Validation Team used the following documents to produce this Validation Report:

[1] Common Criteria for Information Technology Security Evaluation: Part 1: Introduction and General Model, Version 3.1, Revision 5, April 2017.

[2] Common Criteria for Information Technology Security Evaluation Part 2: Security functional components, Version 3.1, Revision 5, April 2017.

[3] Common Criteria for Information Technology Security Evaluation Part 3: Security assurance components, Version 3.1 Revision 5, April 2017.

[4] collaborative Protection Profile for Full Drive Encryption - Encryption Engine, Version 2.0 + Errata 20190201, February 1, 2019. (FDEEEcPP20E)

[5] collaborative Protection Profile for Full Drive Encryption Authorization Acquisition, Version 2.0 + Errata 20190201, February 1, 2019. (FDEAAcPP20E)

[6] Shift5, Inc. Software Full Drive Encryption Security Target, Version 0.3, September 24, 2025 (ST).

[7] Assurance Activity Report for Shift5, Inc. Software Full Drive Encryption, Version 0.3, October 29, 2025 (AAR).

[8] Detailed Test Report for Shift5, Inc. Software Full Drive Encryption, Version 0.3, October 29, 2025 (DTR).

[9] Evaluation Technical Report for Shift5, Inc. Software Full Drive Encryption, Version 0.3, October 29, 2025 (ETR).

[10] Shift5 – Full Disk Encryption (FDE) Administrator Guidance Document, August 19, 2025 (AGD).