National Information Assurance Partnership

Common Criteria Evaluation and Validation Scheme

TM

Validation Report

for the

Vencore SecureIO, Version 1.0

Report Number: CCEVS-VR-10852-2018

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ACKNOWLEDGEMENTS

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1 Executive Summary

This Validation Report (VR) is intended to assist the end user of this product and any security certification Agent for that end user in determining the suitability of this Information Technology (IT) product for their environment. End users should review the Security Target (ST), which is where specific security claims are made, in conjunction with this VR, which describes how those security claims were tested and evaluated and any restrictions on the evaluated configuration. Prospective users should carefully read the Assumptions and Clarification of Scope in Section 5 and the Validator Comments in Section 10, where any restrictions on the evaluated configuration are highlighted.

This report documents the National Information Assurance Partnership (NIAP) assessment of the evaluation of the Vencore SecureIO Target of Evaluation (TOE). It presents the evaluation results, their justifications, and the conformance results. This VR is not an endorsement of the TOE by any agency of the U.S. Government and no warranty of the TOE is either expressed or implied. This VR applies only to the specific version and configuration of the product as evaluated and documented in the ST.

The evaluation was completed by Acumen Security in February 2018. The information in this report is largely derived from the evaluation-sensitive Evaluation Technical Report (ETR) and associated test reports, all written by Acumen Security. The evaluation determined that the product is both Common Criteria Part 2 Extended and Part 3 Conformant, and meets the assurance requirements defined in the U.S. Government Protection Profile for Security Requirements for Application Software v1.2.

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. 4) for conformance to the Common Criteria for IT Security Evaluation (Version 3.1, Rev. 4), as interpreted by the Assurance Activities contained in the Application Software Protection Profile. 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 provided guidance on technical issues and evaluation processes and reviewed the individual work units documented in the ETR and the Assurance Activities Report (AAR). 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). Based on these findings, 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.

2 Identification

The CCEVS is a joint National Security Agency (NSA) and National Institute of Standards 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). CCTLs evaluate products against Assurance Activities contained in the Protection Profile (PP) , which are interpretations of Common Methodology for Information Technology Security Evaluation (CEM) work units specific to the technology described by the PP.

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 Product Compliance 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(s) 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	Vencore SecureIO
Protection Profile	PP_APP_v1.2
Security Target	VencoreSecureIO Security Target
Evaluation Technical Report	Vencore SecureIO Test Report
CC Version	Version 3.1, Revision 4
Conformance Result	CC Part 2 Extended and CC Part 3 Conformant
Sponsor	Vencore Labs
Developer	Vencore Labs
Common Criteria Testing Lab (CCTL)	Acumen Security Rockville, MD
CCEVS Validators	Kenneth Stutterheim, Marybeth Panock

3 Architectural Information

The SecureIO application provides a secure communication channel for Android applications to send and receive network traffic. The traffic will be protected in transit using TLS from the Android device to a TLS server.

The functionality of the SecureIO service is limited to (i) establishing and shutting down a TLS connection to the Transport Layer Gateway (TLG); (ii) sending and receiving messages to and from the TLG on behalf of Android apps via the TLS connection.

4 Security Policy

The TOE provides the security functionality required by the Protection Profile for Application Software v1.2 [SWAPP].

4.1 Cryptographic Support

The TOE relies on underlying cryptographic functionality provided by the platform for all of its cryptographic operations.

4.2 User Data Protection

The TOE is a TLS proxy that encrypts data sent by other applications on its host platform.

4.3 Security Management

The TOE does not come with any default credentials. It identifies itself to the TLS gateway that it connects to using a certificate and private key. These are provisioned onto the TOE by an administrator or end user.

4.4 Privacy

The TOE itself does not contain or transmit any Personally Identifiable Information (PII). It functions as a TLS proxy over which other applications on the platform may transmit whatever data they wish.

4.5 Protection of the TSF

The TOE employs several mechanisms to ensure that it is secure on the host platform. Only documented platform APIs are used by the TOE. The TOE never allocates memory with both write and execute permission. Evaluated platform functionality is used to verify the TOE version and perform updates, and no third-party libraries are used.

4.6 Trusted Path/Channels

TLS is used to protect all data transmitted to and from the TOE.

5 Assumptions, Threats & Clarification of Scope

5.1 Assumptions

The specific conditions listed in the following subsections are assumed to exist in the TOE's environment. These assumptions include both practical realities in the development of the TOE security requirements and the essential environmental conditions on the use of the TOE.

ID	Assumption
A.PLATFORM	The TOE relies upon a trustworthy computing platform for its execution. This includes the underlying platform and whatever runtime environment it provides to the TOE.
A.PROPER_USER	The user of the application software is not willfully negligent or hostile, and uses the software in compliance with the applied enterprise security policy.
A.PROPER_ADMIN	The administrator of the application software is not careless, willfully negligent or hostile, and administers the software within compliance of the applied enterprise security policy.

5.2 Threats

The following table lists the threats addressed by the TOE and the IT Environment. The assumed level of expertise of the attacker for all the threats identified below is Enhanced-Basic.

ID	Threat
T.NETWORK_ATTACK	An attacker is positioned on a communications channel or elsewhere on the network infrastructure. Attackers may engage in communications with the application software or alter communications between the application software and other endpoints in order to compromise it.
T.NETWORK_EAVESDROP	An attacker is positioned on a communications channel or elsewhere on the network infrastructure. Attackers may monitor and gain access to data exchanged between the application and other endpoints.
T.LOCAL_ATTACK	An attacker can act through unprivileged software on the same computing platform on which the application executes. Attackers may provide maliciously formatted input to the application in the form of files or other local communications.
T.PHYSICAL_ACCESS	An attacker may try to access sensitive data at rest.

5.3 Clarification of Scope

All evaluations (and all products) have limitations, as well as potential misconceptions that need clarifying. 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 level of assurance for this evaluation is defined within the Application Software Protection Profile.
- Consistent with the expectations of the Protection Profile, this evaluation did not specifically search for, nor seriously attempt to counter, 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 evaluation of security functionality of the product was limited to the functionality specified in the claimed PPs. Any additional security related functional capabilities included in the product were not covered by this evaluation.

6 Documentation

The following documents were provided by the vendor with the TOE for evaluation:

- Vencore SecureIO Security Target, Version 0.5
- SecureIO User Manual, Version 1.2

To use the product in the evaluated configuration, the product must be configured as specified in those guides. Any additional customer documentation provided with the product, or that which may be available online was not included in the scope of the evaluation and therefore should not be relied upon to configure or operate the device in its evaluated configuration.

7 TOE Evaluated Configuration

7.1 Evaluated Configuration

The TOE was tested on the following CC validated versions of Android 6.0, 7.0 and 7.1 platforms.

- Samsung Galaxy S7 Android 7.0
- Samsung Galaxy S6 Android 6.0
- Samsung Galaxy Note 8 Android 7.1

7.2 Excluded Functionality

None. The TOE is a single application on Android, a VPN client. All other applications available on the platforms were not evaluated, only the security functionality provided by the Vencore SecureIO.

8 IT Product Testing

This section describes the testing efforts of the developer and the evaluation team. It is derived from information contained in Evaluation Test Report for Vencore SecureIO, which is not publically available. The Assurance Activities Report provides an overview of testing and the prescribed assurance activities.

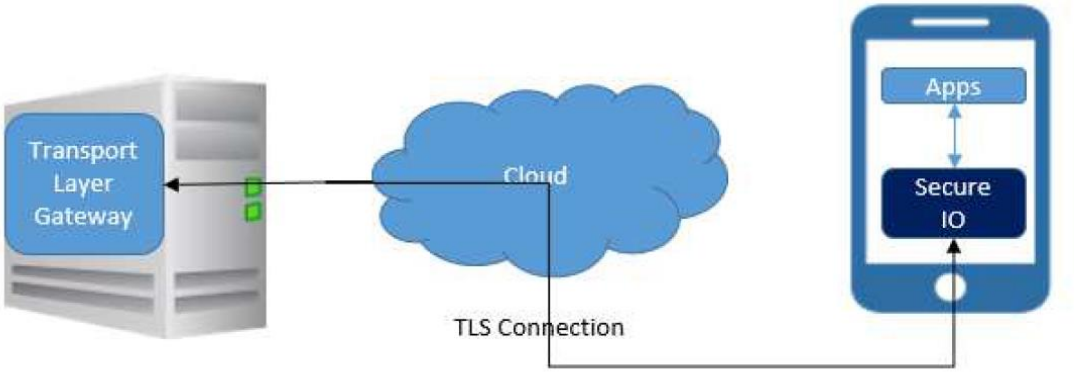
8.1 Developer Testing

No evidence of developer testing is required in the Assurance Activities for this product.

8.2 Evaluation Team Independent Testing

The evaluation team verified the product according the vendor-provided guidance documentation and ran the tests specified in the App PP. The Independent Testing activity is documented in the Assurance Activities Report, which is publically available, and is not duplicated here.

8.3 Test Configuration



9 Results of the Evaluation

The results of the assurance requirements are generally described in this section and are presented in detail in the proprietary documents: the Detailed Test Report (DTR) and the Evaluation Technical Report (ETR). The reader of this document can assume that 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 4 and CEM version 3.1 rev 4. The evaluation determined the Vencore SecureIO to be Part 2 extended, and meets the SARs contained in the PP. Additionally the evaluator performed the Assurance Activities specified in the Application Software Protection Profile.

9.1 Evaluation of Security Target

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 Vencore SecureIO that are consistent with the Common Criteria, and product security function descriptions that support the requirements. Additionally the evaluator performed an assessment of the Assurance Activities specified in the SWAPP.

The validators 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.

9.2 Evaluation of Development Documentation

The evaluation team applied each EAL 1 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's TOE Summary Specification. Additionally the evaluator performed the Assurance Activities specified in the SWAPP related to the examination of the information contained in the TOE Summary Specification.

The validators 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 Assurance Activities, and that the conclusion reached by the evaluation team was justified.

9.3 Evaluation of Guidance Documents

The evaluation team applied each EAL 1 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. The guides were assessed during the design and testing phases of

the evaluation to ensure they were complete. Additionally the evaluator performed the Assurance Activities specified in the App PP related to the examination of the information contained in the operational guidance documents.

The validators 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 Assurance Activities, and that the conclusion reached by the evaluation team was justified.

9.4 Evaluation of Life Cycle Support Activities

The evaluation team applied each EAL 1 ALC CEM work unit. The evaluation team found that the TOE was identified.

The validators 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.

9.5 Evaluation of Test Documentation and the Test Activity

The evaluation team applied each EAL 1 ATE CEM work unit. The evaluation team ran the set of tests specified by the Assurance Activities in the Application Software PP and recorded the results in a Test Report, as summarized in both the Evaluation Technical Report and Assurance Activities Report.

The validators reviewed the work of the evaluation team, and found that sufficient evidence was provided by the evaluation team to show that the evaluation activities addressed the test activities in the App PP, and that the conclusion reached by the evaluation team was justified.

9.6 Vulnerability Assessment Activity

The evaluation team applied each EAL 1 AVA CEM work unit. The evaluation team performed a public search for vulnerabilities, performed vulnerability testing and did not discover any issues with the TOE.

The validators 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 addressed the vulnerability analysis Assurance Activities in the SWAPP, and that the conclusion reached by the evaluation team was justified.

9.7 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 test activities 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 performed the Assurance Activities in the SWAPP, and correctly verified that the product meets the claims in the ST.

10 Validator Comments & Recommendations

The functionality of the SecureIO service is limited to the following:

(i) establishing and shutting down a TLS connection to the Transport Layer Gateway (TLG);

(ii) sending and receiving messages to and from the TLG on behalf of Android applications via the TLS connection

Operating on the following platforms:

- Samsung Galaxy S7 Android 7.0
- Samsung Galaxy S6 Android 6.0
- Samsung Galaxy Note 8 Android 7.1,

and configured as per the related Android OS platform evaluations for each:

- Samsung Galaxy Devices on Android 7.1 (VID10849)
- Samsung Galaxy Devices with Android 7 (VID10809)
- Samsung Galaxy Devices with Android 6 (VID10726)

When installed on Samsung Galaxy Devices with Android 7 (VID10809) the TLS connection will only support secp256r1 elliptic curve. This is because of a limitation in the Android OS. Google has acknowledged that this is a bug, but has tagged it "*will not fix*."

11 Annexes

Not applicable.

12 Security Target

Vencore SecureIO Security Target, Version 0.5, 03/06/2018

13 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.

14 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 4.
2. Common Criteria for Information Technology Security Evaluation - Part 2: Security functional requirements, Version 3.1 Revision 4.
3. Common Criteria for Information Technology Security Evaluation - Part 3: Security assurance requirements, Version 3.1 Revision 4.
4. Common Evaluation Methodology for Information Technology Security Evaluation, Version 3.1 Revision 4.
5. Protection Profile for Application Software, Version 1.2, 2016-04-22
6. Vencore SecureIO Security Target, Version 0.5, 03/06/2018
7. Vencore SecureIO SWAPP Assurance Activity Report, Version 1.3, 03/07/2018
8. SecureIO User Manual, Version 1.2, March 2018.
9. Vencore SecureIO Security Target Evaluation Technical Report, Version 1.2, 03/07/2018 <evaluation sensitive>
10. Vencore Secure IO SWAPP Evaluation Technical Report, Version 1.2, 03/06/2018 <evaluation sensitive>
11. Test Plan for Vencore SecureIO on Samsung Galaxy S7, Version 2.0, March 2018 <evaluation sensitive>
12. Test Plan for Vencore SecureIO on Samsung Galaxy S6, Version 2.0, March 2018 <evaluation sensitive>
13. Test Plan for Vencore SecureIO on Samsung Galaxy Note 8, Version 2.0, March 2018 <evaluation sensitive>