COMMON CRITERIA CERTIFICATION REPORT

NetApp E-Series & EF-Series with SANtricity OS 11.50

3 January 2019

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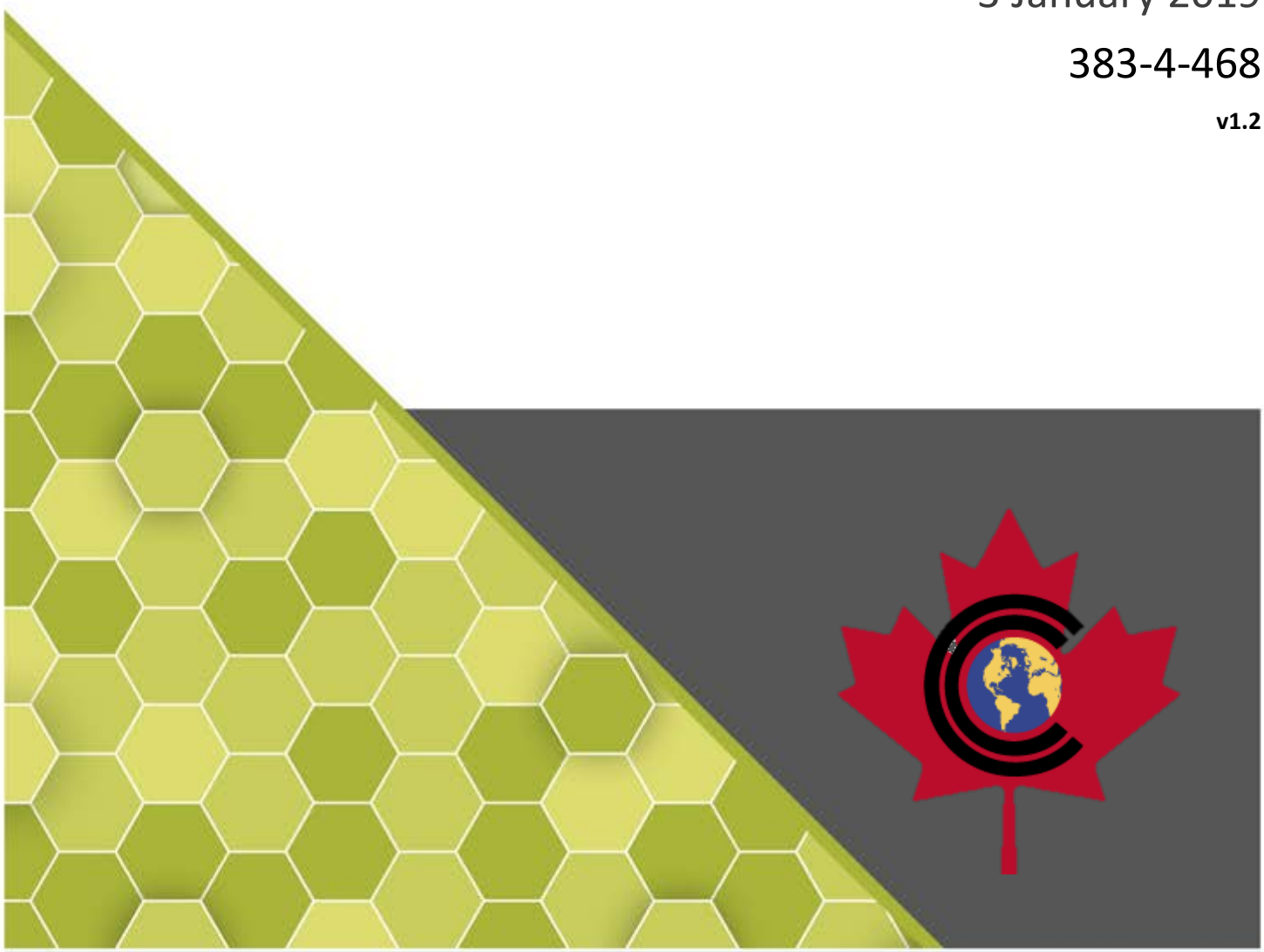

Canada

FOREWORD

This certification report is an UNCLASSIFIED publication, issued under the authority of the Chief, Communications Security Establishment (CSE). Suggestions for amendments should be forwarded through departmental communications security channels to your Client Services Representative at CSE.

The Information Technology (IT) product identified in this certification report, and its associated certificate, has been evaluated at an approved evaluation facility – established under the Canadian Common Criteria Scheme – using the Common Methodology for Information Technology Security Evaluation, Version 3.1 Revision 4, for conformance to the Common Criteria for Information Technology Security Evaluation, Version 3.1 Revision 4. This certification report, and its associated certificate, applies only to the identified version and release of the product in its evaluated configuration. The evaluation has been conducted in accordance with the provisions of the Canadian CC Scheme, and the conclusions of the evaluation facility in the evaluation report are consistent with the evidence adduced. This report, and its associated certificate, are not an endorsement of the IT product by the Communications Security Establishment, or any other organization that recognizes or gives effect to this report, and its associated certificate, and no warranty for the IT product by the Communications Security Establishment, or any other organization that recognizes or gives effect to this report, and its associated certificate, is either expressed or implied.

If your department has identified a requirement for this certification report based on business needs and would like more detailed information, please contact:

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OVERVIEW

The Canadian Common Criteria Scheme provides a third-party evaluation service for determining the trustworthiness of Information Technology (IT) security products. Evaluations are performed by a commercial Common Criteria Evaluation Facility (CCEF) under the oversight of the Certification Body, which is managed by the Communications Security Establishment.

A CCEF is a commercial facility that has been approved by the Certification Body to perform Common Criteria evaluations; a significant requirement for such approval is accreditation to the requirements of ISO/IEC 17025:2005, the General Requirements for the Competence of Testing and Calibration Laboratories.

By awarding a Common Criteria certificate, the Certification Body asserts that the product complies with the security requirements specified in the associated security target. A security target is a requirements specification document that defines the scope of the evaluation activities. The consumer of certified IT products should review the security target, in addition to this certification report, in order to gain an understanding of any assumptions made during the evaluation, the IT product's intended environment, the evaluated security functionality, and the testing and analysis conducted by the CCEF.

The certification report, certificate of product evaluation and security target are posted to the Certified Products list (CPL) for the Canadian CC Scheme and to the Common Criteria portal (the official website of the International Common Criteria Project).

TABLE OF CONTENTS

Executive Summary **1**

1 Identification of Target of Evaluation **2**

1.1 Common Criteria Conformance 2

1.2 TOE Description 2

1.3 TOE Architecture 3

2 Security Policy **4**

2.1 Cryptographic Functionality 4

3 Assumptions and Clarifications of Scope **5**

3.1 Usage and Environmental Assumptions 5

3.2 Clarification of Scope 6

4 Evaluated Configuration **7**

4.1 Documentation 7

5 Evaluation Analysis Activities **8**

5.1 Development 8

5.2 Guidance Documents 8

5.3 Life-cycle Support 8

6 Testing Activities **9**

6.1 Assessment of Developer Tests 9

6.2 Conduct of Testing 9

6.3 Independent Functional Testing 9

6.4 Independent Penetration Testing 10

7 Results of the Evaluation **11**

7.1 Recommendations/Comments 11

8 Supporting Content **12**

8.1 List of Abbreviations 12

8.2 References 13

LIST OF FIGURES

Figure 1 TOE Architecture 3

LIST OF TABLES

Table 1 TOE Identification 2
Table 2 Cryptographic Algorithm(s) 4

EXECUTIVE SUMMARY

NetApp E-Series & EF-Series with SANtricity OS 11.50 (hereafter referred to as the Target of Evaluation, or TOE), from NetApp, Inc., was the subject of this Common Criteria evaluation. A description of the TOE can be found in Section 1.2. The results of this evaluation demonstrate that TOE meets the requirements of the conformance claim listed in Table 1 for the evaluated security functionality.

Lightship Security is the CCEF that conducted the evaluation. This evaluation was completed 03 January 2019 and was carried out in accordance with the rules of the Canadian Common Criteria Scheme.

The scope of the evaluation is defined by the security target, which identifies assumptions made during the evaluation, the intended environment for TOE, and the security functional/assurance requirements. Consumers are advised to verify that their operating environment is consistent with that specified in the security target, and to give due consideration to the comments, observations and recommendations in this certification report.

Communications Security Establishment, as the Certification Body, declares that the TOE evaluation meets all the conditions of the Arrangement on the Recognition of Common Criteria Certificates and that the product will be listed on the Canadian Certified Products list (CPL) and the Common Criteria portal (the official website of the International Common Criteria Project).

1 IDENTIFICATION OF TARGET OF EVALUATION

The Target of Evaluation (TOE) is identified as follows:

Table 1 TOE Identification

TOE Name and Version	NetApp E-Series & EF-Series with SANtricity OS 11.50
Developer	NetApp, Inc.
Conformance Claim	collaborative Protection Profile for Network Devices, v2.0 + Errata 20180314

1.1 COMMON CRITERIA CONFORMANCE

The evaluation was conducted using the Common Methodology for Information Technology Security Evaluation, Version 3.1 Revision 4, for conformance to the Common Criteria for Information Technology Security Evaluation, Version 3.1 Revision 4.

1.2 TOE DESCRIPTION

The TOE is a network device that provides networked storage for dedicated, high-bandwidth applications such as data analytics, video surveillance, and disk-based backup. The TOE provides the following security functions:

- Protected Communications
- Secure Administration
- Trusted Update
- Audit
- Self-Test
- Cryptographic Operations

1.3 TOE ARCHITECTURE

A diagram of the TOE architecture is as follows:

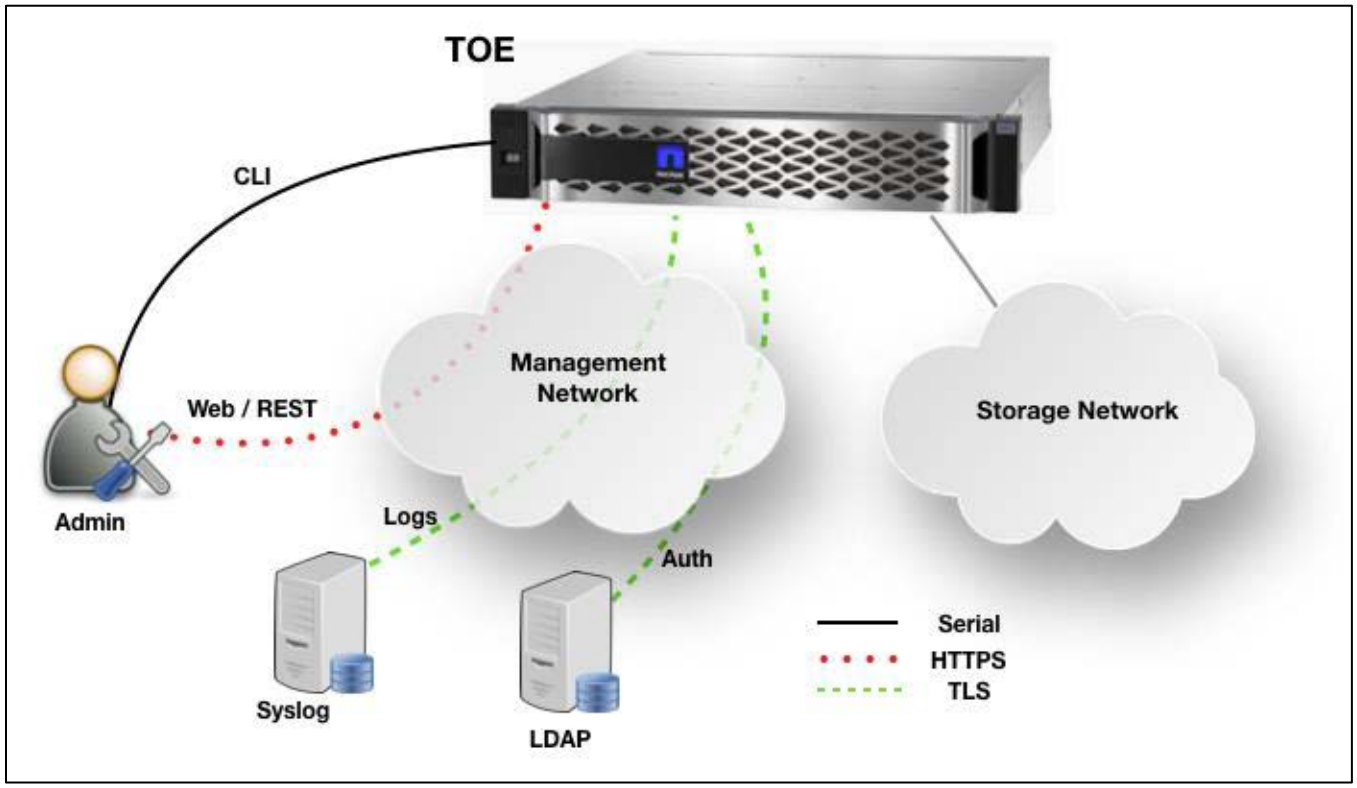

Figure 1 TOE Architecture

2 SECURITY POLICY

The TOE implements policies pertaining to the following security functional classes:

- Security Audit
- Cryptographic Support
- Identification and Authentication
- Security Management
- Protection of the TSF
- Trusted Update
- TOE Access
- Trusted Path/Channels

Complete details of the security functional requirements (SFRs) can be found in the Security Target (ST) referenced in section 8.2.

2.1 CRYPTOGRAPHIC FUNCTIONALITY

The following Government of Canada approved cryptographic algorithms were evaluated by the CAVP and used by the TOE:

Table 2 Cryptographic Algorithm(s)

Cryptographic Algorithm	Standard	Certificate Number
Advanced Encryption Standard (AES)	FIPS 197	3756
Rivest Shamir Adleman (RSA)	FIPS 186-4	1932
Secure Hash Algorithm (SHS)	FIPS 180-3	3126
Keyed-Hash Message Authentication Code (HMAC)	FIPS 198	2458
Deterministic Random Bit Generation (DRBG)	SP 800-90A	1031
Key Agreement Scheme	SP 800-56A	73
Elliptic Curve Digital Signature Algorithm (ECDSA)	FIPS 186-4	804

3 ASSUMPTIONS AND CLARIFICATIONS OF SCOPE

Consumers of the TOE should consider assumptions about usage and environmental settings as requirements for the product's installation and its operating environment. This will ensure the proper and secure operation of the TOE.

3.1 USAGE AND ENVIRONMENTAL ASSUMPTIONS

The following assumptions are made regarding the use and deployment of the TOE:

- The network device is to be physically protected in its operational environment and not subject to physical attacks that compromise the security and/or interfere with the device's physical interconnections and correct operation. This protection is assumed to be sufficient to protect the device and the data it contains. As a result, the cPP will not include any requirements on physical tamper protection or other physical attack mitigations. The cPP will not expect the product to defend against physical access to the device that allows unauthorized entities to extract data, bypass other controls, or otherwise manipulate the device.
- The device is to provide networking functionality as its core function and not provide functionality/services that could be deemed as general purpose computing. For example, the device should not provide a computing platform for general purpose applications (unrelated to networking functionality).
- A standard/generic network device does not provide any assurance regarding the protection of traffic that traverses it. The intent is for the network device to protect data that originates on or is destined to the device itself, to include administrative data and audit data. Traffic that is traversing the network device, destined for another network entity, is not covered by the NDcPP. It is assumed that this protection will be covered by cPPs for particular types of network devices (e.g., firewall).
- The Security Administrator(s) for the network device are to be trusted and to act in the best interest of security for the organization. This includes being appropriately trained, following policy, and adhering to guidance documentation. Administrators are trusted to ensure passwords/credentials have sufficient strength and entropy and to lack malicious intent when administering the device. The network device is not expected to be capable of defending against a malicious Administrator that actively works to bypass or compromise the security of the device.
- The network device firmware and software is to be updated by an Administrator on a regular basis in response to the release of product updates due to known vulnerabilities.
- The Administrator's credentials (private key) used to access the network device are protected by the platform on which they reside.
- The Administrator must ensure that there is no unauthorized access possible for sensitive residual information (e.g. cryptographic keys, keying material, PINs, passwords etc.) on networking equipment when the equipment is discarded or removed from its operational environment.

3.2 CLARIFICATION OF SCOPE

- The TOE incorporates CAVP-validated cryptography and was not subjected to CMVP (FIPS-140) validation.
- SSH must not be enabled/used in the evaluated configuration.
- The scope of the evaluation is limited to the secure management functionality of the TOE and does not cover the network storage functionality.

4 EVALUATED CONFIGURATION

The evaluated configuration for the TOE comprises the SANtricity OS 11.50.0000.0010 installed on the following hardware appliances:

- E2812 (DE212C)[1]
- E2824 (DE224C)
- E2860 (DE460C)
- E5724 (DE224C)
- E5760 (DE460C)
- EF280
- EF570

The TOE operates with the following components in the environment:

- Audit Server. The TOE is capable of sending audit events to a Syslog server.
- LDAP Server. The TOE is capable of utilizing an LDAP server for authentication.

4.1 DOCUMENTATION

The following documents are provided to the consumer to assist in the configuration and installation of the TOE:

a. NetApp E-Series & EF-Series with SANtricity OS 11.50 Common Criteria Guide, v1.2

b. NetApp Installation and Setup Instructions for E-Series E5724, EF570, E2812, E2824, and EF280, 210-06714+B0

c. NetApp Installation and Setup Instructions for E-Series E5760 and E2860, 210-06716+A0

d. NetApp SANtricity 11.40 Help Dashboard for System Manager

e. NetApp SANtricity 11.40 Help Dashboard for Embedded Command Line Interface

[1] Disk shelf shown in parentheses. The disk shelf is an enclosure that contains the system shelf (E-series controller) and hot-serviceable drive trays.

5 EVALUATION ANALYSIS ACTIVITIES

The evaluation analysis activities involved a structured evaluation of the TOE. Documentation and process dealing with Development, Guidance Documents, and Life-Cycle Support were evaluated.

5.1 DEVELOPMENT

The evaluators analyzed the documentation provided by the vendor; they determined that the design completely and accurately describes the TOE security functionality (TSF) interfaces and how the TSF implements the security functional requirements (SFRs). The evaluators determined that the initialization process is secure, that the security functions are protected against tamper and bypass, and that security domains are maintained.

5.2 GUIDANCE DOCUMENTS

The evaluators examined the TOE preparative user guidance and operational user guidance and determined that it sufficiently and unambiguously describes how to securely transform the TOE into its evaluated configuration and how to use and administer the product. The evaluators examined and tested the preparative and operational guidance, and determined that they are complete and sufficiently detailed to result in a secure configuration.

Section 4.1 provides details on the guidance documents.

5.3 LIFE-CYCLE SUPPORT

An analysis of the TOE configuration management system and associated documentation was performed. The evaluators found that the TOE configuration items were clearly marked.

The evaluators examined the delivery documentation and determined that it described all of the procedures required to maintain the integrity of the TOE during distribution to the consumer.

6 TESTING ACTIVITIES

Testing consists of the following three steps: assessing developer tests, performing independent functional tests, and performing penetration tests.

6.1 ASSESSMENT OF DEVELOPER TESTS

The evaluators verified that the developer has met their testing responsibilities by examining their test evidence, and reviewing their test results, as documented in the ETR. The correspondence between the tests identified in the developer's test documentation and the functional specification was complete.

6.2 CONDUCT OF TESTING

The TOE was subjected to a comprehensive suite of formally documented, independent functional and penetration tests. The detailed testing activities, including configurations, procedures, test cases, expected results and observed results are documented in a separate Test Results document.

6.3 INDEPENDENT FUNCTIONAL TESTING

During this evaluation, the evaluator developed independent functional tests by examining design and guidance documentation.

All testing was planned and documented to a sufficient level of detail to allow repeatability of the testing procedures and results. The following testing activities were performed:

a. PP Assurance Activities: The evaluator performed the assurance activities listed in the claimed PP;

b. Verification of Cryptographic Implementation: The evaluator confirmed that the vendor employed the Bouncy Castle v1.0.0 cryptographic module and that it was, in fact, being used by the TOE.

6.3.1 FUNCTIONAL TEST RESULTS

The developer's tests and the independent functional tests yielded the expected results, providing assurance that the TOE behaves as specified in its ST and functional specification.

6.4 INDEPENDENT PENETRATION TESTING

Subsequent to the independent review of public domain vulnerability databases and all evaluation deliverables, limited independent evaluator penetration testing was conducted. The penetration tests focused on:

a. Use of automated vulnerability scanning tools to discover potential network, platform and application layer vulnerabilities such as Heartbleed, Shellshock, FREAK, POODLE, and GHOST; and

b. Fuzz Testing: The evaluator conducted fuzz testing using unexpected inputs and malformed packets on the TOE interfaces.

6.4.1 PENETRATION TEST RESULTS

The independent penetration testing did not uncover any exploitable vulnerabilities in the intended operating environment.

7 RESULTS OF THE EVALUATION

This evaluation has provided the basis for the conformance claim documented in Table 1. The overall verdict for this evaluation is **PASS**. These results are supported by evidence in the ETR.

The IT product identified in this report has been evaluated at an approved evaluation facility established under the Canadian Common Criteria Scheme using the Common Methodology for IT Security Evaluation, Version 3.1 Revision 4, for conformance to the Common Criteria for IT Security Evaluation, Version 3.1 Revision 4. These evaluation results apply only to the specific version and release of the product in its evaluated configuration and in conjunction with the complete certification report.

The evaluation has been conducted in accordance with the provisions of the Canadian Common Criteria Scheme and the conclusions of the evaluation facility in the evaluation report are consistent with the evidence adduced. This is not an endorsement of the IT product by CSE or by any other organization that recognizes or gives effect to this certificate, and no warranty of the IT product by CSE or by any other organization that recognizes or gives effect to this certificate, is expressed or implied.

7.1 RECOMMENDATIONS/COMMENTS

It is recommended that all guidance outlined in Section 4.1 be followed to configure the TOE in the evaluated configuration.

8 SUPPORTING CONTENT

8.1 LIST OF ABBREVIATIONS

Term	Definition
CAVP	Cryptographic Algorithm Validation Program
CCEF	Common Criteria Evaluation Facility
CM	Configuration Management
CMVP	Cryptographic Module Validation Program
cPP	Collaborative Protection Profile
CSE	Communications Security Establishment
ETR	Evaluation Technical Report
GC	Government of Canada
IT	Information Technology
ITS	Information Technology Security
NDcPP	collaborative Protection Profile for Network Devices
PP	Protection Profile
SFR	Security Functional Requirement
SSH	Secure Shell
ST	Security Target
TOE	Target of Evaluation
TSF	TOE Security Function

8.2 REFERENCES

Reference
Common Criteria for Information Technology Security Evaluation, Version 3.1 Revision 4, September 2012.
Common Methodology for Information Technology Security Evaluation, CEM, Version 3.1 Revision 4, September 2012.
NetApp E-Series & EF-Series with SANtricity OS 11.50 Security Target, Version 1.3, January 03, 2019.
NetApp E-Series & EF-Series with SANtricity OS 11.50 Evaluation Technical Report, 1.3, January 03, 2019.
NetApp E-Series & EF-Series with SANtricity OS 11.50 Assurance Activity Report, Version 1.4, January 03, 2019.