



Certification Report

NetApp Data ONTAP® v8.2.1 7-Mode

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**Communications Security Establishment
Certification Body**

Canadian Common Criteria Evaluation and Certification Scheme

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DISCLAIMER

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FOREWORD

The Canadian Common Criteria Evaluation and Certification Scheme (CCS) 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 CCS Certification Body, which is managed by the Communications Security Establishment.

A CCEF is a commercial facility that has been approved by the CCS 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*. Accreditation is performed under the Program for the Accreditation of Laboratories - Canada (PALCAN), administered by the Standards Council of Canada.

The CCEF that carried out this evaluation is EWA-Canada.

By awarding a Common Criteria certificate, the CCS 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.

This certification report is associated with the certificate of product evaluation dated 25 September 2014, and the security target identified in Section 4 of this report.

The certification report, certificate of product evaluation and security target are posted on the CCS Certified Products list (CPL) and the Common Criteria portal (the official website of the Common Criteria Project).

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Executive Summary

NetApp Data ONTAP® v8.2.1 7-Mode (hereafter referred to as Data ONTAP), from NetApp, Inc., is the Target of Evaluation. The results of this evaluation demonstrate that Data ONTAP meets the requirements of Evaluation Assurance Level (EAL) 2 augmented for the evaluated security functionality.

Data ONTAP is a microkernel operating system that provides data storage services. The microkernel is included in the distribution of several of NetApp's storage solutions, including the Fabric Attached Storage (FAS) and V-Series appliances. Data ONTAP provides data management functions that include providing secure data storage and multi-protocol access. Data ONTAP is divided into four components: Write Anywhere File Layout (WAFL®), System Administration, Operating System Kernel and the System Manager GUI. The WAFL® component is responsible for implementing the discretionary access control security function policy by enforcing access rules to user data based on client type, client security attributes, file types, file security attributes and access request (create, read, write, execute, delete, change permission, and change owner). The System Administration component provides an operator interface supporting operator functions including enforcing identification and authentication, user roles and providing the necessary user interface commands that enable an operator to support the Data ONTAP® security functionality. The Operating System Kernel component provides the communications between the components of the Operating System. The System Manager GUI component provides an authorized administrator with a web based GUI that enables the support of security functionality.

EWA-Canada is the CCEF that conducted the evaluation. This evaluation was completed on 7 August 2014 and was carried out in accordance with the rules of the Canadian Common Criteria Evaluation and Certification Scheme (CCS).

The scope of the evaluation is defined by the security target, which identifies assumptions made during the evaluation, the intended environment for Data ONTAP, 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 CCS Certification Body, declares that the Data ONTAP evaluation meets all the conditions of the *Arrangement on the Recognition of Common Criteria Certificates* and that the product will be listed on the CCS Certified Products list (CPL) and the Common Criteria portal (the official website of the Common Criteria Project).

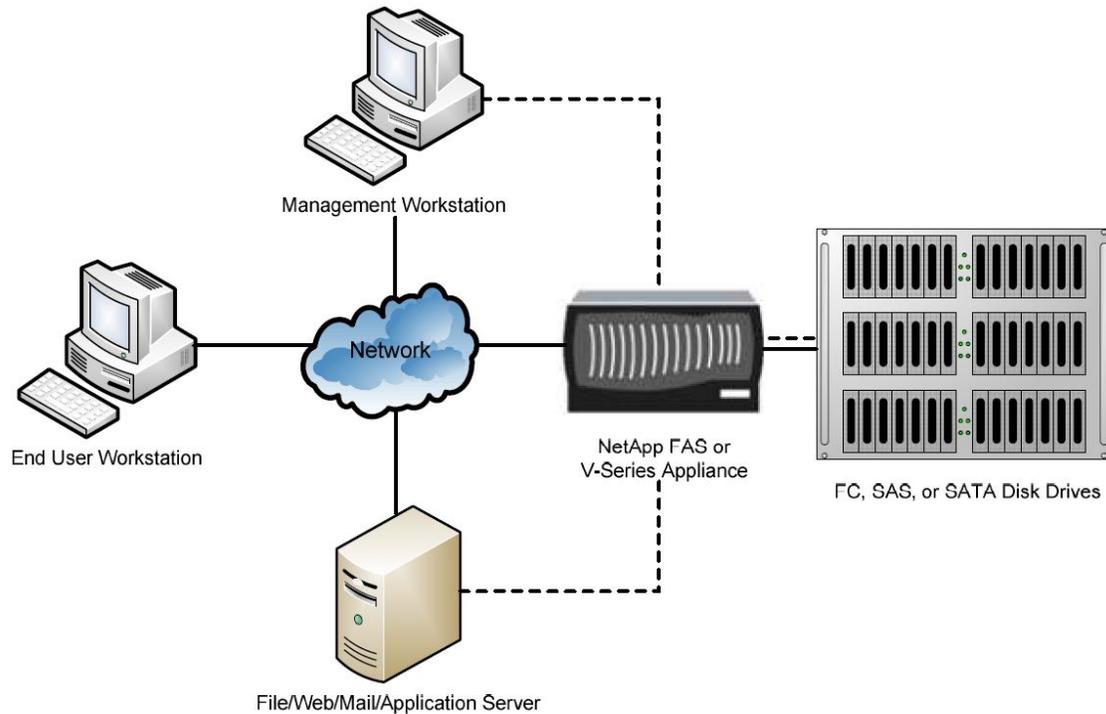
1 Identification of Target of Evaluation

The Target of Evaluation (TOE) for this EAL 2+ evaluation is NetApp Data ONTAP® v8.2.1 7-Mode (hereafter referred to as Data ONTAP), from NetApp, Inc.

2 TOE Description

Data ONTAP is a microkernel operating system that provides data storage services. The microkernel is included in the distribution of several of NetApp's storage solutions, including the Fabric Attached Storage (FAS) and V-Series appliances. Data ONTAP provides data management functions that include providing secure data storage and multi-protocol access. Data ONTAP is divided into four components: Write Anywhere File Layout (WAFL®), System Administration, Operating System Kernel and the System Manager GUI. The WAFL® component is responsible for implementing the discretionary access control security function policy by enforcing access rules to user data based on client type, client security attributes, file types, file security attributes and access request (create, read, write, execute, delete, change permission, and change owner). The System Administration component provides an operator interface supporting operator functions including enforcing identification and authentication, user roles and providing the necessary user interface commands that enable an operator to support the Data ONTAP® security functionality. The Operating System Kernel component provides the communications between the components of the Operating System. The System Manager GUI component provides an authorized administrator with a web based GUI that enables the support of security functionality.

A diagram of the Data ONTAP architecture is as follows:



3 Security Policy

Data ONTAP implements a role-based access control policy to control administrative access to the system. In addition, Data ONTAP implements policies pertaining to the following security functional classes:

Security Audit

User Data protection

Identification and Authentication

Security Management

Protection of the TOE Security Functionality

TOE Access

4 Security Target

The ST associated with this Certification Report is identified below:

NetApp, Inc. Security Target Data ONTAP® 8.2.1 7-Mode, version 0.6, 15 July 2014

5 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*.

Data ONTAP is:

- a. *EAL 2 augmented, containing all security assurance requirements listed, as well as the following:*
 - ALC_FLR.3 - Systematic Flaw Remediation.
- b. *Common Criteria Part 2 extended; with functional requirements based upon functional components in Part 2, except for the following explicitly stated requirements defined in the ST:*
 - FPT_SEP_EXT.1 - TSF domain separation for software TOEs.
- c. *Common Criteria Part 3 conformant, with security assurance requirements based only upon assurance components in Part 3.*

6 Assumptions and Clarification of Scope

Consumers of Data ONTAP 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.

6.1 Secure Usage Assumptions

The following Secure Usage Assumptions are listed in the ST:

- *There will be one or more competent individuals assigned to manage the TOE and the security of the information it contains.*
- *The system administrative personnel are not hostile and will follow and abide by the instructions provided by the administrator documentation.*
- *Administrative functionality shall be restricted to authorized administrators.*

6.2 Environmental Assumptions

The following Environmental Assumptions are listed in the ST:

- *Any other systems with which the TOE communicates are assumed to be under the same management control and use a consistent*
- *Security Management shall be provided to protect the Confidentiality and Integrity of transactions on the network.*
- *The processing resources of the TOE critical to the SFP enforcement will be protected from unauthorized physical modification by potentially hostile outsiders.*
- *The IT Environment will be configured to provide the TOE to retrieve reliable time stamps by implementing the Network Time Protocol (NTP).*

7 Evaluated Configuration

The evaluated configuration for Data ONTAP comprises:

The software Data ONTAP® 8.2.1 7-Mode running on one of the following hardware platforms:

- FAS8060
- FAS8040
- FAS8020
- FAS6290 and V-Series 6290
- FAS6280 and V-Series 6280
- FAS6250 and V-Series 6250
- FAS6240 and V-Series 6240
- FAS6220 and V-Series 6220
- FAS6210 and V-Series 6210
- FAS6080 and V-Series 6080
- FAS6040 and V-Series 6040
- FAS3270 and V-Series 3270
- FAS3250 and V-Series 3250
- FAS3240 and V-Series 3240
- FAS3220 and V-Series 3220
- FAS3210 and V-Series 3210
- FAS3170 and V-Series 3170
- FAS3160 and V-Series 3160
- FAS3140 and V-Series 3140
- FAS2240-2 and FAS2240-4
- FAS2220

The publications entitled

- Data ONTAP 8.2.1 7-Mode Guidance Document Supplement;
- OnCommand System Manager 3.1 Installation and Setup Guide;
- Data ONTAP 8.2.1 System Administration Guide for 7-Mode; and
- Data ONTAP 8.2 Software Setup Guide for 7-Mode.

describe the procedures necessary to install and operate Data ONTAP in its evaluated configuration.

8 Documentation

In addition to the documents identified in section 7, the following additional NetApp, Inc. documents are provided to the consumer:

- Data ONTAP® 8.2 Commands: Manual Page Reference For 7-Mode, Volumes 1 and 2;
- Data ONTAP® 8.2.1 7-Mode MultiStore Management Guides For 7-Mode;
- Data ONTAP® 8.2.1 7-Mode File Access and Protocols Management Guide For 7-Mode; and
- Data ONTAP® 8.2.1 7-Mode Release Notes For 7-Mode.

9 Evaluation Analysis Activities

The evaluation analysis activities involved a structured evaluation of Data ONTAP, including the following areas:

Development: The evaluators analyzed the Data ONTAP functional specification and design documentation; they determined that the design completely and accurately describes the TOE security functionality (TSF) interfaces, the TSF subsystems and how the TSF implements the security functional requirements (SFRs). The evaluators analyzed the Data ONTAP security architectural description and determined that the initialization process is secure, that the security functions are protected against tamper and bypass, and that security domains are maintained. The evaluators also independently verified that the correspondence mappings between the design documents are correct.

Guidance Documents: The evaluators examined the Data ONTAP 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.

Life-cycle support: An analysis of the Data ONTAP configuration management system and associated documentation was performed. The evaluators found that the Data ONTAP 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 Data ONTAP during distribution to the consumer.

The evaluators reviewed the flaw remediation procedures used by developer for the Data ONTAP. During a site visit, the evaluators also examined the evidence generated by adherence to the procedures. The evaluators concluded that the procedures are adequate to track and correct security flaws, and distribute the flaw information and corrections to consumers of the product.

All these evaluation activities resulted in **PASS** verdicts.

10 ITS Product Testing

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

10.1 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 ETR¹.

The evaluators analyzed the developer's test coverage analysis and found it to be complete and accurate. The correspondence between the tests identified in the developer's test documentation and the functional specification was complete.

10.2 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. Resulting from this test coverage approach is the following list of test goals:

- a. Repeat of Developer's Tests: The objective of this test goal is to repeat a subset of the developer's tests;
- b. Initialization: The objective of this test goal is to confirm that the TOE can be installed and configured as identified in the Security Target; and
- c. Single Client Login: the objective of this test goal is to confirm that the System Manager will not allow multiple connections under the same session.

10.3 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.
- b. Banner Grab: The objective of this test goal is to determine if any useful information can be gained from a Banner; and
- c. Leakage Verification: The objective of this test goal is to monitor for leakage during start up, shutdown , login and other scenarios.

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

¹ The ETR is a CCS document that contains information proprietary to the developer and/or the evaluator, and is not releasable for public review.

10.4 Conduct of Testing

Data ONTAP was subjected to a comprehensive suite of formally documented, independent functional and penetration tests. The testing took place at the Information Technology Security Evaluation and Test Facility. The CCS Certification Body witnessed a portion of the independent testing. The detailed testing activities, including configurations, procedures, test cases, expected results and observed results are documented in a separate Test Results document.

10.5 Testing Results

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

11 Results of the Evaluation

This evaluation has provided the basis for a EAL 2+ level of assurance. The overall verdict for the evaluation is **PASS**. These results are supported by evidence in the ETR.

12 Evaluator Comments, Observations and Recommendations

The evaluator recommends that potential operators of the TOE familiarize themselves with the ST and relevant setup documentation before operating the device. The TOE should only be operated by competent personnel and special care should be taken when setting access controls for CIFS and NFS shares to prevent unintentional access.

13 Acronyms, Abbreviations and Initializations

<u>Acronym/Abbreviation/Initialization</u>	<u>Description</u>
CCEF	Common Criteria Evaluation Facility
CCS	Canadian Common Criteria Evaluation and Certification Scheme
CIFS	Common Internet File System
CPL	Certified Products list
EAL	Evaluation Assurance Level
ETR	Evaluation Technical Report
GUI	Graphical User Interface
FAS	Fabric Attached Storage
IT	Information Technology
ITSET	Information Technology Security Evaluation and Testing
NFS	Network File System
PALCAN	Program for the Accreditation of Laboratories - Canada
SFR	Security Functional Requirement
ST	Security Target
TOE	Target of Evaluation
TSF	TOE Security Function
WAFL	Write Anywhere File Layout

14 References

This section lists all documentation used as source material for this report:

- a. CCS Publication #4, Technical Oversight, Version 1.8, October 2010.
- b. Common Criteria for Information Technology Security Evaluation, Version 3.1 Revision 4, September 2012.
- c. Common Methodology for Information Technology Security Evaluation, CEM, Version 3.1 Revision 4, September 2012.
- d. NetApp, Inc. Security Target Data ONTAP® 8.2.1 7-Mode, version 0.6, 15 July 2014
- e. Evaluation Technical Report for NetApp, Inc., Version 1.0, 7 August 2014.