

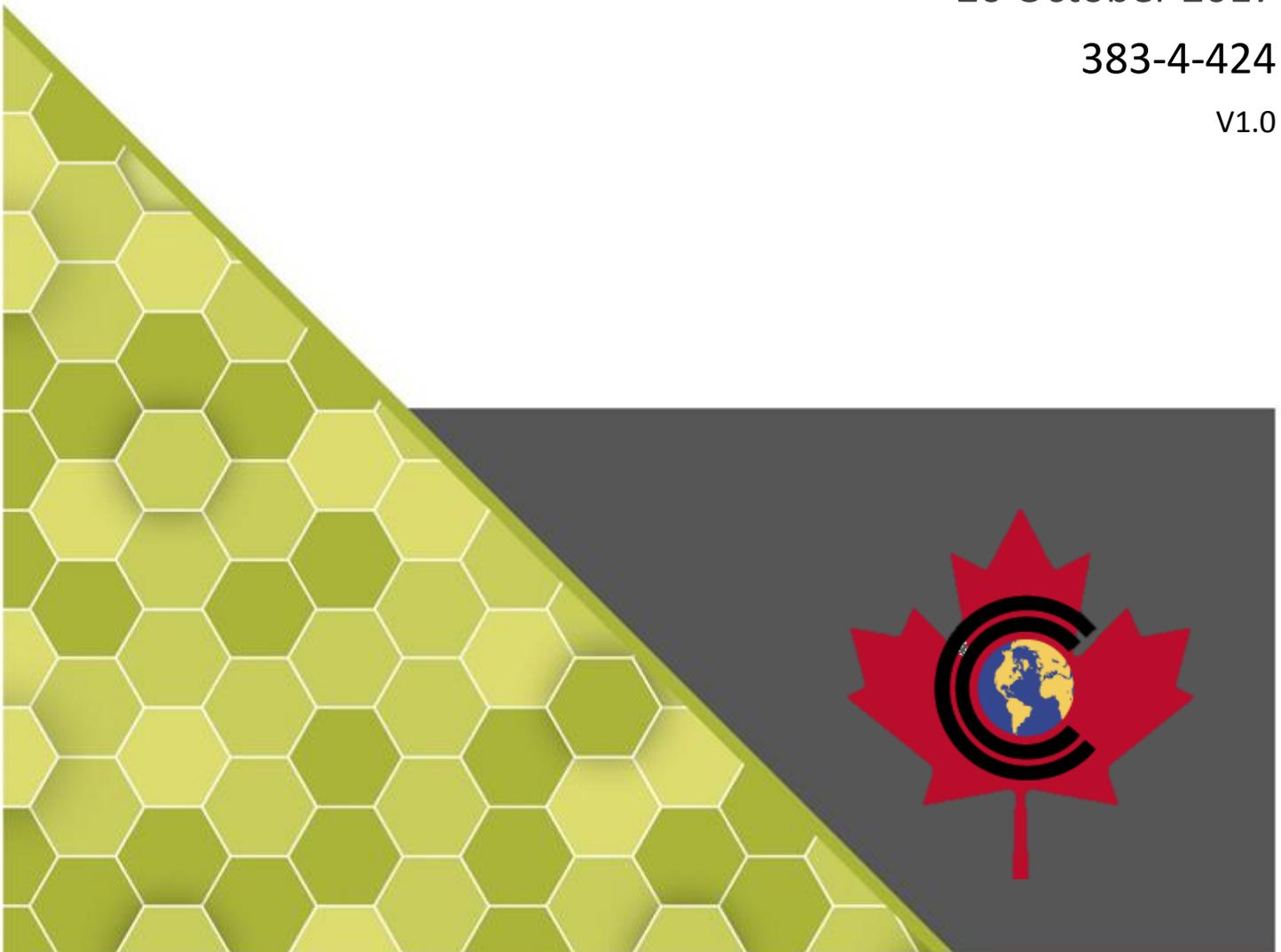


# COMMON CRITERIA CERTIFICATION REPORT

Dell EMC™ Data Domain® 6.0  
20 October 2017

383-4-424

V1.0





# 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 5, for conformance to the Common Criteria for Information Technology Security Evaluation, Version 3.1 Revision 5. 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.

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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).



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## EXECUTIVE SUMMARY

Dell EMC™ Data Domain® 6.0 (hereafter referred to as the Target of Evaluation, or TOE), from Dell EMC, 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.

EWA-Canada is the CCEF that conducted the evaluation. This evaluation was completed 20 October 2017 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**

<b>TOE Name and Version</b>	Dell EMC™ Data Domain® 6.0
<b>Developer</b>	Dell EMC
<b>Conformance Claim</b>	EAL 2 + ALC_FLR.2

## 1.1 COMMON CRITERIA CONFORMANCE

The evaluation was conducted using the Common Methodology for Information Technology Security Evaluation, Version 3.1 Revision 5, for conformance to the Common Criteria for Information Technology Security Evaluation, Version 3.1 Revision 5.

## 1.2 TOE DESCRIPTION

The TOE is a series of disk-based inline deduplication appliances and gateways that optimize disaster recovery (DR) in the enterprise environment. These devices, known as Dell EMC Data Domain Appliances, vary in storage capacity and data throughput.

Data Domain deduplication technology integrates into existing Information Technology (IT) storage infrastructures. It eliminates redundant data from each backup image and stores only unique data, thus reducing the amount of physical storage required for backup.

All systems run the Data Domain Operating System (DDOS). DDOS provides secure administration for TOE configuration, management, and monitoring via command-line interface (CLI) or the Data Domain System Manager (DD System Manager) graphical user interface (GUI). Use of both the CLI and GUI, as well as system events, is audited.

### 1.3 TOE ARCHITECTURE

A diagram of the TOE architecture is as follows:

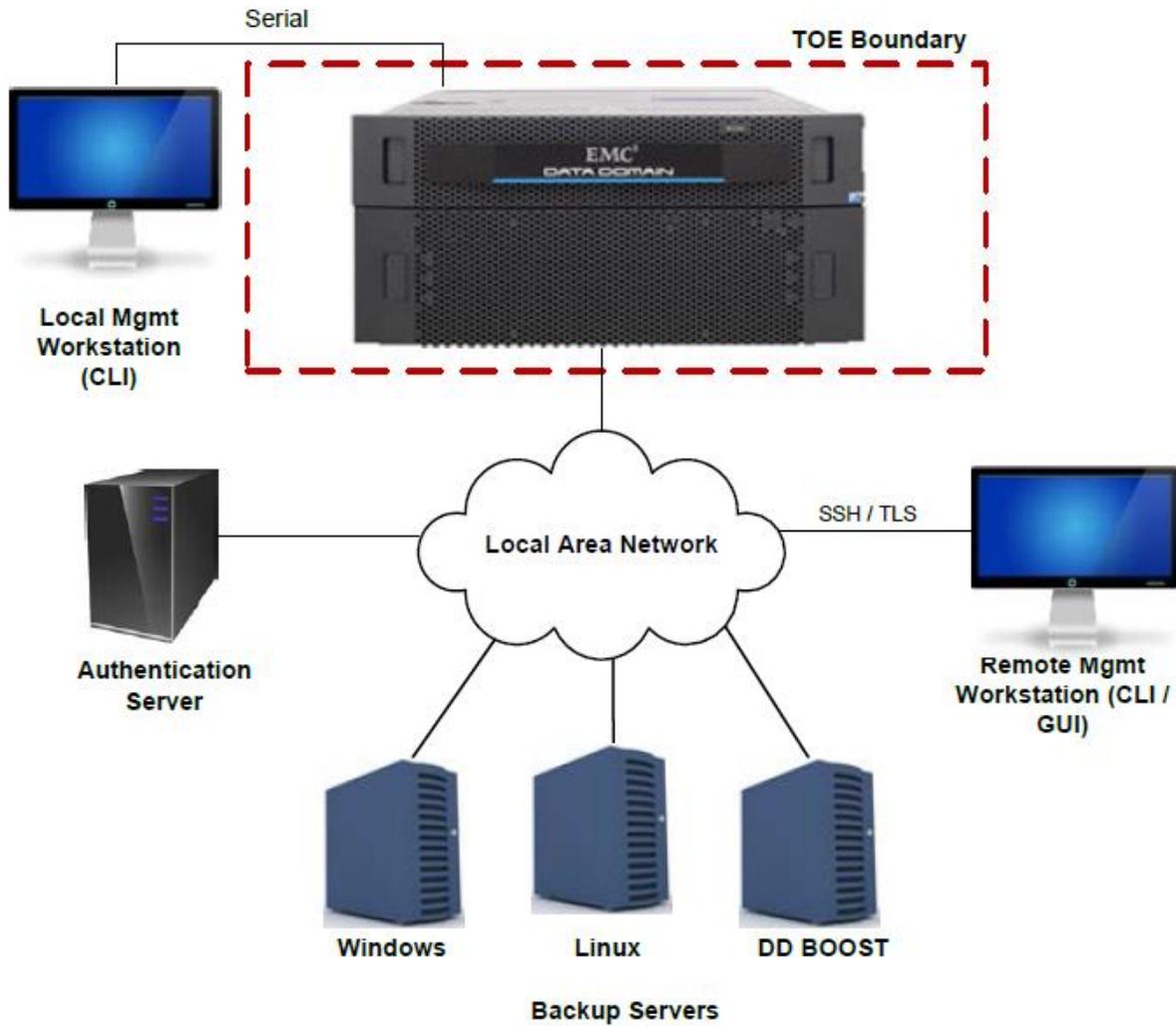


Figure 1 TOE Architecture



## 2 SECURITY POLICY

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

- Security Audit;
- Cryptographic support;
- User Data Protection;
- Identification and Authentication;
- Security Management; and
- Protection of the TSF.

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 cryptographic modules were evaluated by the CMVP and used by the TOE:

**Table 2 Cryptographic Module(s)**

Cryptographic Module	Certificate Number
EMC Data Domain Crypto-C Micro Edition cryptographic module	2757



## 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:

- During normal operation, the TOE will be located within controlled access facilities, which will prevent unauthorized physical access;
- There are one or more competent individuals assigned to manage the TOE and the security information it contains; and
- Authorized administrators are non-hostile, appropriately trained, and follow all TOE guidance documentation.



## 4 EVALUATED CONFIGURATION

The evaluated configuration for the TOE comprises the TOE software:

- DDOS (Data Domain Operating System) version 6.0.1.10-561375

Running on one of the following Dell Hardware boxes:

- DD2200;
- DD6300;
- DD6800;
- DD9300; and
- DD9800.

### 4.1 DOCUMENTATION

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

- a) EMC® Data Domain Operating System Administration Guide, Version 6.0;
- b) EMC® Data Domain Operating System Initial Configuration Guide, Version 6.0;
- c) EMC® Data Domain Operating System Command Reference Guide, Version 6.0;
- d) EMC Data Domain DD2200 System Installation and Setup Guide;
- e) EMC Data Domain DD2200 and DD2500 Systems Hardware Overview;
- f) EMC® Data Domain DD6300, DD6800 and DD9300 Systems Hardware Overview and Installation Guide;
- g) EMC® Data Domain DD9500 and DD9800 Systems Hardware Overview and Installation Guide; and
- h) Data Domain Boost for OpenStorage Administration Guide.



## 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. Repeat of Developer's Tests: The evaluator repeated a subset of the developers tests;
- b. Validating Authentication Input: The objective of this test goal is to confirm authentication input to the Web interface is validated for input over 256 bytes and 512 bytes, and doesn't cause a buffer overflow;
- c. User Data Protection: The objective of this test goal is to confirm that data is synchronized or preserved during:
  - a. A Power Failure;
  - b. A Hardware Failure; and
  - c. A disk Failure.

#### 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

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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.

### 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 5, for conformance to the Common Criteria for IT Security Evaluation, Version 3.1 Revision 5. 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
CC	Common Criteria
CCEF	Common Criteria Evaluation Facility
CLI	Command-line interface
CM	Configuration Management
CMVP	Cryptographic Module Validation Program
CPL	Certified Products List
CSE	Communications Security Establishment
DDOS	Data Domain Operating System
DD System Manager	Data Domain System Manager
EAL	Evaluation Assurance Level
ETR	Evaluation Technical Report
GC	Government of Canada
GUI	Graphical user interface
IT	Information Technology
ITS	Information Technology Security
PP	Protection Profile
SFR	Security Functional Requirement
ST	Security Target
TSF	TOE Security Function
TOE	Target of Evaluation



## 8.2 REFERENCES

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Reference
Common Criteria for Information Technology Security Evaluation, Version 3.1 Revision 5, April 2017.
Common Methodology for Information Technology Security Evaluation, CEM, Version 3.1 Revision 5, April 2017.
Dell EMC™ Data Domain® 6.0 Security Target, version 1.5, 28 August 2017
Evaluation Technical Report for Dell EMC™ Data Domain® 6.0, version 1.0, 20 October 2017