National Information Assurance Partnership

Common Criteria Evaluation and Validation Scheme

Validation Report

Aruba ClearPass Policy Manager 6.9

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ACKNOWLEDGEMENTS

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1 Executive Summary

This report documents the assessment of the National Information Assurance Partnership (NIAP) validation team of the evaluation of Aruba ClearPass Policy Manager 6.9 provided by Aruba. 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 Catonsville, MD, United States of America, and was completed in August 2020. 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 Network Devices, Version 2.1, 24 September 2018 and Network Device Collaborative Protection Profile (NDcPP) and any applicable NIAP technical decisions in force at the time of evaluation.

The Target of Evaluation (TOE) is the Aruba ClearPass Policy Manager 6.9 on the C1000, C2000, C3000 and C3010 appliances.

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 ETR 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 correct. The conclusions of the testing laboratory presented in the evaluation technical report are consistent with the evidence produced.

The technical information included in this report was obtained from the ClearPass Policy Manager (NDcPP21) Security Target, Version 1.1, 08/26/2020 and analysis of the test related documentation as 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 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 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	Aruba ClearPass Policy Manager 6.9 on the C1000, C2000, C3000, C3110 appliances
Protection Profile	collaborative Protection Profile for Network Devices, Version 2.1, 24 September 2018
ST	Aruba ClearPass Policy Manager 6.9 Security Target, Version 1.1, 08/26/2020
Evaluation Technical Report	Evaluation Technical Report for Aruba ClearPass Policy Manager 6.9, version 1.0, 08/31/2020
CC Version	Common Criteria for Information Technology Security Evaluation, Version 3.1, rev 5
Conformance Result	CC Part 2 extended, CC Part 3 conformant
Sponsor	Aruba, a Hewlett Packard Enterprise company
Developer	Aruba, a Hewlett Packard Enterprise company
Common Criteria Testing Lab (CCTL)	Gossamer Security Solutions, Inc. Catonsville, MD
CCEVS Validators	Marybeth Panock, Kenneth Stutterheim

3 Architectural Information

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

The Aruba ClearPass Policy Manager platform provides role- and device-based network access control for employees, contractors and guests across any wired, wireless and VPN infrastructure. ClearPass implements RADIUS services, as well as profiling, onboarding, guest access, and health checks facilitating centralized management of network access policies.

ClearPass provides user and device authentication based on 802.1X, non-802.1X and web portal access methods. Multiple authentication protocols like PEAP, EAP-FAST, EAP-TLS, and EAP-TTLS can be used concurrently to strengthen security in any environment. Attributes from multiple identity stores such as Microsoft Active Directory, LDAP-compliant directory, ODBC-compliant SQL database, token servers and internal databases can be used within a single policy for fine-grained control.

Additional information about the supported network access control capabilities can be found in the ClearPass Policy Manager data sheet available at the following link: http://www.arubanetworks.com/pdf/products/DS_ClearPass_PolicyManager.pdf; however, for the purpose of evaluation, ClearPass will be treated as a network infrastructure device offering FIPS certified cryptographic functions, security auditing, secure administration, trusted updates, self-tests, and secure connections to other servers (e.g., to transmit audit records).

3.1 TOE Evaluated Configuration

The evaluated TOE consists ClearPass Policy Manager version 6.9 operating on one of four hardware appliance models as listed in table 1-1. More detail regarding the evaluated configuration is provided in Section 8 below.

3.2 TOE Architecture

The ClearPass Policy Manager is available either as a hardware or virtual network appliance and is designed to support a wide range of network, wireless and security protocols to support a wide range of clients. However, the evaluation was limited to the hardware network appliances and the secure communication protocols specifically identified below.

There are four TOE appliance models designed to support different numbers of client devices. Each platform differs in CPU performance (e.g., number of cores), available memory, disk performance and storage capacity, and power consumption/supply.

Table 3-1 TOE Models

Appliance Model	CPU
C1000	Intel Atom C2758 (Rangeley)
C2000	Intel Xeon E3-1240 v5 (Skylake)
C3000 (legacy only)	Intel Xeon E5-2620 v3 (Haswell)
C3010	Intel Xeon Gold 5118 (Skylake)

While ClearPass Policy Manager products can be configured as a collection of devices operating in a cluster sharing a common security policy, the TOE configuration subject to this evaluation was limited to a single ClearPass Policy Manager device.

Each ClearPass Policy Manager device is a rack-mountable appliance with Intel Atom or Xeon CPUs running a version of CentOS 7.7 to host the application designed to provide the network access control capabilities summarized above. ClearPass includes a version of Hewlett Packard Enterprise SSL crypto module which is used to perform cryptographic functions. This module is based on SafeLogic CryptoComply Version 2.1 and supports the implementations of IPsec using StrongSwan, TLS/HTTPS using Apache, and SSH using OpenSSH used to secure the communication channels (for remote administration, exporting audit events, and syncing with an NTP server).

3.3 Physical Boundaries

The physical boundaries of the TOE consists of a single ClearPass Policy Manager device running software version 6.9.

The ClearPass evaluated configuration includes one of the devices identified in Section 3.2 Table 1-1.

4 Security Policy

This section summarizes the security functionality of the TOE:

1. Security audit
2. Cryptographic support
3. Identification and authentication
4. Security management
5. Protection of the TSF
6. TOE access
7. Trusted path/channels

4.1 Security audit

The TOE is able to generate logs for a wide range of security relevant events. The TOE can be configured to store the logs locally so they can be accessed by an administrator, or configured to forward the logs to a designated syslog server.

4.2 Cryptographic support

The TOE includes an Aruba Linux Cryptographic Module that provides key management, random bit generation, encryption/decryption, digital signature and secure hashing and key-hashing features in support of higher level cryptographic protocols including IPsec, SSH, and TLS/HTTPS.

4.3 Identification and authentication

The TOE offers no TSF-mediated functions except the display of a login banner until such time as the administrator is identified and authenticated. The TOE authenticates administrative users accessing the TOE via the command-line interface (local serial console or SSH) or web interface (Web UI) in the same manner through the use of its own password-

based authentication mechanism. The TOE supports public-key based authentication of users through the SSH-based CLI interface and supports certificate authentication for the Web UI.

The TOE supports certificate authentication for TLS and IPsec and supports pre-shared key authentication for IPsec connections. The TOE uses X.509v3 certificates and can validate received authentication certificates. CRL and OCSP are supported for X509v3 certificate validation.

4.4 Security management

The TOE provides a Command Line Interface (CLI) either locally via a serial console or remotely via SSH; as well as a Web-based Graphical User Interface (Web GUI) to access the available functions for the management of the TOE security functions. Security management commands are limited to authorized users (i.e., administrators) only after they have been correctly identified and authenticated. The security management functions are controlled through the use of administrative privileges that can be assigned to TOE users.

4.5 Protection of the TSF

The TOE implements a number of features to protect itself and to ensure the reliability and integrity of its security functions.

The TOE protects data such as stored passwords and private cryptographic keys such that they are not accessible, even by an administrator. It also provides its own timing mechanism to ensure that reliable time information is available for security related functions (e.g., for audit records).

The TOE includes functions to perform self-tests so that it might detect when it is failing. It also includes mechanisms so that the TOE can be updated while ensuring that the updates will not introduce malicious or other unexpected changes in the TOE.

4.6 TOE access

The TOE can be configured to display an informative banner when an administrator establishes an interactive session. The TOE can enforce an administrator-defined inactivity timeout value after which the inactive session (local or remote) will be terminated. The TOE can also reject authentication requests based on time of day, account status, location and role mapping.

4.7 Trusted path/channels

The TOE protects interactive communication with administrators using a console and SSHv2 for CLI access and TLS/HTTPS for Web UI access. In each case, both the integrity and disclosure protection is ensured via the secure protocol. If the negotiation of a secure session fails or if the user cannot be authenticated for remote administration, the attempted session will not be established.

The TOE protects communication with network peers, such as a syslog server or NTP server, using IPsec connections to prevent unintended disclosure or modification of logs.

5 Assumptions & Clarification of Scope

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

- collaborative Protection Profile for Network Devices, Version 2.1, 24 September 2018

That information has not been reproduced here and the NDcPP21 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 NDcPP21 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 may benefit from additional clarification. This 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; through the execution of the assurance activities specified in the Supporting Document Evaluation Activities for Network Device cPP v2.1 as 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.
- 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 NDcPP21 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:

- Common Criteria Configuration Guidance Aruba ClearPass Policy Manager Version 6.9, Version 4.1, August 2020.

The documentation listed above is the only documentation that should be trusted to install, administer, or use the TOE in its evaluated configuration. 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 as evaluated.
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 Assurance Activity Report for Aruba ClearPass Policy Manager 6.9, Version 1.0, 08/31/2020 (AAR).

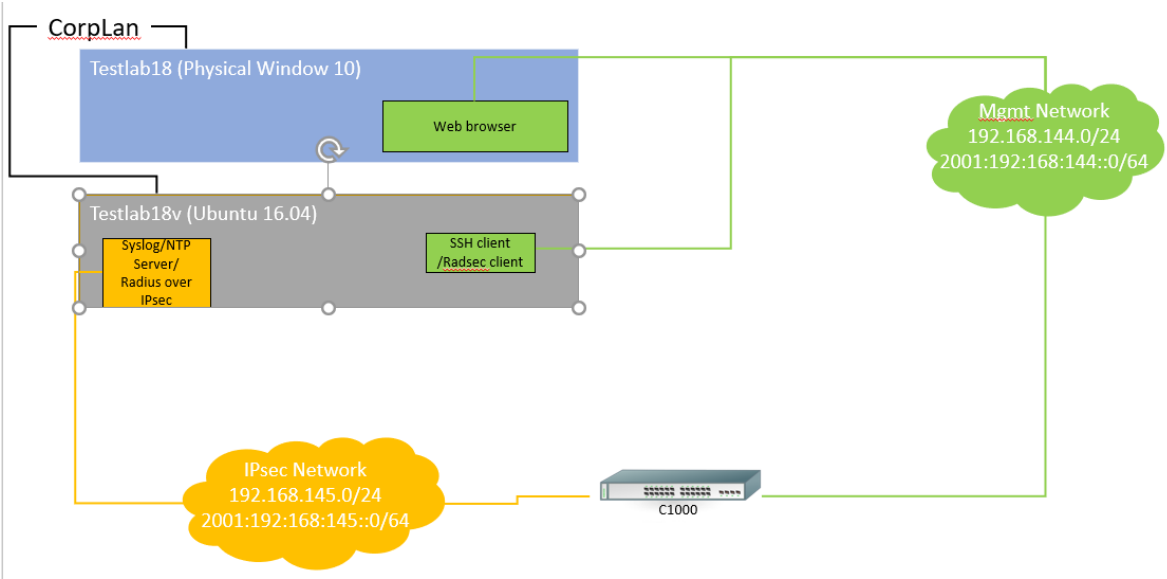
7.1 Developer Testing

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 a Common Criteria Certification document and ran the tests specified in the NDcPP21 including the tests associated with optional requirements.

7.3 Test Configuration



7.4 Test Tools

Supporting Platforms and Software:

- Windows 10, 64-bit
    - Standard Windows utilities (e.g., notepad, snip tool)
    - Putty release 0.73
    - HxD (Hexeditor) version 1.7.7.0
    - Wireshark version 3.2.2
- Ubuntu version 14.10, 64-bit
    - Standard Linux commands
    - OpenSSL version 1.0.2g-fips
    - Strongswan version U5.3.5
    - Stunnel version 5.30
    - Eapol_test version 2.6
    - tcpdump
    - rsyslog version 8.16.0
    - ntpd version ntpd 4.2.8p4

8 Evaluated Configuration

The evaluated configuration consists of the following appliance models running software version 6.9:

- C1000
- C2000
- C3000
- C3010

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 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 ClearPass Policy Manager TOE to be Part 2 extended, and to meet the SARs contained in the NDcPP21.

9.1 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 Aruba ClearPass Policy Manager 6.9 products that are consistent with the Common Criteria, and product security function descriptions that support the requirements.

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 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 NDcPP21 related to the examination of the information contained in the TSS.

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.

9.3 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. The guides were assessed during the design and testing phases of the evaluation to ensure they were complete.

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.

9.4 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 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 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 NDcPP21 and recorded the results in a Test Report, summarized in the AAR.

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.

9.6 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 and fuzz testing. None of the public search for vulnerabilities, or the fuzz testing uncovered any residual vulnerability.

The evaluation team performed a public search for vulnerabilities in order to ensure there are no publicly known and exploitable vulnerabilities in the TOE from the following sources:

- National Vulnerability Database (https://web.nvd.nist.gov/vuln/search)
- Vulnerability Notes Database (http://www.kb.cert.org/vuls/)
- Rapid7 Vulnerability Database (https://www.rapid7.com/db/vulnerabilities)
- Tipping Point Zero Day Initiative (http://www.zerodayinitiative.com/advisories)
- Exploit / Vulnerability Search Engine (http://www.exploitsearch.net)
- SecurITeam Exploit Search (http://www.securiteam.com)
- Tenable Network Security (http://nessus.org/plugins/index.php?view=search)
- Offensive Security Exploit Database (https://www.exploit-db.com/)

The search was performed on 08/31/2020 with the following search terms: "switch", "router", "TCP", "IPsec", "TLS", "SSH", "RadSec", "EAP-TLS", "Radius", "Aruba", "HPE Aruba" and "Clearpass".

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.

9.7 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.

10 Validator Comments/Recommendations

None

11 Annexes

Not applicable

12 Security Target

The Security Target is identified as: *Aruba ClearPass Policy Manager (NDcPP21) Security Target, Version 1.1, 08/26/2020*.

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 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 Network Devices, Version 2.1, 24 September 2018.

[5] Aruba ClearPass Policy Manager (NDcPP21) Security Target, Version 1.1, 08/26/2020 (ST).

[6] Assurance Activity Report for Aruba ClearPass Policy Manager 6.9, Version 1.0, 08/31/2020 (AAR).

[7] Detailed Test Report for Aruba ClearPass Policy Manager 6.9, Version 1.3, 08/31/2020 (DTR).

[8] Evaluation Technical Report for Aruba ClearPass Policy Manager, Version 1.0, 08/31/2020 (ETR)