# National Information Assurance Partnership

# Common Criteria Evaluation and Validation Scheme

# Validation Report

# for the

# Cisco Aggregation Services Router 1000 Series (ASR1K), Cisco Cloud Services Router 1000V (CSR1000V), Cisco Integrated Services Router 1100 Series (ISR1100), Cisco Integrated Services Router 4200 Series (ISR4K) running IOS-XE 17.3

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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 **Cisco Aggregation Services Router 1000 Series (ASR1K), Cisco Cloud Services Router 1000V (CSR1000V), Cisco Integrated Services Router1100 Series (ISR1100), Cisco Integrated Services Router 4200 Series (ISR4K) running IOX-XE 17.3** 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 **December 2021**. The information in this report is largely derived from the Evaluation Technical Report (ETR) and associated test report, 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 PP-Configuration for Network Device and Virtual Private Network (VPN) Gateways (CFG_NDcPP-VPNGW_V1.1), which includes the **collaborative Protection Profile for Network Devices Version 2.2e and PP-Module for Virtual Private Network (VPN) Gateways Version 1.1**.

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), as interpreted by the Assurance Activities contained in the PP-Configuration for Network Device and Virtual Private Network (VPN) Gateways (CFG_NDcPP-VPNGW_V1.1). 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 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). CCTLs evaluate products against Protection Profiles containing Assurance Activities, which are interpretation of 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 Compliant 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 Configuration 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** | Cisco Aggregation Services Router 1000 Series (ASR1K), Cisco Cloud Services Router 1000V (CSR1000V), Cisco Integrated Services Router1100 Series (ISR1100), Cisco Integrated Services Router 4200 Series (ISR4K) running IOS-XE 17.3 |
| **Protection Profile** | PP-Configuration for Network Devices and Virtual Private Network (VPN) Gateways, which includes the collaborative Protection Profile for Network Devices Version 2.2e and PP-Module for Virtual Private Network (VPN) Gateways Version 1.1 |
| **Security Target** | Cisco Aggregation Services Router 1000 Series (ASR1K), Cisco Cloud Services Router 1000V (CSR1000V), Cisco Integrated Services Router 1100 Series (ISR1100), Cisco Integrated Services Router 4200 Series (ISR4K) running IOS-XE 17.3 Security Target, version 1.0 |
| **Evaluation Technical Report** | Evaluation Technical Report for Cisco Aggregation Services Router 1000 Series (ASR1K), Cisco Cloud Services Router 1000V (CSR1000V), Cisco Integrated Services Router 1100 Series (ISR1100), Cisco Integrated Services Router 4200 Series (ISR4K) running IOS-XE 17.3, version 1.2 |
| **CC Version** | Version 3.1, Revision 5 |
| **Conformance Result** | CC Part 2 Extended and CC Part 3 Conformant |

| | |
|---|---|
| **Sponsor** | Cisco Systems, Inc. |
| **Developer** | Cisco Systems, Inc. |
| **Common Criteria Testing Lab (CCTL)** | Acumen Security<br>2400 Research Blvd, Suite 395,<br>Rockville, MD 20850. |
| **CCEVS Validators** | Joyce Baidoo, Ken Elliott, Meredith Hennan, Peter Kruus and Dale Schroeder |

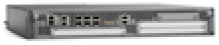
# 3 Architectural Information

The Cisco Aggregation Services Router 1000 Series (herein after referred to as the ASR1K), Cisco Cloud Services Router 1000V (herein after referred to as the CSR1000V), Cisco Integrated Services Router 1100 Series (herein after referred to as the ISR1100), and the Cisco Integrated Services Router 4200 Series (herein after referred to as the ISR4K) are purpose-built routing platforms that include VPN functionality.

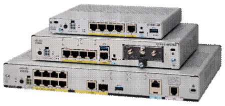
Cisco IOS-XE software is a Cisco-developed highly configurable proprietary operating system that provides for efficient and effective switching and routing. Although IOS performs many networking functions, this Security Target only addresses the functions that provide for the security of the TOE itself.

The TOE includes the hardware models as defined in Table 2.

**Table 2 Hardware Models and Specifications**

| Hardware | Processor | Features |
|---|---|---|
| ASR1002-X  | Intel Xeon EC3539 (Nehalem) | **Physical dimensions** (H x W x D in.)<br>• 3.5 x 17.2 x 22 in<br>**Interfaces**<br>• Shared Port Adapters: 3<br>• Built-in Gigabit Ethernet ports: 6<br>• ESP Bandwidth: 5 to 36 Gbps |
| ASR1006<br>ASR1000-ESP100<br>ASR1000-RP2 | Intel Xeon L5238 (Wolfdale) | **Physical dimensions** (H x W x D in.)<br>• 10.5 x 17.2 x 18.5 in<br>**Interfaces**<br>• Shared Port Adapters: 12<br>• Built-in Gigabit Ethernet ports: 0<br>• ESP Bandwidth: 10 to 100 Gbps |
| CSR1000V virtual router compatible Cisco UCS Servers and other general-purpose computing platforms with specified Intel processors | Intel Xeon Scalable 2nd Generation (Cascade Lake) [1] with ESXi 6.7<br>Intel Broadwell processors with ESXi 6.7 | **Cisco UCS C-Series M5 Servers and General-purpose computing hardware Interfaces:**<br>All compatible hardware platforms have a dedicated OOB management port and at least two physical Gigabit ethernet interfaces. |

[1] Evaluated on UCS C220 M5 with Intel Xeon Gold 6244

| Hardware | Processor | Features |
|---|---|---|
|  | Intel Goldmont processors with ESXi 6.7<br>Intel Coffee Lake processors with ESXi 6.7 | **VM Interfaces:**<br>• One dedicated management port<br>• Two or more virtual network interfaces with adaptor type VMXNET3 that are mapped to physical ethernet ports on the host server via ESXi |
| ISR 1100 Series Routers C1101, C1109, C1111, C1112, C1113, C1116, C1117, C1118, C1121, C1126, C1127, C1128 C1161<br> | Marvell Armada (Cortex - A72) | **Physical dimensions** (H x W x D in.)<br>• 1.75 x 12.7 x 9.6 in. (LTE)<br>• 1.75 x 12.7 x 9.03 in. (Non-LTE)<br>• 1.73 x 9.75 x 6.6 in. (C1101 LTE)<br>• 1.1 x 7.5 x 6.0 in. (C1101 Non-LTE)<br>**Interfaces**<br>• Up to 10 built-in 10/100/1000 Ethernet ports for WAN or LAN.<br>• One 10/100/1000 Ethernet port that can support (SFP)-based or RJ-45 connections.<br>• PoE/PoE+ on Gigabit Ethernet interfaces (enabled on specific platforms).<br>• One Gigabit Ethernet port is provided for device management. |
| ISR4221<br> | Intel Atom C2558 (Silvermont) | **Physical dimensions** (H x W x D in.)<br>• 1.72 x 12.7 x 10<br>**Interfaces**<br>• Two RJ-45 WAN or LAN 10/100/1000 ports<br>• One SFP WAN or LAN 10/100/1000 port<br>• Two NIM slots<br>• One External USB 2.0 slot<br>• One Serial console port<br>• 8 GB Flash Memory default<br>• 4 GB DRAM default |

# 4 Security Policy

The TOE is comprised of several security features. Each of the security features identified above consists of several security functionalities, as identified below.

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

These features are described in more detail in the subsections below.

## 4.1 Security Audit

The TOE provides extensive auditing capabilities. The TOE can audit events related to cryptographic functionality, identification and authentication, and administrative actions. The TOE generates an audit record for each auditable event. Each security relevant audit event has the date, timestamp, event description, and subject identity. The administrator configures auditable events, performs back-up operations and manages audit data storage. The TOE provides the administrator with a circular audit trail or a configurable audit trail threshold to track the storage capacity of the audit trail. Audit logs are backed up over an encrypted channel to an external audit server.

## 4.2 Cryptographic Support

The TOE provides cryptography in support of other TOE security functionality. All the algorithms claimed have CAVP certificates for all processors listed in Table 2 of the ST. The TOE leverages the IOS Common Cryptographic Module (IC2M) Rel5 (see Table 3 for certificate references).

**Table 3 FIPS references**

| Algorithm | Description | Supported Mode | Module | CAVP Cert. # | SFR |
|---|---|---|---|---|---|
| AES | Used for symmetric encryption/decryption | CBC (128, 192 and 256)<br>GCM (128, 192 and 256) | IC2M | A1462 | FCS_COP.1/DataEncryption |
| SHS (SHA-1, SHA-256, SHA-384 and SHA-512) | Cryptographic hashing services | Byte Oriented | IC2M | A1462 | FCS_COP.1/Hash |

| Algorithm | Description | Supported Mode | Module | CAVP Cert. # | SFR |
|---|---|---|---|---|---|
| HMAC (HMAC-SHA-1, SHA-256, SHA-512) | Keyed hashing services and digital signature | Byte Oriented | IC2M | A1462 | FCS_COP.1/KeyedHash |
| DRBG | Deterministic random bit generation services in accordance with ISO/IEC 18031:2011 | CTR_DRBG (AES 256) | IC2M | A1462 | FCS_RBG_EXT.1 |
| RSA | Signature Verification and key transport | PKCS#1 v.1.5, 3072 bit key,<br>FIPS 186-4 Key Gen | IC2M | A1462 | FCS_CKM.1<br>FCS_COP.1/SigGen |
| ECDSA | Cryptographic Signature services | FIPS 186-4, Digital Signature Standard (DSS) | IC2M | A1462 | FCS_CKM.1<br>FCS_COP.1/SigGen |
| CVL-KAS-ECC | Key Agreement | NIST Special Publication 800-56A | IC2M | A1462 | FCS_CKM.2 |
| KAS-FFC-SSC | Key Agreement | NIST Special Publication 800-56A | IC2M | A1462 | FCS_CKM.2 |

The TOE provides cryptography in support of VPN connections and remote administrative management via SSHv2, and IPsec to secure the transmission of audit records to the remote syslog server. In addition, IPsec is used to secure the session between the TOE and the authentication servers.

The cryptographic services provided by the TOE are described in Table 4 below:

**Table 4 TOE Provided Cryptography**

| Cryptographic Method | Use within the TOE |
|---|---|
| Internet Key Exchange | Used to establish initial IPsec session. |
| Secure Shell Establishment | Used to establish initial SSH session. |

| Cryptographic Method | Use within the TOE |
|---|---|
| RSA Signature Services | Used in IPsec session establishment.<br>Used in SSH session establishment.<br>X.509 certificate signing. |
| SP 800-90 RBG | Used in IPsec session establishment.<br>Used in SSH session establishment. |
| SHS | Used to provide IPsec traffic integrity verification.<br>Used to provide SSH traffic integrity verification.<br>Used for keyed-hash message authentication. |
| AES | Used to encrypt IPsec session traffic.<br>Used to encrypt SSH session traffic. |
| HMAC | Used for keyed hash, integrity services in IPsec and SSH session establishment. |
| RSA | Used in IKE protocols peer authentication.<br>Used to provide cryptographic signature services. |
| ECDSA | Used to provide cryptographic signature services.<br>Used in Cryptographic Key Generation.<br>Used as the Key exchange method for IPsec. |
| FFC DH | Used as the Key exchange method for SSH and IPsec. |
| ECC DH | Used as the Key exchange method for IPsec. |

### 4.3 Identification and authentication

The TOE performs two types of authentication: device-level authentication of the remote device (VPN peers) and user authentication for the Authorized Administrator of the TOE.  Device-level authentication allows the TOE to establish a secure channel with a trusted peer.  The secure channel is established only after each device authenticates the other.  Device-level authentication is performed via IKE/IPsec mutual authentication. The TOE supports use of IKEv1 (ISAKMP) and IKEv2 pre-shared keys for authentication of IPsec tunnels. The IKE phase authentication for the IPsec communication channel between the TOE and authentication server and between the TOE and syslog server is considered part of the Identification and Authentication security functionality of the TOE.

The TOE provides authentication services for administrative users to connect to the TOE's secure CLI administrator interface. The TOE requires Authorized Administrators to authenticate prior to being granted access to any of the management functionality. The TOE can be configured to require a minimum password length of 15 characters. The TOE provides administrator authentication against a local user database. Password-based authentication can be performed on the serial console or SSH interfaces. The SSHv2 interface also supports authentication using SSH keys. The TOE supports the use of a RADIUS AAA server (part of the IT Environment) for authentication of administrative users attempting to connect to the TOE's CLI.

The TOE provides an automatic lockout when a user attempts to authenticate and enters invalid information. After a defined number of authentication attempts fail exceeding the configured allowable attempts, the user is locked out until an authorized administrator can enable the user account.

## 4.4 Security Management

The TOE provides secure administrative services for management of general TOE configuration and the security functionality provided by the TOE. All TOE administration occurs either through a secure SSHv2 session or via a local console connection. The TOE provides the ability to securely manage:

- Administration of the TOE locally and remotely;
- All TOE administrative users;
- All identification and authentication;
- All audit functionality of the TOE;
- All TOE cryptographic functionality;
- The timestamps maintained by the TOE;
- Update to the TOE and verification of the updates;
- Configuration of IPsec functionality.

The TOE supports two separate administrator roles: non-privileged administrator and privileged administrator. Only the privileged administrator can perform the above security relevant management functions. Management of the TSF data is restricted to Security Administrators. The ability to enable, disable, determine and modify the behavior of all of the security functions of the TOE is restricted to authorized administrators.

Administrators can create configurable login banners to be displayed at time of login, and can also define an inactivity timeout for each admin interface to terminate sessions after a set period of inactivity.

## 4.5 Packet Filtering

The TOE provides packet filtering and secure IPsec tunneling. The tunnels can be established between two trusted VPN peers. More accurately, these tunnels are sets of security associations (SAs). The SAs define the protocols and algorithms to be applied to sensitive packets and specify the keying material to be used. SAs are unidirectional and are established per the ESP security protocol.  An authorized administrator can define the traffic that needs to be protected via IPsec by configuring access lists (permit, deny, log) and applying these access lists to interfaces using crypto map sets.

## 4.6 Protection of the TSF

The TOE protects against interference and tampering by untrusted subjects by implementing identification, authentication, and access controls to limit configuration to Authorized Administrators.  The TOE prevents reading of cryptographic keys and passwords.

Additionally, Cisco IOS-XE is not a general-purpose operating system and access to Cisco IOS-XE memory space is restricted to only Cisco IOS-XE functions.

The TOE internally maintains the date and time.  This date and time is used as the timestamp that is applied to audit records generated by the TOE.  Administrators can update the TOE's clock manually.  Finally, the TOE performs testing to verify correct operation of the router itself and that of the cryptographic module.

The TOE is able to verify any software updates prior to the software updates being installed on the TOE to avoid the installation of unauthorized software.

Whenever a failure occurs within the TOE that results in the TOE ceasing operation, the TOE securely disables its interfaces to prevent the unintentional flow of any information to or from the TOE and reloads.

## 4.7 TOE Access

The TOE can terminate inactive sessions after an Authorized Administrator configurable time-period.  Once a session has been terminated the TOE requires the user to re-authenticate to establish a new session.  Sessions can also be terminated if an Authorized Administrator enters the "exit" or "logout" command.

The TOE can also display a Security Administrator specified banner on the CLI management interface prior to allowing any administrative access to the TOE.

## 4.8 Trusted path/Channels

The TOE allows trusted paths to be established to itself from remote administrators over SSHv2 which has the ability to be encrypted further using IPsec, and initiates outbound IPsec tunnels to transmit audit messages to remote syslog servers.  In addition, IPsec is used to secure the session between the TOE and the authentication servers.  The TOE can also establish trusted paths of peer-to-peer IPsec sessions.  The peer-to-peer IPsec sessions must be used for securing the communications between the TOE and authentication server/syslog server, as well as to protect communications with a CA.

# 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.

**Table 5 TOE Assumptions**

| Assumption | Assumption Definition |
|---|---|
| A.PHYSICAL_PROTECTION | The Network Device is assumed to be physically protected in its operational environment and not subject to physical attacks that compromise the security 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 does not include any requirements on physical tamper protection or other physical attack mitigations. The cPP does 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. For vNDs, this assumption applies to the physical platform on which the VM runs. |
| A.LIMITED_FUNCTIONALITY | The device is assumed 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 computing platform for general purpose applications (unrelated to networking functionality).<br>If a virtual TOE evaluated as a pND, following Case 2 vNDs as specified in Section 1.2, the VS is considered part of the TOE with only one vND instance for each physical hardware platform. The exception being where components of a distributed TOE run inside more than one virtual machine (VM) on a single VS. In Case 2 vND, no non-TOE guest VMs are allowed on the platform. |
| A.NO_THRU_TRAFFIC_PROTECTION | 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 ND cPP. It is assumed that this protection will be covered by cPPs and PP-Modules for particular types of Network Devices (e.g, firewall). |
| A.TRUSTED_ADMINISTRATOR | The Security Administrator(s) for the Network Device are assumed 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. |

| Assumption | Assumption Definition |
|---|---|
| | 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.<br>For TOEs supporting X.509v3 certificate-based authentication, the Security Administrator(s) are expected to fully validate (e.g. offline verification) any CA certificate (root CA certificate or intermediate CA certificate) loaded into the TOE's trust store (aka 'root store', ' trusted CA Key Store', or similar) as a trust anchor prior to use (e.g. offline verification). |
| A.REGULAR_UPDATES | The Network Device firmware and software is assumed to be updated by an administrator on a regular basis in response to the release of product updates due to known vulnerabilities. |
| A.ADMIN_CREDENTIALS_SECURE | The administrator's credentials (private key) used to access the Network Device are protected by the platform on which they reside. |
| A.RESIDUAL_INFORMATION | 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. |
| A.VS_TRUSTED_ADMINISTRATOR [2] | The Security Administrators for the VS are assumed to be trusted and to act in the best interest of security for the organization. This includes not interfering with the correct operation of the device. The Network Device is not expected to be capable of defending against a malicious VS Administrator that actively works to bypass or compromise the security of the device. |
| A.VS_REGULAR_UPDATES [3] | The VS software is assumed to be updated by the VS Administrator on a regular basis in response to the release of product updates due to known vulnerabilities. |
| A.VS_ISOLATON [3] | For vNDs, it is assumed that the VS provides, and is configured to provide sufficient isolation between software running in VMs on the same physical platform. Furthermore, it is assumed that the VS adequately protects itself from software running inside VMs on the same physical platform. |
| A.VS_CORRECT_CONFIGURATION [3] | For vNDs, it is assumed that the VS and VMs are correctly configured to support ND functionality implemented in VMs. |
| A.CONNECTIONS | It is assumed that the TOE is connected to distinct networks in a manner that ensures that the TOE security policies will be enforced |

[2] Applies to CSR1000V only

[3] Applies to CSR1000V only

| Assumption | Assumption Definition |
|---|---|
|  | on all applicable network traffic flowing among the attached networks. |

## 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.

**Table 6 Threats**

| Threat | Threat Definition |
|---|---|
| T.UNAUTHORIZED_ADMINISTRATOR_ACCESS | Threat agents may attempt to gain administrator access to the Network Device by nefarious means such as masquerading as an administrator to the device, masquerading as the device to an administrator, replaying an administrative session (in its entirety, or selected portions), or performing man-in-the-middle attacks, which would provide access to the administrative session, or sessions between Network Devices. Successfully gaining administrator access allows malicious actions that compromise the security functionality of the device and the network on which it resides. |
| T.WEAK_CRYPTOGRAPHY | Threat agents may exploit weak cryptographic algorithms or perform a cryptographic exhaust against the key space. Poorly chosen encryption algorithms, modes, and key sizes will allow attackers to compromise the algorithms, or brute force exhaust the key space and give them unauthorized access allowing them to read, manipulate and/or control the traffic with minimal effort |
| T.UNTRUSTED_COMMUNICATION_CHANNELS | Threat agents may attempt to target network devices that do not use standardized secure tunneling protocols to protect the critical network traffic. Attackers may take advantage of poorly designed protocols or poor key management to successfully perform man-in-the-middle attacks, replay attacks, etc. Successful attacks will result in loss of confidentiality and integrity of the critical network traffic, and potentially could lead to a compromise of the network device itself. |
| T.WEAK_AUTHENTICATION_ENDPOINTS | Threat agents may take advantage of secure protocols that use weak methods to authenticate the endpoints – e.g., shared password that is guessable or transported as plaintext. The consequences are the same as a poorly designed protocol, the attacker could masquerade as the administrator or another device, and the attacker could insert themselves into the network stream and perform a |

| Threat | Threat Definition |
|---|---|
| | man-in-the-middle attack. The result is the critical network traffic is exposed and there could be a loss of confidentiality and integrity, and potentially the Network Device itself could be compromised. |
| T.UPDATE_COMPROMISE | Threat agents may attempt to provide a compromised update of the software or firmware which undermines the security functionality of the device. Non-validated updates or updates validated using non-secure or weak cryptography leave the update firmware vulnerable to surreptitious alteration. |
| T.UNDETECTED_ACTIVITY | Threat agents may attempt to access, change, and/or modify the security functionality of the Network Device without administrator awareness. This could result in the attacker finding an avenue (e.g., misconfiguration, flaw in the product) to compromise the device and the administrator would have no knowledge that the device has been compromised. |
| T.SECURITY_FUNCTIONALITY_COMPROMISE | Threat agents may compromise credentials and device data enabling continued access to the Network Device and its critical data. The compromise of credentials include replacing existing credentials with an attacker's credentials, modifying existing credentials, or obtaining the administrator or device credentials for use by the attacker |
| T.PASSWORD_CRACKING | Threat agents may be able to take advantage of weak administrative passwords to gain privileged access to the device. Having privileged access to the device provides the attacker unfettered access to the network traffic, and may allow them to take advantage of any trust relationships with other Network Devices. |
| T.SECURITY_FUNCTIONALITY_FAILURE | An external, unauthorized entity could make use of failed or compromised security functionality and might therefore subsequently use or abuse security functions without prior authentication to access, change or modify device data, critical network traffic or security functionality of the device. |
| T.NETWORK_DISCLOSURE | Devices on a protected network may be exposed to threats presented by devices located outside the protected network, which may attempt to conduct unauthorized activities. If known malicious external devices are able to communicate with devices on the protected network, or if devices on the protected network can establish communications with those external devices (e.g., as a result of a phishing episode or by inadvertent responses to email messages), then |

| Threat | Threat Definition |
|---|---|
| | those internal devices may be susceptible to the unauthorized disclosure of information.<br>From an infiltration perspective, VPN gateways serve not only to limit access to only specific destination network addresses and ports within a protected network, but whether network traffic will be encrypted or transmitted in plaintext. With these limits, general network port scanning can be prevented from reaching protected networks or machines, and access to information on a protected network can be limited to that obtainable from specifically configured ports on identified network nodes (e.g., web pages from a designated corporate web server). Additionally, access can be limited to only specific source addresses and ports so that specific networks or network nodes can be blocked from accessing a protected network thereby further limiting the potential disclosure of information.<br>From an exfiltration perspective, VPN gateways serve to limit how network nodes operating on a protected network can connect to and communicate with other networks limiting how and where they can disseminate information. Specific external networks can be blocked altogether or egress could be limited to specific addresses and/or ports. Alternately, egress options available to network nodes on a protected network can be carefully managed in order to, for example, ensure that outgoing connections are encrypted to further mitigate inappropriate disclosure of data through packet sniffing. |
| T.DATA_INTEGRITY | Devices on a protected network may be exposed to threats presented by devices located outside the protected network, which may attempt to modify the data without authorization. If known malicious external devices are able to communicate with devices on the protected network or if devices on the protected network can communicate with those external devices then the data contained within the communications may be susceptible to a loss of integrity. |
| T.NETWORK_ACCESS | Devices located outside the protected network may seek to exercise services located on the protected network that are intended to only be accessed from inside the protected network or only accessed by entities using an authenticated path into the protected network. Devices located outside the protected network may, likewise, offer services that are inappropriate for access from within the protected network.<br>From an ingress perspective, VPN gateways can be configured so that only those network servers intended for external consumption by entities operating on a trusted network (e.g., machines operating on a network |

| Threat | Threat Definition |
|---|---|
| | where the peer VPN gateways are supporting the connection) are accessible and only via the intended ports. This serves to mitigate the potential for network entities outside a protected network to access network servers or services intended only for consumption or access inside a protected network.<br>From an egress perspective, VPN gateways can be configured so that only specific external services (e.g., based on destination port) can be accessed from within a protected network, or moreover are accessed via an encrypted channel. For example, access to external mail services can be blocked to enforce corporate policies against accessing uncontrolled e-mail servers, or, that access to the mail server must be done over an encrypted link. |
| T.NETWORK_MISUSE | Devices located outside the protected network, while permitted to access particular public services offered inside the protected network, may attempt to conduct inappropriate activities while communicating with those allowed public services. Certain services offered from within a protected network may also represent a risk when accessed from outside the protected network. From an ingress perspective, it is generally assumed that entities operating on external networks are not bound by the use policies for a given protected network. Nonetheless, VPN gateways can log policy violations that might indicate violation of publicized usage statements for publicly available services.<br>From an egress perspective, VPN gateways can be configured to help enforce and monitor protected network use policies. As explained in the other threats, a VPN gateway can serve to limit dissemination of data, access to external servers, and even disruption of services – all of these could be related to the use policies of a protected network and as such are subject in some regards to enforcement. Additionally, VPN gateways can be configured to log network usages that cross between protected and external networks and as a result can serve to identify potential usage policy violations. |
| T.REPLAY_ATTACK | If an unauthorized individual successfully gains access to the system, the adversary may have the opportunity to conduct a “replay” attack. This method of attack allows the individual to capture packets traversing throughout the network and send the packets at a later time, possibly unknown by the intended receiver. Traffic is subject to replay if it meets the following conditions:<br>• Cleartext: an attacker with the ability to view unencrypted traffic can identify an appropriate segment of the communications to replay as well in order to cause the desired outcome. |

| Threat | Threat Definition |
|---|---|
| | - No integrity: alongside cleartext traffic, an attacker can make arbitrary modifications to captured traffic and replay it to cause the desired outcome if the recipient has no means to detect these. |

## 5.3 Organizational Security Policies

The following table lists the Organizational Security Policies imposed by an organization to address its security needs.

**Table 7 Organizational Security Policies**

| Policy Name | Policy Definition |
|---|---|
| P.ACCESS_BANNER | The TOE shall display an initial banner describing restrictions of use, legal agreements, or any other appropriate information to which users consent by accessing the TOE. |

## 5.4 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 collaborative Protection Profile for Network Devices Version 2.2e and PP-Module for Virtual Private Network (VPN) Gateways Version 1.1.
- 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. Any additional non-security related functional capabilities of the product, even those described in the ST, were not covered by this evaluation.  Please see Section 7.2 for more information on functionality that is excluded from this evaluation.

# 6 Documentation

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

- Cisco Aggregation Services Router 1000 Series (ASR1K), Cisco Integrated Services Router 1100 Series (ISR1100), Cisco Integrated Services Router 4200 Series (ISR4K) running IOS-XE 17.3 CC Configuration Guide, Version 0.5

- Cisco Cloud Services Router 1000V (CSR1000V) running IOS-XE 17.3 CC Configuration Guide, Version 0.4

Any additional customer documentation provided with the product, or that is available online was not included in the scope of the evaluation and therefore should not be relied upon when configuring or operating the device as evaluated.

To use the product in the evaluated configuration, the product must be configured as specified in the Guidance Documentation listed above. Consumers are encouraged to download the configuration guides from the NIAP website to ensure the device is configured as evaluated.

# 7 TOE Evaluated Configuration

## 7.1 Evaluated Configuration

The following sections describe the TOE evaluated configurations that are covered by this evaluation. To ensure compliance for any of the below listed configurations, the TOE must be deployed as described in section 5.1 Assumptions of this document and be configured in accordance with the documentation identified in Section 6.

### 7.1.1 Cisco Aggregation Services Router 1000 Series (ASR1K)

The TOE consists of one physical device and includes Cisco IOS-XE version 17.3 software. The ASR1K hardware models included in this evaluation are the ASR1002X (2-RU) and ASR1006 (6-RU). Table 2 of the ST adds additional details on the physical characteristics of the two models. The TOE has two or more network interfaces and is connected to at least one internal and one external network. Typically, packet flows are passed through the internetworking device and forwarded to their configured destination.

The tested configuration of the TOE includes the ASR1000-SIP40 with SPA-5X1GE-V2.

### 7.1.2 Cisco Cloud Services Router 1000V (CSR1000V)

The TOE in the evaluated configuration contains the CSR1000V software image. The CSR1000V TOE requires the following:

- Cisco UCS C-Series M5 Server with Intel Xeon Scalable 2nd Generation processors or other general-purpose computing platforms with specified Intel processors as described in Table 2 of the ST.
- VMware ESXi 6.7 Hypervisor
- Virtual Machine (VM) Requirements: The following minimum technical specs are required on the Cisco UCS Server or general-purpose computing platforms to support the CSR1000V guest VM running Cisco IOS-XE version 17.3 software:
    - A single virtual hard disk – 8 GB minimum
    - One dedicated management port[4]
    - Two or more virtual network interfaces with adapter type VMXNET3 that are mapped to physical ethernet ports on the host server via ESXi
    - The following virtual CPU/RAM configurations are supported:
        - 1 virtual CPU, requiring 4 GB minimum of RAM
        - 2 virtual CPUs, requiring 4 GB minimum of RAM
        - 4 virtual CPUs, requiring 4 GB minimum of RAM
        - 8 virtual CPUs, requiring 4 GB minimum of RAM

The TOE has two or more network interfaces and is connected to at least one internal and one external network. Typically, packet flows are passed through the internetworking device and forwarded to their configured destination.

[4] VMware remote local console

**Evaluated configuration for the UCS C-Series M5 Servers with Intel Scalable 2nd Generation processors includes the following:**

- Intel Xeon Gold 6244 (Cascade Lake)
- VMware ESXi 6.7
- VMXNET3 NIC (3 physical GbE port mapped to 3 virtual NICs (Mgmt, WAN, LAN)
- 1vCPU
- 4GB RAM (virtual) / 64GB (physical)
- 8GB HDD (virtual) / 2TB (physical)

**Evaluated configuration for the general-purpose computing platforms with Intel Broadwell processors: includes the following:**

- Intel Xeon D-1559 (Broadwell)
- VMware ESXi 6.7
- VMXNET3 NIC (3 physical GbE port mapped to 3 virtual NICs (Mgmt, WAN, LAN)
- 1vCPU
- 4GB RAM (Virtual) / 64GB RAM (Physical)
- 8GB HDD (virtual) / 500GB (physical)

**Evaluated configuration for the general-purpose computing platforms with Intel Coffee Lake processors includes the following:**

- Intel Xeon E-2254ML (Coffee Lake)
- VMware ESXi 6.7
- VMXNET3 NIC (3 physical GbE port mapped to 3 virtual NICs (Mgmt, WAN, LAN)
- 1vCPU
- 4GB RAM (virtual) / 64GB (physical)
- 8GB HDD (virtual) / 2TB (physical)

**Evaluated configuration for the general-purpose computing platforms with Intel Goldmont processors includes the following:**

- Intel Atom E3950 (Goldmont)
- VMware ESXi 6.7
- VMXNET3 NIC (3 physical GbE port mapped to 3 virtual NICs (Mgmt, WAN, LAN)
- 1vCPU
- 4GB RAM (virtual) / 8GB (physical)
- 8GB HDD (virtual) / 500GB (physical)

### 7.1.3 Cisco Integrated Services Router 1100 Series (ISR1100)

The TOE consists of one physical device and includes Cisco IOS-XE version 17.3 software. The hardware model included in the evaluation are the C1101, C1109, C1111, C1112, C1113, C1116, C1117, C1118, C1121, C1126, C1127, C1128 and C1161. Table 2 adds additional details on the physical characteristics of the models. The TOE has two or more network interfaces and is connected to at least one internal and one external network. Typically, packet flows are passed through the internetworking device and forwarded to their configured destination.

### 7.1.4 Cisco Integrated Services Router 4200 Series (ISR4K)

The TOE consists of one physical device and includes Cisco IOS-XE version 17.3 software. The hardware models included in the evaluation is the ISR4221 with network interface module (NIM): NIM-1GE-CU-SFP. Table 2 adds additional details on the physical characteristics of the model. The TOE has two or more network interfaces and is connected to at least one internal and one external network. Typically, packet flows are passed through the internetworking device and forwarded to their configured destination.

The following two figures provide a visual depiction of an example TOE deployment for the ASR1K, ISR1100, ISR4k, and CSR1000V:

Figure 1 TOE Example Deployment for ASR1K, ISR1100, ISR4K

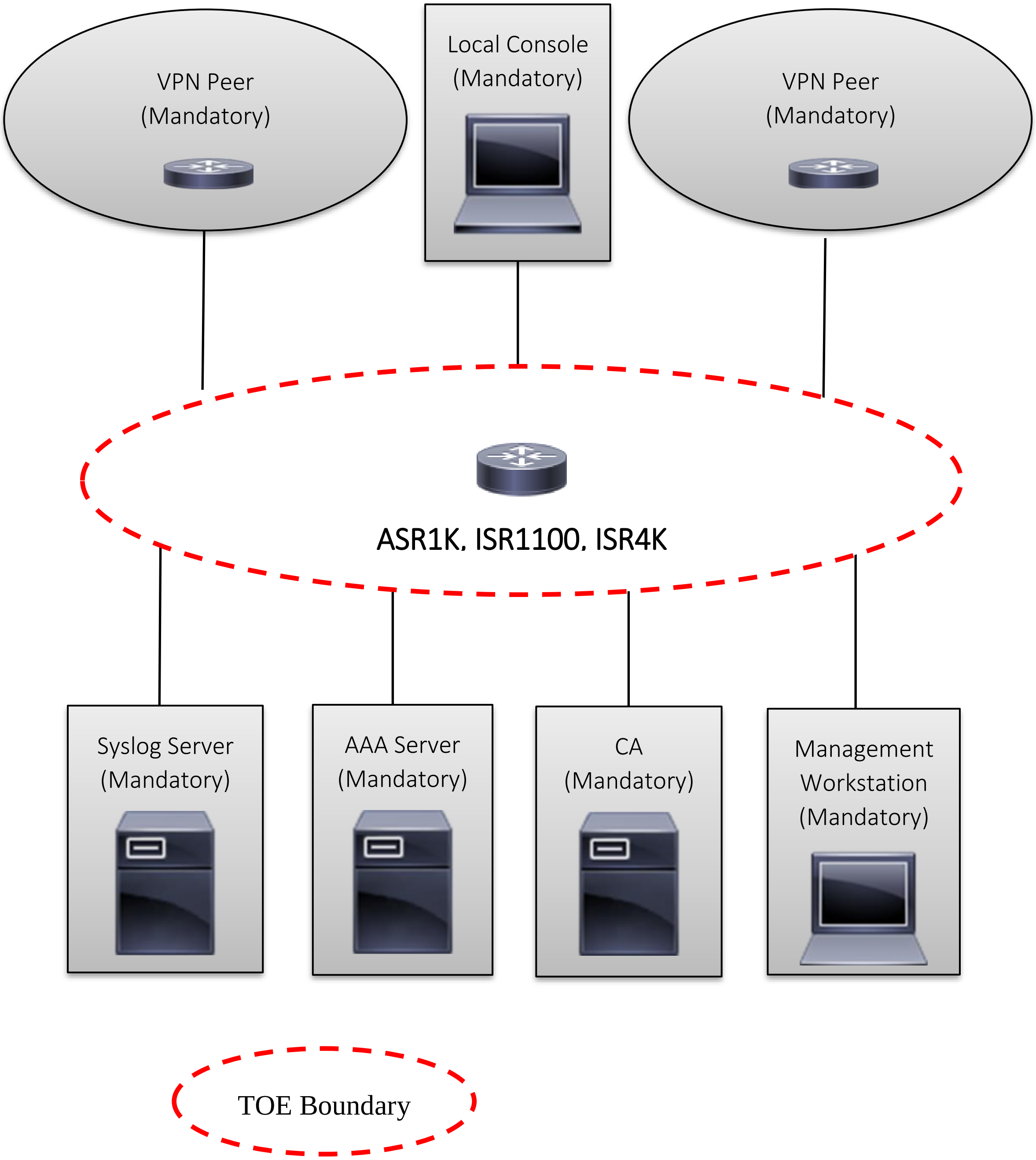
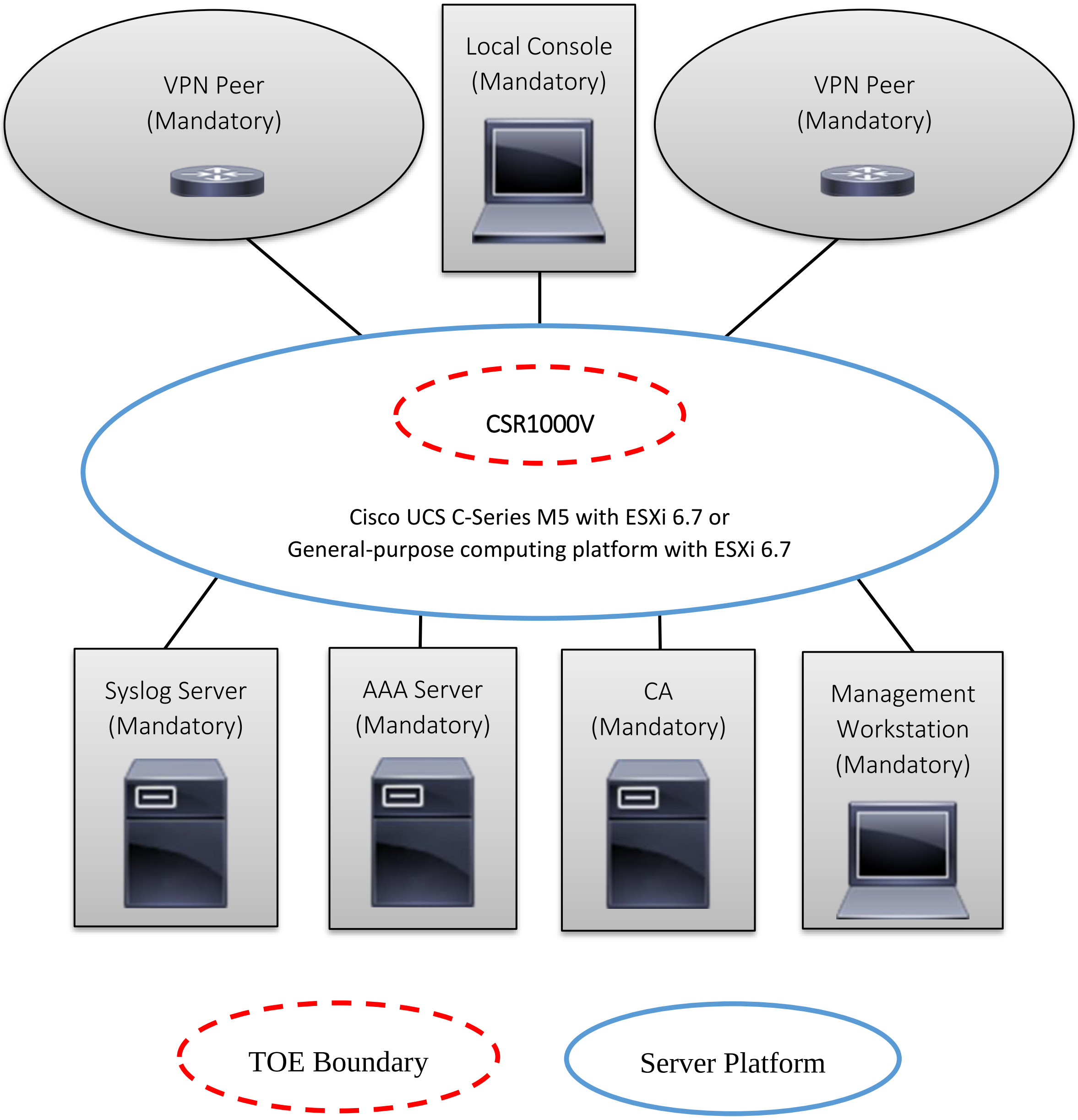


Figure 2 TOE Example Deployment for CSR1000V



**NOTE:** Figure 2 represents an example deployment with a single VM running on a server, but vND Case 1 does not restrict the server to a single guest VM.

Figures 1 and 2 include the following:

- Examples of TOE Models
- The following are considered to be in the IT Environment:
  - VPN Peer
  - Management Workstation
  - Radius AAA (Authentication) Server
  - Audit (Syslog) Server
  - Local Console
  - Certificate Authority (CA)

NOTE: While the previous figure includes several non-TOE IT environment devices, the TOE is only the CSR1000V, ASR1K, ISR1100, or ISR4K instance. Only one TOE instance is required for deployment in the evaluated configuration.

## 7.2 Excluded Functionality

The following functionality is excluded from the evaluation:

**Table 8 Excluded Functionality**

| Excluded Functionality | Exclusion Rationale |
|---|---|
| Non-FIPS 140-2 mode of operation | This mode of operation includes non-FIPS allowed operations. |
| ISR1100 wireless services | The ISR1100's wireless services are not associated with the Security Functional Requirements claimed in [NDcPP]. Wireless functions must not be enabled to remain in the evaluated configuration. |

These services will be effectively disabled by applying configuration settings as described in the Guidance documents (AGD) or are not enabled by default. The exclusion of this functionality does not affect compliance to the NDcPP v2.2e and MOD_VPNGW v1.1.

# 8 IT Product Testing

This section describes the testing efforts of the developer and the evaluation team. It is derived from information contained in the Evaluation Test Report for Cisco Aggregation Services Router 1000 Series (ASR1K), Cisco Cloud Services Router 1000V (CSR1000V), Cisco Integrated Services Router1100 Series (ISR1100), Cisco Integrated Services Router 4200 Series (ISR4K) running IOS-XE 17.3, which is not publicly available. The Assurance Activities Report provides an overview of testing and the prescribed assurance activities. See section 4 of the AAR for a description of the testing environment including a diagram of the Test Bed configuration. This section also describes the Test Bed components, including test tools and versions used during testing.

## 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 collaborative Protection Profile for Network Devices Version 2.2e and PP-Module for Virtual Private Network (VPN) Gateways Version 1.1. The Independent Testing activity is documented in the Assurance Activities Report, which is publicly available, and is not duplicated here.

# 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 5 and CEM version 3.1 rev 5. The evaluation determined the Cisco Aggregation Services Router 1000 Series (ASR1K), Cisco Cloud Services Router 1000V (CSR1000V), Cisco Integrated Services Router1100 Series (ISR1100), Cisco Integrated Services Router 4200 Series (ISR4K) running IOS-XE 17.3 to be Part 2 extended, and meets the SARs contained in the PP. Additionally the evaluator performed the Assurance Activities specified in the collaborative Protection Profile for Network Devices Version 2.2e and PP-Module for Virtual Private Network (VPN) Gateways Version 1.1.

## 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 Cisco Aggregation Services Router 1000 Series (ASR1K), Cisco Cloud Services Router 1000V (CSR1000V), Cisco Integrated Services Router1100 Series (ISR1100), Cisco Integrated Services Router 4200 Series (ISR4K) running IOS-XE 17.3 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 collaborative Protection Profile for Network Devices Version 2.2e and PP-Module for Virtual Private Network (VPN) Gateways Version 1.1.

The validator 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 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 collaborative Protection Profile for Network Devices Version 2.2e and PP-Module for Virtual Private Network (VPN) Gateways Version 1.1 related to the examination of the information contained in the TOE Summary Specification.

The validator 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 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 collaborative Protection Profile for Network Devices Version 2.2e and PP-Module for Virtual Private Network (VPN) Gateways Version 1.1 related to the examination of the information contained in the operational guidance documents.

The validator 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 ALC CEM work unit. The evaluation team found that the TOE was identified.

The validator 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 ATE CEM work unit. The evaluation team ran the set of tests specified by the Assurance Activities in the collaborative Protection Profile for Network Devices Version 2.2e and PP-Module for Virtual Private Network (VPN) Gateways Version 1.1 and recorded the results in a Test Report, summarized in the Evaluation Technical Report and Assurance Activities Report.

The validator 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 collaborative Protection Profile for Network Devices Version 2.2e and PP-Module for Virtual Private Network (VPN) Gateways Version 1.1, and that the conclusion reached by the evaluation team was justified.

## 9.6 Vulnerability Assessment Activity

The evaluation team applied each AVA CEM work unit. The evaluation team performed a public search for vulnerabilities on December 22, 2021, performed vulnerability testing and uncovered two vulnerabilities and their mitigation which is summarized in the vulnerability assessment report and AAR section 7.6. The mitigations for the two vulnerabilities are summarized as follows:

- CVE-2021-1621 requires an adjacent physical attacker to create the DoS conditioned as explained in the CVE details. The TOE is not remotely exploitable by adversaries. This is further supported by A.PHYSICAL_PROTECTION and A.TRUSTED_ADMINISTRATOR as the only entities assumed to be able to carry out a physical attack on the TOE are also assumed to be trusted.
- CVE-2021-1446 is mitigated by a workaround which has been published in the AGDs associated with the TOE.

The validator 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 collaborative Protection Profile for Network Devices Version 2.2e and PP-Module for Virtual Private Network (VPN) Gateways Version 1.1, 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 collaborative Protection Profile for Network Devices Version 2.2e and PP-Module for Virtual Private Network (VPN) Gateways Version 1.1, and correctly verified that the product meets the claims in the ST.

# 10 Validator Comments & Recommendations

The consumer should pay particular attention to configuration of the TOE, including the following configuration items that must be implemented:

- In the ISR1100, WiFi must not be used as wireless capability was not tested or evaluated.
- In order to mitigate CVE-2021-1446, the TOE must configure specific commands according to section 4.6.3 of the AGD.  This issue is addressed in a later version IOS XE 17.3.2.

# 11 Annexes

Not applicable.

# 12 Security Target

Cisco Aggregation Services Router 1000 Series (ASR1K), Cisco Cloud Services Router 1000V (CSR1000V), Cisco Integrated Services Router 1100 Series (ISR1100), Cisco Integrated Services Router 4200 Series (ISR4K) running IOS-XE 17.3 Security Target, Version 1.0

# 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.
2. Common Criteria for Information Technology Security Evaluation - Part 2: Security functional requirements, Version 3.1 Revision 5.
3. Common Criteria for Information Technology Security Evaluation - Part 3: Security assurance requirements, Version 3.1 Revision 5.
4. Common Evaluation Methodology for Information Technology Security Evaluation, Version 3.1 Revision 5.
5. Cisco Aggregation Services Router 1000 Series (ASR1K), Cisco Cloud Services Router 1000V (CSR1000V), Cisco Integrated Services Router 1100 Series (ISR1100), Cisco Integrated Services Router 4200 Series (ISR4K) running IOS-XE Version 17.3 Security Target, version 1.0, December 28, 2021.
6. Assurance Activity Report for Cisco Aggregation Services Router 1000 Series (ASR1K), Cisco Cloud Services Router 1000V (CSR1000V), Cisco Integrated Services Router 1100 Series (ISR1100), Cisco Integrated Services Router 4200 Series (ISR4K) running Version 17.3, version 1.2, December 28, 2021.
7. Evaluation Technical Report for Cisco Aggregation Services Router 1000 Series (ASR1K), Cisco Cloud Services Router 1000V (CSR1000V), Cisco Integrated Services Router 1100 Series (ISR1100), Cisco Integrated Services Router 4200 Series (ISR4K) running IOS-XE 17.3, version 1.2, December 28, 2021.