Firewall

Certification Testing Report

A10 Networks
A10 Networks Thunder Series

Tested against these standards

ICSA Labs Firewall Certification Criteria Baseline Module – Version 4.2
ICSA Labs Firewall Certification Criteria Corporate Module – Version 4.2

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Executive Summary

Introduction

The goal of ICSA Labs certification testing is to increase user and enterprise trust in information security products and solutions. For more than 30 years, ICSA Labs, an independent division of Verizon, has been providing credible, independent, 3rd-party security product testing and certification for many of the world's top security product developers and service providers. Enterprises worldwide rely on ICSA Labs to set and apply objective testing and certification criteria measuring product security, compliance and performance.

Summary of Findings

Following rigorous security testing at ICSA Labs, the A10 Networks TH-1040S satisfied all of the firewall security testing requirements in both the ICSA Labs baseline firewall and ICSA Labs corporate firewall testing standards. As a result, both the TH-1040S and the entire A10 Networks Thunder Series of products retained ICSA Labs Firewall Certification having met all of the testing requirements.

Product Overview

The A10 Networks Thunder Series from A10 Networks delivers high performance application networking and security solutions. The A10 Networks Thunder Series allows for the integration and expansion of system resources to support future feature needs, while offering A10 Networks broadest array of physical, virtual and hybrid form factors.

Scope of Assessment

ICSA Labs tests firewall products against its industry-approved set of testing criteria. Over time, this set of testing criteria became an industry standard. Testing requirements evolved with input from a consortium of firewall vendors, end users, and ICSA Labs. The present iteration of *The Firewall Certification Criteria* is version 4.2.

Continuous Deployment and Spot Checks

Following security testing by ICSA Labs, all tested firewall products remain continuously deployed at the labs for the length of the testing contract. When relevant new attacks and vulnerabilities are discovered, all deployed firewall models may be periodically checked to ensure they provide the requisite protection. In the event that any firewall is found susceptible to new attacks or vulnerabilities during a check, ICSA Labs works with the security product vendor to resolve the shortcomings in order for the product to maintain its ICSA Labs Firewall Certification.

Tested Firewall Product Components

Hardware

A10 Networks provided the following model to ICSA Labs for firewall security certification testing:

- TH-1040S

Software

Testing began and successfully completed with firmware version 5.2.1-p3, build 70.

Documentation

To satisfy documentation requirements, A10 Networks provided ICSA Labs with the following documents in order to assist in the installation, configuration, and administration of their firewall product:

- ACOS 5.2.1-P3 System Configuration and Administration Guide
- ACOS 5.2.1-P3 Command Line Interface Reference
- ACOS 5.2.1-P3 Network Configuration Guide
- ACOS 5.2.1-P3 IP Security Configuration Guide

Product Family Members

ICSA Labs Corporate Firewall Certification extends beyond the most recently tested model (identified in the "Hardware" section above) to the other members of the A10 Networks Thunder Series family. Therefore all of the models from the family listed below are ICSA Labs Certified Firewalls. For that reason, ICSA Labs periodically tests other physical and/or virtual models in the family. Finally, note that any models found on the security vendor's datasheet that is neither listed below nor listed on the ICSA Labs certified product list is not ICSA Labs Certified:

- TH-940
- TH-1040
- TH-3040
- TH-3350-E
- TH-3350
- TH-3350S
- TH-4435
- TH-4440
- TH-5440
- TH-5840
- TH-5840-11
- TH-5845
- TH-6440
- TH-7440
- TH-7440-11
- TH-7445
- TH-7650
- TH-7655
- TH-7655S
- TH-14045
- TH-ADC-for-Baremetal
- vThunder

Installation and Configuration

Firewall products can be configured different ways; therefore, ICSA Labs typically makes many configuration related decisions prior to adding a security policy to the firewall. Because ICSA Labs attempts to exploit the product under test, configuration decisions were made in an attempt to make exploitation less likely.

ICSA Labs installed and configured the security vendor's product following the firewall product documentation. Any special configuration changes or deviations from the documentation that were necessary to execute a test or meet a requirement are documented in this section.

ICSA Labs configured the TH-1040S in routing mode for both inbound and outbound traffic. In addition to security policy rule changes, ICSA Labs made the following configuration change to prepare the A10 Networks TH-1040S for testing:

- An explicit deny all rule was used to log dropped traffic inbound/outbound.
- ICSA Labs administered the firewall product from a separate, secure network. For more on why this was done, refer to the "Administration" section later in this report.

Required Services Security Policy Transition

Expectation

Each phase of firewall testing is performed predominantly while enforcing a particular security policy. Firewall products must be configurable to minimally enforce a security policy such as the one specified in *The Modular Firewall Certification Criteria,* referred to as the Required Services Security Policy or RSSP. The RSSP permits a set of common Internet services inbound and outbound while dropping or denying all other network traffic.

Results

ICSA Labs performed port scans followed by additional scans and other tests to ensure that the security vendor's product was indeed configured according to the RSSP and that no other TCP, UDP, ICMP, or other IP protocol traffic was permitted to or through the firewall in either direction.

After performing the scans mentioned above, ICSA Labs verified that the firewall properly handled all permitted outbound and inbound service requests. ICSA Labs also confirmed that no other traffic traversed the firewall in either direction that would violate the security policy.

ICSA Labs determined through testing that the TH-1040S met all the security policy transition requirements.

Logging

Expectation

Firewalls destined for enterprise and government organizations as well as firewalls provided by managed security services providers need to provide an extensive logging capability. This explains why the breadth and depth of ICSA Labs firewall log testing is so extensive.

ICSA Labs tested the logging functionality provided by the firewall product under test ensuring that all permitted and denied traffic was logged. Analysts in the lab sent traffic both to and (attempted to send traffic) through the product. Other events that must be logged are system startups, time changes, access control rule changes, and administrative login attempts. ICSA Labs typically configures firewall products to

send log data for logged events to an external server such as a syslog server. For all logged events ICSA Labs verified that the appropriate, required log data was recorded.

Results

With any A10 Networks Thunder Series product, including the TH-1040S, logs can be retrieved locally via the CLI, or log events can be sent to an external server such as a syslog server. For this test cycle, ICSA Labs configured the tested model to send log messages to a private syslog server.

The following depicts how the TH-1040S logs an administrator changing the system time:

```
Mar 16 2022 22:58:00       Notice [TM]  Time has been changed, current: Wed Mar 16
22:58:00 GMT 2022, previous: Wed Mar 16 22:48:38 GMT 2022
```

ICSA Labs determined through testing that the TH-1040S met all the logging requirements.

Administration

Expectation

Firewall products often have more than a single method by which administration is possible. Whether the product can be administered remotely using vendor provided administration software, from a web browser based interface, via some non-networked connection such as a serial port, or some other means, authentication must be possible before access to administrative functions is granted. ICSA Labs tested not only that authentication mechanisms existed but also that they could not be bypassed and that remote administration traffic was encrypted.

Results

Rather than administer the TH-1040S from the administrative interface or from a LAN interface on the private network, ICSA Labs administered the product with the web-based GUI via HTTPS from a management network separate from the private LAN. This was done to fully meet the administration-related logging requirements. Attempts to bypass the authentication mechanism for all means of administration were unsuccessful.

ICSA Labs determined through testing that the TH-1040S met all the administration requirements.

Persistence

Expectation

Power outages, electrical storms, and inadvertent power losses should not cause the firewall to lose valuable information such as the remote administration configuration, security policy being enforced, log data, time and date, and authentication data. This section documents the findings of ICSA Labs testing of the firewall product against the persistence requirements.

Results

The TH-1040S continued to maintain its configuration, settings, and data following a forced power outage. Similarly, the product continued to enforce the configured security policy following the outage.

ICSA Labs determined through testing that the TH-1040S met all the persistence requirements.

Documentation

Expectation

ICSA Labs expects firewall documentation to be accurate and applicable to the version tested. The documentation should minimally provide appropriate guidance for installation, configuration and administration.

Results

ICSA Labs determined that the documentation provided was adequate and accurate for the purposes of product installation and administration.

The documentation provided by A10 Networks met all of the documentation requirements.

Functional and Security Testing

Expectation

Once configured to enforce a security policy an ICSA Labs certified firewall must properly permit the services allowed by that policy. In this case, "properly" means that the service functions correctly. The firewall must be capable of preventing well-known, potentially harmful behavior found in some network protocols while at the same time maintaining compliance with applicable network protocol standards in all other ways. In the event of a conflict between these two things, a firewall tested and certified by ICSA Labs must defer to providing increased security. During functional testing ICSA Labs checked to ensure proper protocol behavior for the permitted services.

During security testing, ICSA Labs used commercial, in-house, and freely available testing tools to attack and probe the firewall. ICSA Labs used these tools to attempt to defeat or circumvent the security policy enforced. Additionally, using Denial-of-Service and fragmentation attacks ICSA Labs attempted to overwhelm, bypass or otherwise defeat the enforced security policy.

Since there is overlap between functional and security testing, the results of both phases of testing are presented here.

Results

ICSA Labs determined through testing that the TH-1040S and by extension, the A10 Networks Thunder Series met all the ICSA Labs firewall criteria requirements.

Criteria Violations and Resolutions

Introduction

In the event that ICSA Labs uncovers criteria violations while testing a firewall product, the security vendor must make repairs before testing is successfully completed and certification granted. The section that follows documents all criteria violations discovered during testing.

Results

No firewall security testing criteria violations or other firewall product shortcomings were found during the test cycle.

ICSA Labs Certified Firewalls

Because the TH-1040S passed all of the firewall security test cases performed by ICSA Labs and as the tested product met the entire set of testing criteria requirements, ICSA Labs is pleased to state that both the TH-1040S and the other models comprising the A10 Networks Thunder Series retained ICSA Labs Corporate Firewall Certification.

Authority

This report is issued by the authority of the General Manager, ICSA Labs. Tests are performed under normal operating conditions.

Darren Hartman

Darren Hartman, General Manager, ICSA Labs

ICSA Labs

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A10 Networks, Inc.

A10 Networks (NYSE: ATEN) provides secure application services for on-premises, multi-cloud and edge-cloud environments at hyperscale. Our mission is to enable service providers and enterprises to deliver business-critical applications that are secure, available and efficient for multi-cloud transformation and 5G readiness. We deliver better business outcomes that support investment protection, new business models and help futureproof infrastructures, empowering our customers to provide the most secure and available digital experience. Founded in 2004, A10 Networks is based in San Jose, Calif. and serves customers globally.

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