Date: July 9, 2024

Revision	Date	Changes
1.0	July 9, 2024	Initial release

The CVE-ID tracking this issue: CVE-2024-3596
CVSSv3.1 Base Score: 9.0
(CVSS:3.1/AV:N/AC:H/PR:N/UI:N/S:C/C:H/I:H/A:H/E:P/RL:O/RC:C/CR:H/IR:H/AR:H)
Common Weakness Enumeration: CWE-924: Improper Enforcement of Message Integrity
During Transmission in a Communication Channel
This vulnerability is being tracked by BUG960295

Description

Arista Networks is providing this security update in response to the following publicly disclosed
security vulnerability related to the RADIUS protocol. This vulnerability is a result of a design
flaw in the RADIUS protocol. It allows a skilled attacker who can read and modify RADIUS
packets in the network to forge responses from the RADIUS server to the client. In this way the
attacker can cause any user to be authenticated and can give almost any authorization to any
user. RADIUS over TLS (RadSec) resolves this vulnerability.

Vulnerability Assessment

Affected Platforms

Products are generally affected if all of the following are true:

1. They support RADIUS.
2. RADIUS is configured.
3. RADIUS is configured without using RadSec.

Because this is an issue with the RADIUS protocol itself, all versions of the software, present
and future, are affected if they are running the affected configuration. Please consult the section
on Required Configuration for Exploitation if products are found which are affected.

The following products **are** affected by this vulnerability:

EOS Products

All versions, present and future, are affected if they are running the affected configuration
(RADIUS without RadSec). RadSec support is available starting from version 4.26.2.

- Arista EOS-based products using RADIUS without RadSec:

    - 710 Series
    - 720D Series
    - 720XP/722XPM Series
    - 750X Series
    - 7010 Series
    - 7010X Series
    - 7020R Series
    - 7130 Series running EOS
    - 7150 Series
    - 7160 Series
    - 7170 Series
    - 7050X/X2/X3/X4 Series
    - 7060X/X2/X4/X5/X6 Series
    - 7250X Series
    - 7260X/X3 Series
    - 7280E/R/R2/R3 Series
    - 7300X/X3 Series
    - 7320X Series
    - 7358X4 Series
    - 7368X4 Series
    - 7388X5 Series
    - 7500E/R/R2/R3 Series
    - 7800R3 Series
    - CloudEOS
    - cEOS-lab
    - vEOS-lab
    - AWE 5000 Series
    - AWE 7200 Series

WI-FI Access Points

All versions, present and future, are affected if they are running the affected configuration (RADIUS without RadSec)

- Arista Wireless Access Points using RADIUS without RadSec

CloudVision Products

All versions, present and future, are affected if they are running the affected configuration (RADIUS - RadSec is not available in this product).

- CloudVision CUE, virtual appliance or physical appliance using RADIUS
- CloudVision Portal, virtual appliance or physical appliance using RADIUS

Arista 7130 Systems running MOS

All versions, present and future, are affected if they are running the affected configuration (RADIUS - RadSec is not available in this product).

- Arista 7130 Systems running MOS using RADIUS

DMF/CCF/MCD

All versions, present and future, are affected if they are running the affected configuration (RADIUS - RadSec is not available in this product).

- Arista Converged Cloud Fabric, DANZ Monitoring Fabric, and Multi-Cloud Director (Formerly Big Switch Nodes for BCF and BMF) using RADIUS

Arista Edge Threat Management - Arista NG Firewall

All versions, present and future, are affected if they are running the affected configuration (RADIUS - RadSec is not available in this product).

- Arista Edge Threat Management - Arista NG Firewall using RADIUS

Unaffected Platforms

Products and configurations are generally unaffected if at least one of the following is true:

1. RADIUS is not supported on the product
2. RADIUS is supported but not being used
3. RADIUS is being used with RadSec

The following product versions and platforms **are not** affected by this vulnerability:

- Arista EOS-based products using RADIUS with RadSec or not using RADIUS
- Arista Wireless Access Points using RADIUS with RadSec or not using RADIUS
- CloudVision CUE, virtual appliance or physical appliance not using RADIUS
- CloudVision CUE cloud service delivery (RADIUS is not used in this product)
- CloudVision eXchange, virtual or physical appliance (Connections are secured through TLS)
- CloudVision Portal, virtual appliance or physical appliance not using RADIUS
- CloudVision as-a-Service (RADIUS is not supported in this product)
- CloudVision AGNI (RADIUS is always used with RadSec in this product)
- Arista 7130 Systems running MOS not using RADIUS
- Arista Converged Cloud Fabric, DANZ Monitoring Fabric, and Multi-Cloud Director (Formerly Big Switch Nodes for BCF and BMF) not using RADIUS
- Arista Network Detection and Response (NDR) Security Platform (Formerly Awake NDR) (RADIUS is not used in this product)
- Arista Edge Threat Management - Arista NG Firewall not using RADIUS and Arista Micro Edge (Formerly Untangle)
- Pluribus OS (Netvisor) (RADIUS is not used in this product)

Required Configuration for Exploitation

Arista EOS-based products

EOS is affected if RADIUS is configured as the authentication or authorization provider without RadSec.

To confirm if this is the case, multiple conditions must be met:

First, EOS is affected if it is configured to use RADIUS for authentication or authorization. The following are examples of configuration where RADIUS is enabled for authentication or authorization:

```
aaa authentication login <console|default> group radius
aaa authentication login <console|default> group RAD-GRP*
aaa authorization commands all default group radius
aaa authorization exec default group RAD-GRP*
```

* where RAD-GRP is a group of radius servers configured using the "**aaa group server [name]**" command

Next, if EOS has the above configuration, it is affected if RadSec is not enabled. The following show command shows a RADIUS server that is not using RadSec:

```
switch>show radius
RADIUS server            : 5.4.3.2, authentication port 1812, account
```

```
ing port 1813
           Messages sent:         0
      Messages received:          0
      Requests accepted:          0
      Requests rejected:          0
       Requests timeout:          0
```

A RADIUS server that is using RadSec will have an SSL profile associated with it, for example:

```
switch>show radius
RADIUS server            : 1.2.3.4, TLS port 2083
SSL profile              : foobar
           Messages sent:         0
      Messages received:          0
      Requests accepted:          0
      Requests rejected:          0
       Requests timeout:          0
```

In this case, the configuration is not vulnerable since it is using RadSec. The portions that indicate this have been highlighted in yellow.

Arista Wireless Access Points

Wireless AP's are affected if they are using RADIUS and RadSec is not enabled. In the following screenshots, RadSec is enabled, so the configuration is not vulnerable. If the RadSec boxes are not checked but RADIUS is being used, then it is vulnerable.

In the above screenshot, "RADSEC" is "ON", so not vulnerable. If the "OFF" circle is selected, then it is vulnerable.

In the above screenshot, the RADSEC box is checked, so it is not vulnerable. If it is unchecked, then it is vulnerable.

Arista DMF/CCF/MCD

DMF and related products are affected if RADIUS is configured as the authentication or authorization provider, for example with this configuration:

```
analytics-1(config)# radius server host 192.168.17.101 key admin
analytics -1# aaa authentication login default group radius local
```

CloudVision Products

CloudVision CUE, virtual appliance or physical appliance

CloudVision CUE On-Prem is affected if RADIUS is being used as in the below screenshot.

ARISTA

User Accounts ⌄   Users   LDAP   **RADIUS**   Certificate   Account Suspension

☑ **RADIUS Authentication**

▼ Authentication

| Primary Server | Secondary Server |

IP Address/Hostname *

10.86.32.17

Port *

1812   ⌃⌄   [1 - 65535]

Shared Secret *

••••••   👁

[Test]   *The RADIUS server is reachable.*

RADIUS users log in to the WiFi server using *

☑ CLI

☑ UI

Vendor Specific Attributes

Use the following default values when vendor specific attibutes are not defined for RADIUS server.
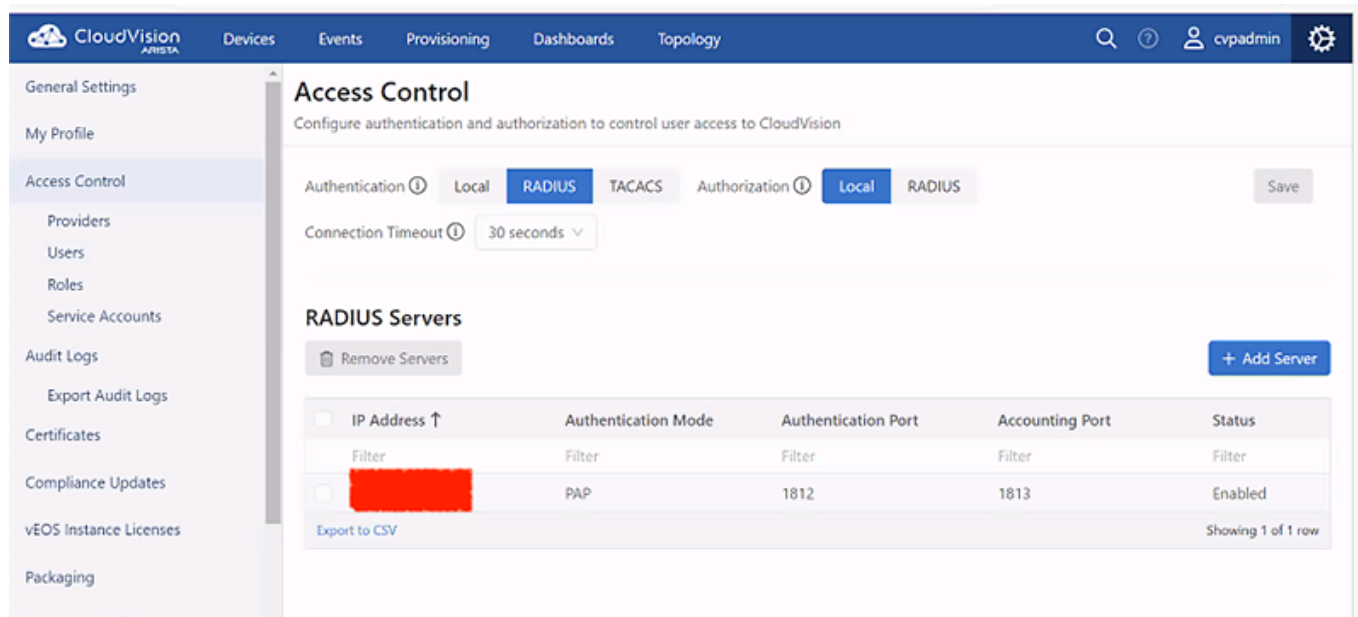
☑ Allow CLI Access

☑ Allow UI Access

Role

Administrator   ⌄

UI Allowed Location

//Locations

CloudVision Portal On-Prem

CloudVision Portal is affected if RADIUS is being used as in the below screenshot.
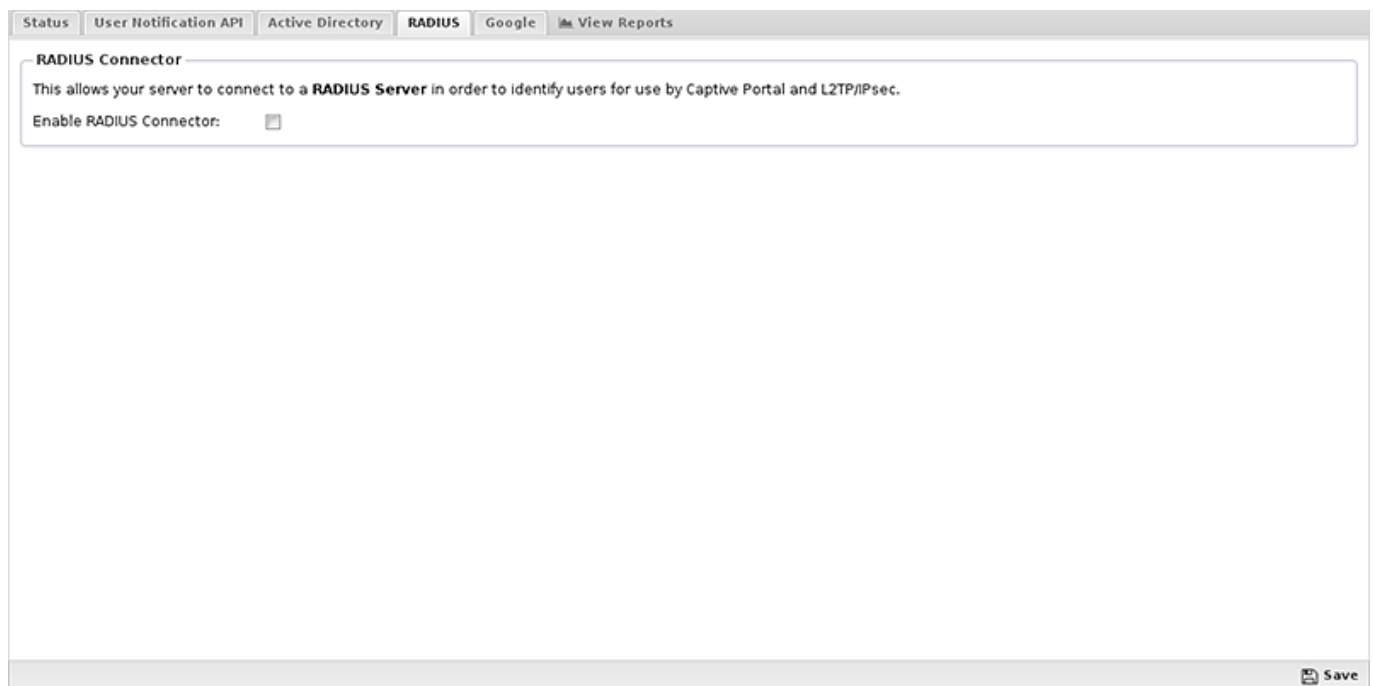

Arista 7130 Systems running MOS

MOS is affected if RADIUS is configured as the authentication or authorization provider, for example with this configuration:

```
hostname(config)#radius-
server host 192.0.2.1 key 7 15060E1F10232523796166
hostname(config)#aaa authentication login default group radius local
```

Arista Edge Threat Management - Arista NG Firewall

NG Firewall is affected if RADIUS is configured as the authentication or authorization provider, for example if the "Enable RADIUS Connector" box is checked:

Indicators of Compromise

Successful exploitation of this vulnerability can allow an attacker to authenticate or give authorization to any user. Any logs that indicate unexpected authentication or authorization can be used as an indicator of compromise.

Mitigation

Mitigation across all of the products is as follows:

1. If the use of RADIUS is desired, use RadSec if available on that product.
2. If RadSec is not available, and RADIUS is not a requirement, use a different authentication provider such as TACACS+. TACACS+ should be run inside a secure transport such as an SSH Tunnel.
3. If RADIUS is a requirement and RadSec is not available, the network should be secured to prevent unauthorized users from snooping network traffic. For example, networking equipment should be physically secured and all RADIUS traffic should use a dedicated management VLAN.

Specific configuration for affected products is listed in the following sections:

Arista EOS-based products (versions 4.26.2+)

In EOS versions 4.26.2+, RADIUS over TLS is supported. The workaround is to enable it for each RADIUS server configured using the following configuration:

```
radius-server host <hostname/IP> tls [ssl-profile <profile-name>]
```

For more information about configuring RADIUS over TLS on EOS see EOS 4.26.2F TOI: RADIUS over TLS

Arista EOS-based products (versions < 4.26.2)

In EOS versions before 4.26.2, RadSec is not supported. Please review the above mitigations for alternative options.

Arista Wireless Access Points

Please see Enable RadSec for information on how to configure RadSec for WiFi AP's.

Arista DMF/CCF/MCD

DMF and related products do not support RadSec. Please review the above mitigations for alternative options.

For more information about TACACS+ in Arista DMF products see DANZ Monitoring Fabric Deployment Guide.

CloudVision Products

CloudVision CUE, virtual appliance or physical appliance

CloudVision CUE On-Prem does not support RadSec. Please review the above mitigations for alternative options.

CloudVision Portal On-Prem

CloudVision Portal On-Prem does not support RadSec. Please review the above mitigations for alternative options.

Arista 7130 Systems running MOS

MOS does not support RadSec. Please review the above mitigations for alternative options.

Arista Edge Threat Management - Arista NG Firewall

NGFW does not support RadSec. Please review the above mitigations for alternative options. Alternate methods for directory connector can be found here: https://wiki.edge.arista.com/index.php?title=Directory_Connector

Resolution

This is a protocol level issue and there will be no fixes available for affected products. Please review the mitigation section for solutions.

References

- https://www.blastradius.fail
- https://datatracker.ietf.org/doc/draft-ietf-radext-deprecating-radius/

For More Information

If you require further assistance, or if you have any further questions regarding this security notice, please contact the Arista Networks Technical Assistance Center (TAC) by one of the following methods:

Open a Service Request

Contact information needed to open a new service request may be found at:

https://www.arista.com/en/support/customer-support