

Configure Secure Web Appliance GUI Certificate

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Introduction

This document describes the steps to configure certificates for the Secure Web Appliance (SWA) Management Web Interface.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- SWA administration.

Cisco recommends that you have:

- Physical or Virtual SWA installed.
- Administrative Access to the SWA Graphical User Interface (GUI).
- Administrative Access to the SWA Command Line Interface (CLI).

Components Used

This document is not restricted to specific software and hardware versions.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Web User Interface Certificate


First we need to choose the type of certificates which we want to use in SWA Management Web User Interface (Web UI).

By default, SWA uses the "Cisco Appliance Demo Certificate:"

- CN = Cisco Appliance Demo Certificate
- O = Cisco Systems, Inc
- L = San Jose
- S = California
- C = US

You can create a Self Signed Certificate in SWA or import you own certificated that has been generated by your Internal Certificate Authority (CA) server.

The SWA does not support including Subject Alternative Names (SAN) when generating a Certificate Signing Request (CSR). Additionally, the SWA self-signed certificates do not support SAN attributes either. To utilize certificates with SAN attributes, you must create and sign the certificate yourself, ensuring that it includes the necessary SAN details. Once you have generated this certificate, you can upload it to the SWA to be used. This approach allows you to specify multiple hostnames, IP addresses, or other identifiers, providing greater flexibility and security for your network environment.

 **Note:** The certificates must include the private key and it must be in PKCS#12 format.

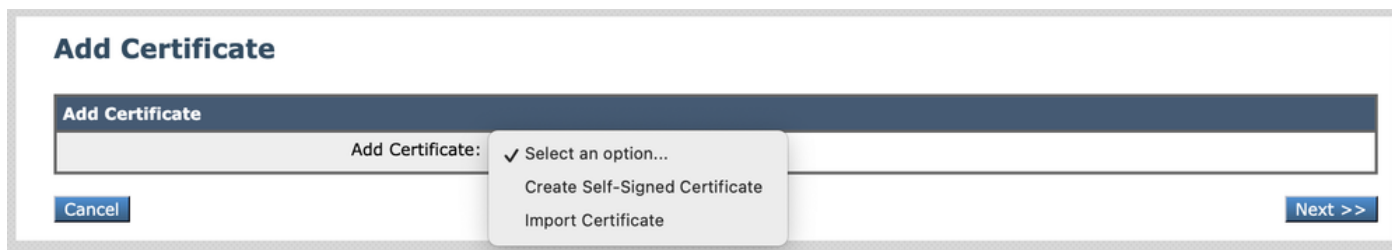
Steps to Modify Web Interface Certificate

Step 1. Log in to GUI and select **Network** from the top menu.

Step 2. Choose **Certificate Management**.

Step 3. From **Appliance Certificates** Select **Add Certificate**.

Step 4. Select Certificate Type (**Self Signed Certificate** or **Import Certificate**).



The screenshot shows a web interface window titled "Add Certificate". Inside the window, there is a header bar with the text "Add Certificate". Below the header, there is a form area. On the left side of the form, there is a "Cancel" button. In the center, there is a label "Add Certificate:" followed by a dropdown menu. The dropdown menu is open, showing three options: "Select an option..." (with a checkmark), "Create Self-Signed Certificate", and "Import Certificate". On the right side of the form, there is a "Next >>" button.

Image - Choose Certificate Type

Step 5. If you select the **Self-Signed Certificate**, use these steps. Otherwise, skip to **Step 6**.


Step 5.1. Complete the fields.

Add Certificate

Add Certificate	
Add Certificate:	Create Self-Signed Certificate ▾
Common Name:	SelfSignCertificate
Organization:	CiscoLAB
Organizational Unit:	SWA
City (Locality):	City
State (Province):	State
Country:	US
Duration before expiration:	730 days
Private Key Size:	2048

[Cancel](#) [Next >>](#)

Image - Self Sign Certificate Details

 **Note:** The Private key size must be in the range of **2048** to **8192**.

Step 5.2. Click Next.

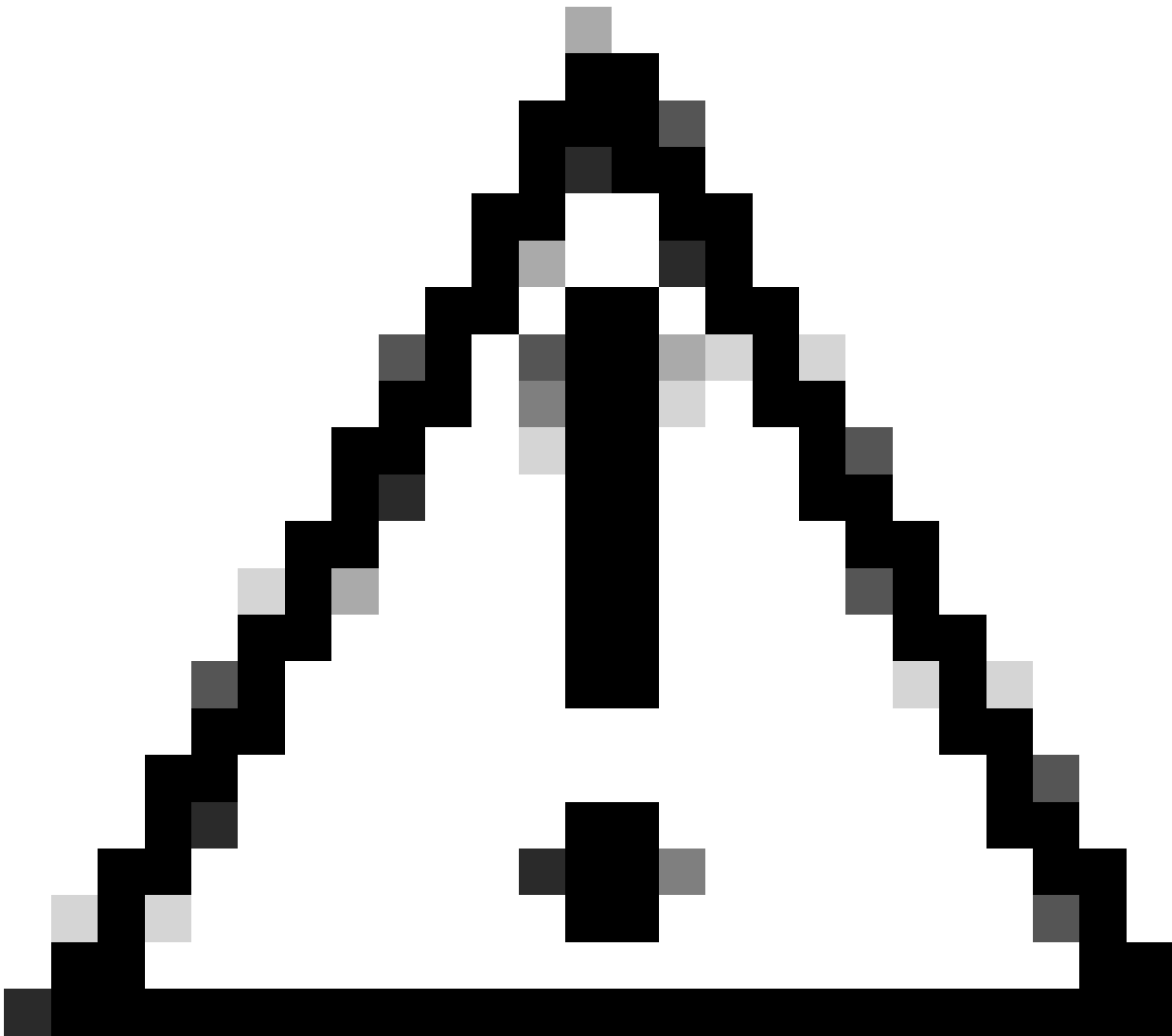
View Certificate SelfSignCertificate

Add Certificate	
Certificate Name:	SelfSignCertificate
Common Name:	SelfSignCertificate
Organization:	CiscoLAB
Organization Unit:	SWA
City (Locality):	City
State (Province):	State
Country:	US
Signature Issued By:	Common Name (CN): SelfSignCertificate Organization (O): CiscoLAB Organizational Unit (OU): SWA Issued On: Oct 14 11:48:59 2024 GMT Expires On: Oct 14 11:48:59 2026 GMT <i>If you would like a globally recognized signed certificate: 1. Download Certificate Signing Request, 2. Submit this to a certificate authority, 3. Once you receive the signed certificate, upload it below.</i>
	Upload Signed Certificate: <input type="button" value="Choose File"/> No file chosen <i>Uploading a new certificate will overwrite the existing certificate.</i>
Intermediate Certificates (optional):	Upload an Intermediate Certificate: <input type="button" value="Choose File"/> No file chosen

[Cancel](#) [Submit](#)

Image - Download CSR

Step 5.3. (Optional) You can download the CSR and sign it with your organization CA Server, then **Upload** the Signed certificate and **Submit**.



Caution: If you would like to sign the CSR, with your CA server, make sure to **Submit** and **Commit** the page before signing or uploading the signed certificate. The profile you created during the CSR generation process includes your private key.

Step 5.4. **Submit** if the current Self-Signed Certificate is appropriate.

Step 5.5. Skip to **Step 7**.

Step 6. If you choose **Import Certificate**.

Step 6.1. Import Certificate File (PKCS#12 format is required).

Step 6.2. Enter the Password for the Certificate file.

Add Certificate

Add Certificate	
Add Certificate:	Import Certificate ▾
Import Certificate:	<input type="button" value="Choose File"/> No file chosen <small>PKCS#12 format is required.</small>
Enter Password: (required)	<input type="password"/>

Image - Import Certificate

Step 6.3. Click **Next**.

Step 6.4. **Submit** changes.


Step 7. **Commit** Changes.

Step 8. Log in to the CLI.

Step 9. Type **certconfig** and press **Enter**.

Step 10. Type **SETUP**.


Step 11. Type **Y**, then press **Enter**.

 **Note:** When the certificate is changed, administrative users who are currently logged in to the web user interface can experience a connection error and could lose un-submitted changes. This occurs only if the certificate is not already marked as trusted by the browser.

Step 12. Choose **2** to select from available list of certificates.

Step 13. Select the Number of desired Certificate to use for GUI.

Step 14. If you have intermediate certificate, and want to add them Type **Y** else type **N**.

 **Note:** if you need to add the intermediate certificate, you have to paste the intermediate cert in **PEM** format and end with '.' (Only dot).

```
SWA_CLI> certconfig
```

```
Choose the operation you want to perform:
```

- SETUP - Configure security certificate and key.
 - OCSPVALIDATION - Enable OCSP validation of certificates during upload
 - RESTRICTCERTSIGNATURE - Enable restricted signature validation of certificates during upload
 - OCSPVALIDATION_FOR_SERVER_CERT - Enable OCSP validation for server certificates
 - FQDNVALIDATION - FQDN validation for certificate
- ```
[> SETUP
```

Currently using the demo certificate/key for HTTPS management access.

When the certificate is changed, administrative users who are currently logged in to the web user interface can experience a connection error and could lose un-submitted changes. This occurs only if the certificate is not already marked as trusted by the browser.

Do you want to continue? [Y]> Y

Management (HTTPS):

Choose the operation you want to perform:

1. PASTE - Copy paste cert and key manually
  2. SELECT - select from available list of certificates
- [1]> 2

Select the certificate you want to upload

1. SelfSignCertificate
  2. SWA\_GUI.cisco.com
- [1]> 1

Do you want add an intermediate certificate? [N]> N

Successfully updated the certificate/key for HTTPS management access.

**Step 15.** Type **commit** to save the changes.

## Test the Certificate From Command Line

You can check the certificate using the **openssl** command:

```
openssl s_client -connect <HOSTNAME/FQDN>:<Management_TCP_Port>
```

In this example, the hostname is **SWA.cisco.com** and the management interface is set as default (TCP port 8443).

On the second line in the output, you can see the certificate details:

```
openssl s_client -connect SWA.cisco.com:8443
CONNECTED(00000003)
depth=0 C = US, CN = SelfSignCertificate, L = City, O = CiscoLAB, ST = State, OU = SWA
```

## Common Errors

Here are some common errors you can face while trying to create or modify your GUI certificate.

### Error Invalid PKCS#12 Format

## Add Certificate

**Error** — Invalid PKCS#12 format

| Add Certificate               |                                                                                                                                    |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Add Certificate:              | Import Certificate ▾                                                                                                               |
| Import Certificate:           | <input type="button" value="Choose File"/> No file chosen<br><small>PKCS#12 format is required.<br/>Invalid PKCS#12 format</small> |
| Enter Password:<br>(required) | <input type="password"/>                                                                                                           |

Image - Invalid PKCS#12 format

There could be two causes of this error:

1. The Certificate file is damaged and is not valid.

Try to open the certificate, if you get an error while opening, you can re-generate or download the certificate again.

2. The CSR that was previously generated is no longer valid.

When you generate a CSR, you must make sure to **Submit** and **Commit** your changes. The reason is that your CSR was not saved when you logged out or changed pages. The profile that you created when you generated the CSR contains the private key required for successfully uploading your certificate. Once this profile is gone, the private key is gone. Therefore, another CSR must be generated and then once again taken to your CA.

## Days Must Be an Integer

### Add Certificate

**Error** — Days must be an integer from 1 to 1825.

| Add Certificate               |                                                                                                                                                     |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Add Certificate:              | Import Certificate ▾                                                                                                                                |
| Import Certificate:           | <input type="button" value="Choose File"/> No file chosen<br><small>PKCS#12 format is required.<br/>Days must be an integer from 1 to 1825.</small> |
| Enter Password:<br>(required) | <input type="password"/>                                                                                                                            |

Image - Days Must Be an Integer Error

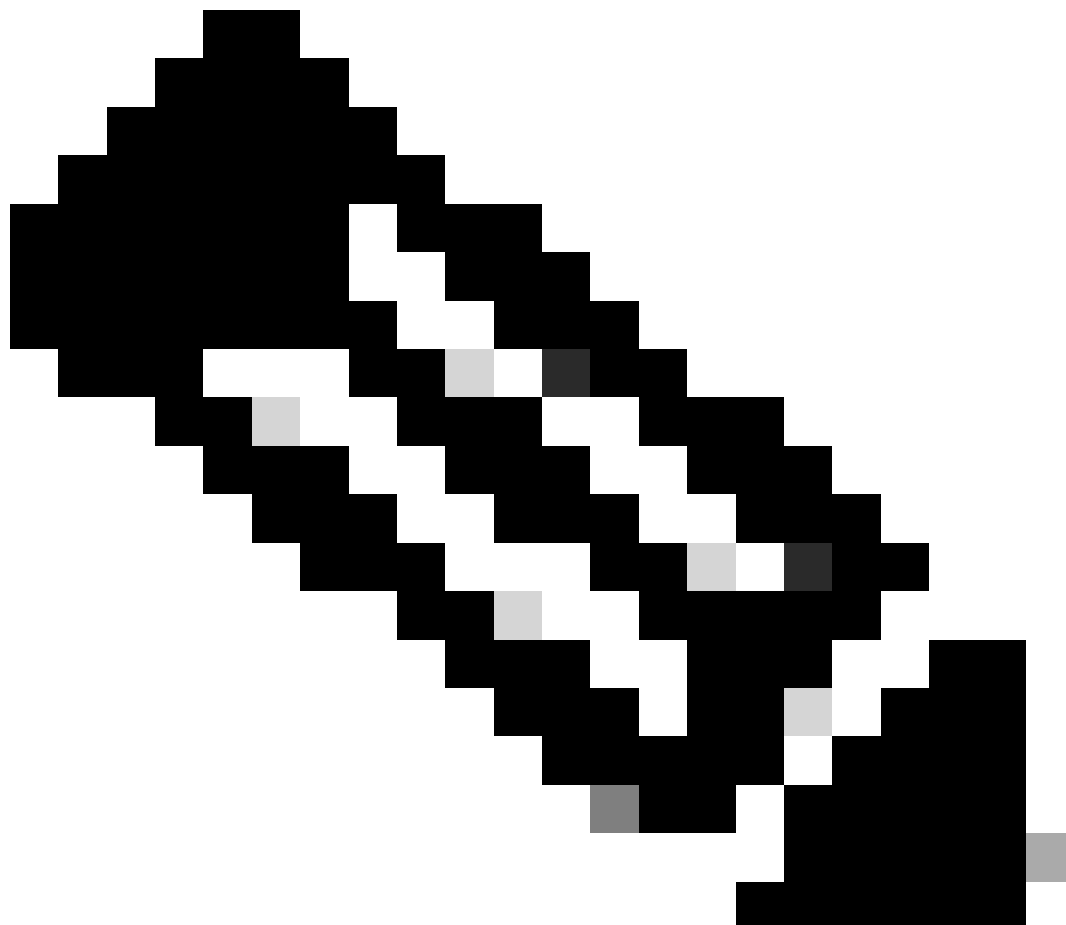
This error is due to the uploaded certificate being expired or having 0-day validity.

To solve the issue, please check the certificate expiration date and make sure your SWA date and time is correct.

## Certificate Validation Error

This error means the Root CA or the Intermediate CA are not added in the Trusted Root Certificate list in SWA. To solve the issue, if you are using both Root CA and Intermediate CA:

1. Upload the Root CA to SWA, then **Commit**.
  2. Upload the Intermediate CA, then **Commit** the changes again.
  3. Upload your GUI certificate.
- 



**Note:** To upload the Root or Intermediate CA, from the GUI: **Network**. In the **Certificate Management** section, choose **Manage Trusted Root Certificates**. In **Custom Trusted Root Certificates** click **Import** to upload your CA certificates.

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**Invalid Password**



## Add Certificate

Error — Invalid PKCS#12 password

| Add Certificate               |                                                                                          |
|-------------------------------|------------------------------------------------------------------------------------------|
| Add Certificate:              | Import Certificate                                                                       |
| Import Certificate:           | <input type="button" value="Choose File"/> No file chosen<br>PKCS#12 format is required. |
| Enter Password:<br>(required) | <input type="password"/><br>Invalid PKCS#12 password                                     |

Image - Invalid Password

This error indicates the PKCS#12 certificate password is incorrect. To solve the error, type the correct password, or regenerate the certificate.

## The Certificate is Not Yet Valid

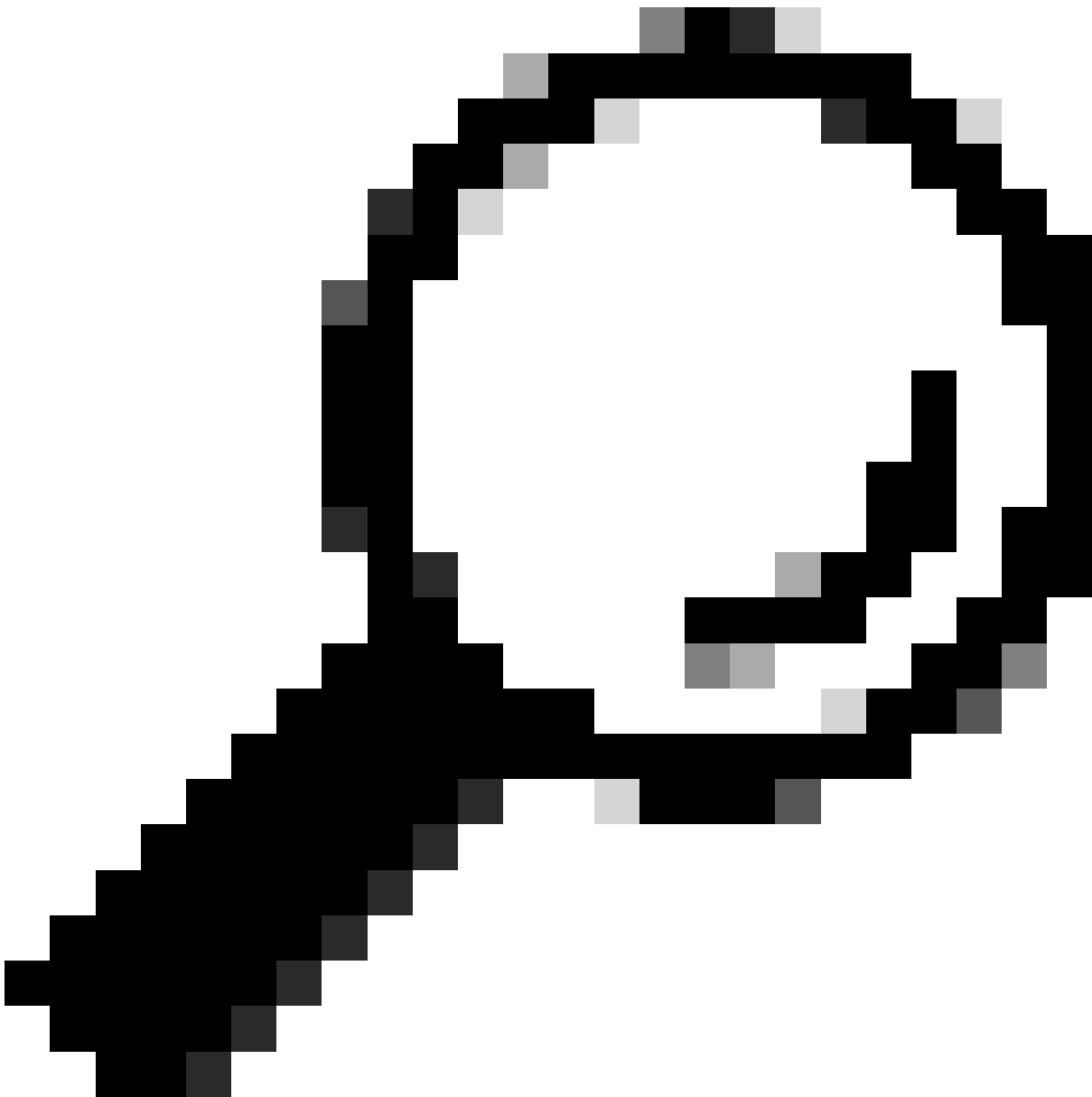
### Add Certificate

Error — The certificate is Not Yet Valid.

| Add Certificate               |                                                                                                                               |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Add Certificate:              | Import Certificate                                                                                                            |
| Import Certificate:           | <input type="button" value="Choose File"/> No file chosen<br>PKCS#12 format is required.<br>The certificate is Not Yet Valid. |
| Enter Password:<br>(required) | <input type="password"/>                                                                                                      |

Image - The Certificate is Not Yet Valid

1. Ensure the SWA date and time are correct.
2. Check the certificate date and ensure the "**Not Before**" date and time are correct.



**Tip:** If you have just generated the certificate, please wait for a minute then upload the certificate.

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## Restart GUI service from CLI

To restart the WebUI service you can use these steps from CLI:

**Step 1.** Log in to **CLI**.

**Step 2.** Type **diagnostic** (This is a hidden command and does not auto type with **TAB**).

**Step 3.** Choose **SERVICES**.

**Step 4.** Select **WEBUI**.

**Step 5.** Choose **RESTART**.

## Related Information

- [User Guide for AsyncOS 15.0 for Cisco Secure Web Appliance - GD\(General Deployment\) - Classify End-Users for Policy Application \[Cisco Secure Web Appliance\] - Cisco](#)