Customize the Web Authentication Portal on Catalyst 9800 WLC

Contents

Introduction

This document describes how to create a custom web authentication portal for the Catalyst 9800 Wireless Controller (9800 WLC).

Prerequisites

The source code is easy to edit and has a responsive WEB design, compatible with modern web browsers on computers and mobile devices.

Requirements

Cisco recommends that you have knowledge of these topics:

- HTML and CSS.
- 9800 WLC configuration guide.

Components Used

The information in this document is based on this software and hardware version:

- Cisco Catalyst 9800 Wireless Controller series, Cisco IOS XE Gibraltar v16.12.1s

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.

Customize the web portal files

The files that compose the custom web authentication portal are:

- login.html
- bootstrap.min.css
- Jquery.min.js
- style.css
- animate.css
- web_auth_logo.png

Only these files would need edit:

- login.html
- style.css
- web_auth_logo.png

This is the source code for the web authentication portal (login.html)

Note: Read the code carefully, it has HTML comments that explain the structure of the web authentication portal.

```html
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="utf-8">
<meta name="viewport" content="width=device-width, initial-scale=1">
<title>YOUR COMPANY TITLE HERE</title>
<script src="jquery.min.js"></script>
<link rel="stylesheet" href="bootstrap.min.css">
<link rel="stylesheet" href="animate.css">
<link rel="stylesheet" href="style.css" > <script> function submitAction(){ var link =
document.location.href; var searchString = "redirect="; var equalIndex =
link.indexOf(searchString); var redirectUrl = ""; if (document.forms[0].action == "") { var url
= window.location.href; var args = new Object(); var query = location.search.substring(1); var
pairs = query.split("&"); for(var i=0;i<pairs.length;i++){ var pos = pairs[i].indexOf('=');
if(pos == -1) continue; var argname = pairs[i].substring(0,pos); var value =
pairs[i].substring(pos+1); args[argname] = unescape(value); } document.forms[0].action =
args.switch_url; } if(equalIndex >= 0) { equalIndex += searchString.length; redirectUrl = "";
redirectUrl += link.substring(equalIndex); } if(redirectUrl.length > 255) redirectUrl =
redirectUrl.substring(0,255); document.forms[0].redirect_url.value = redirectUrl;
document.forms[0].buttonClicked.value = 4; document.forms[0].submit(); } function loadAction(){
var url = window.location.href; var args = new Object(); var query =
location.search.substring(1); var pairs = query.split("&"); for(var i=0;i<pairs.length;i++){ var
pos = pairs[i].indexOf('='); if(pos == -1) continue; var argname = pairs[i].substring(0,pos);
var value = pairs[i].substring(pos+1); args[argname] = unescape(value); }
document.forms[0].action = args.switch_url; // This is the status code returned from webauth
login action // Any value of status code from 1 to 5 is error condition and user // should be
shown error as below or modify the message as it suits // the customer if(args.statusCode == 1){
alert("You are already logged in. No further action is required on your part."); } else
if(args.statusCode == 2){ alert("You are not configured to authenticate against web portal. No
further action is required on your part."); } else if(args.statusCode == 3){ alert("The username
specified cannot be used at this time. Perhaps the user is already logged into the system?"); }
else if(args.statusCode == 4){ alert("Wrong username and password. Please try again."); } else
if(args.statusCode == 5){ alert("The User Name and Password combination you have entered is
invalid. Please try again."); } } </script> </head> <body class="animated fadeInUp"> <!-- TOP
BAR --> <nav class="navbar navbar-expand-md sticky-top navbar-light bg-dark "> <img
src="web_auth_logo.png" style="width: 70px; height: 70px;"> <div class="container"> <h4
class="align-middle text-white">Your Company Name Here</h4> </div> </nav> <!-- END TOP BAR -->
<div class="bg"> <!---Background color --> <div class="container-fluid padding "><!--- page
content --> <div class="row padding"> <div class="col-md-12 col-lg-6"> <br> <h5>Accessing
Company Public Network From Your Wireless Device</h5> <p class="text-justify">The Company
provides Internet access points at no charge in selected areas for guests with portable
```

computers or devices capable of receiving wireless signals. You will be able to access the Internet from your wireless device when sitting within range of an access point. Guests are expected to use the wireless access in a legal and responsible manner. By using this wireless access network, the user acknowledges that he/she is subject to, and agrees to abide by all laws, and all state and federal rules and regulations applicable to Internet use. </p>
 <h5>Terms and Conditions of Use</h5> <p class="text-justify">Guests will need a notebook/laptop computer or other device equipped with a wireless card that supports the WiFi standard. The Company assumes no responsibility for the safety of equipment.</p>

 <div class="card mx-auto" style="width: 350px;"> <!--Form container--> <h5 class="card-header info-color white-text text-center py-4"> Sign in </h5> <div class="card-body px-lg-5 pt-0"><!--Form content--> <!-- Form --> <form class="text-center" style="color: #757575;" method="post"> <input TYPE="hidden" NAME="buttonClicked" SIZE="16" MAXLENGTH="15" value="0"> <input TYPE="hidden" NAME="redirect_url" SIZE="255" MAXLENGTH="255" VALUE=""> <input TYPE="hidden" NAME="err_flag" SIZE="16" MAXLENGTH="15" value="0"> <!-- Username input --> <div class="md-form">
 <label for="materialLoginFormEmail">Username</label> <input type="TEXT" name="username" SIZE="25" MAXLENGTH="63" VALUE="" class="form-control" required> </div>
<!-- End Username input --> <!-- Password input--> <div class="md-form"> <label for="materialLoginFormPassword">Password</label> <input type="password" name="password" SIZE="25" MAXLENGTH="63" VALUE="" class="form-control" required> </div>
<!-- End password input --> <!-- Sign in button --> <button class="btn btn-outline-info btn-rounded btn-block my-4 waves-effect z-depth-0" type="button" onclick="submitAction();">Sign in</button> </form> <!-- End FORM --> </div><!-- End Form content--> </div><!--Form container--> </div> </div> </div><!--- End page content --> </div><!---End background color --> </body> </html>

In order to change the page title edit this section:

```
...
<title>YOUR COMPANY TITLE HERE</title>
...
```

In order to change the company logo edit the img tag, use a .png or .svg image. To adjust the size of your logo change the width and height parameters.

Note: **.svg** images with transparent background are recommended for a better look and feel.

```
<!-- TOP BAR --> <nav class="navbar navbar-expand-md sticky-top navbar-light bg-dark "> <img src="web_auth_logo.png" style="width: 70px; height: 70px;">
<div class="container">
<h4 class="align-middle text-white">Your Company Name Here</h4>
</div>
</nav>
<!-- END TOP BAR -->
```

In order to change page title background color, create your own class on the style.css file and replace bg-dark with your custom class:

```
<!-- TOP BAR -->
<nav class="navbar navbar-expand-md sticky-top navbar-light my-custom-bg-class">
<img src="web_auth_logo.png" style="width: 70px; height: 70px;">
<div class="container">
<h4 class="align-middle text-white animated fadeInLeft slow">Your Company Name Here</h4>
</div>
</nav>
<!-- END TOP BAR -->
```

In order to change the background and text color of the page change the **bg** class:

```
<div class="bg"> <!---Backgrund color -->
```

Here are the available classes, note that the background and text color change accordingly:
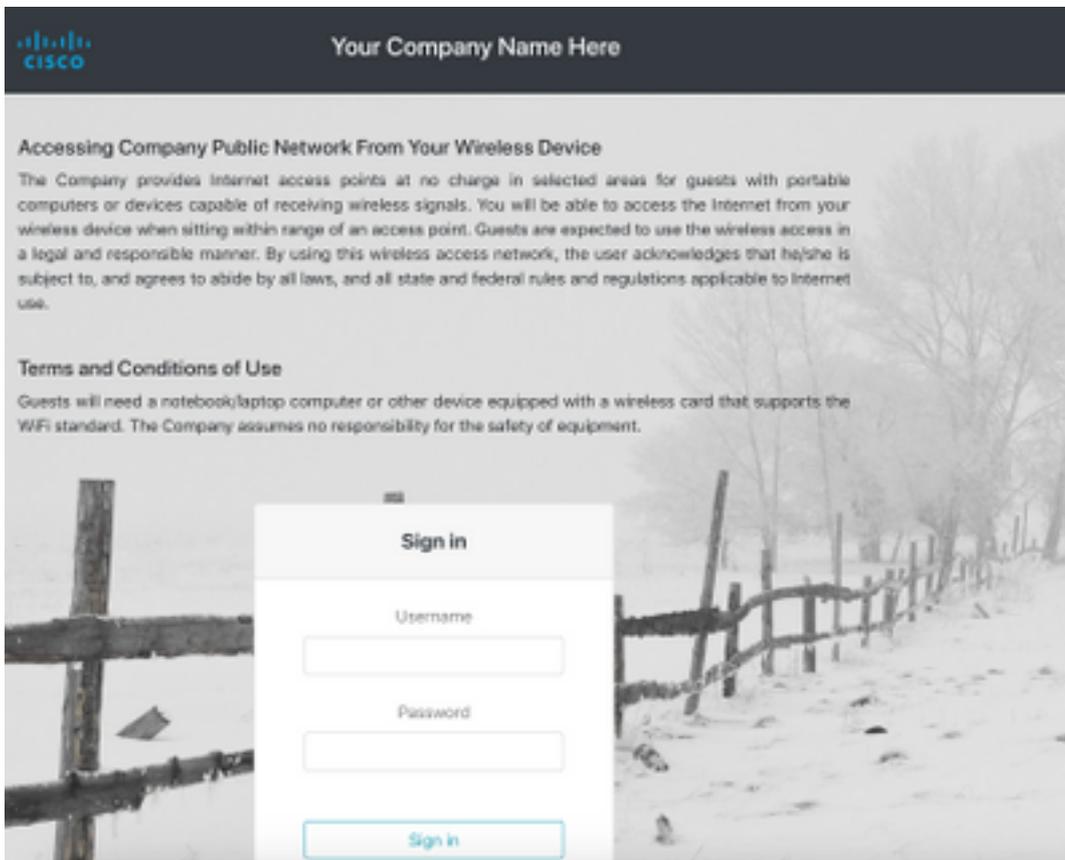
bg

bg4   bg6

If you want to use an image as background or a different color on the style.css file, edit the CSS class bg-img and use it.
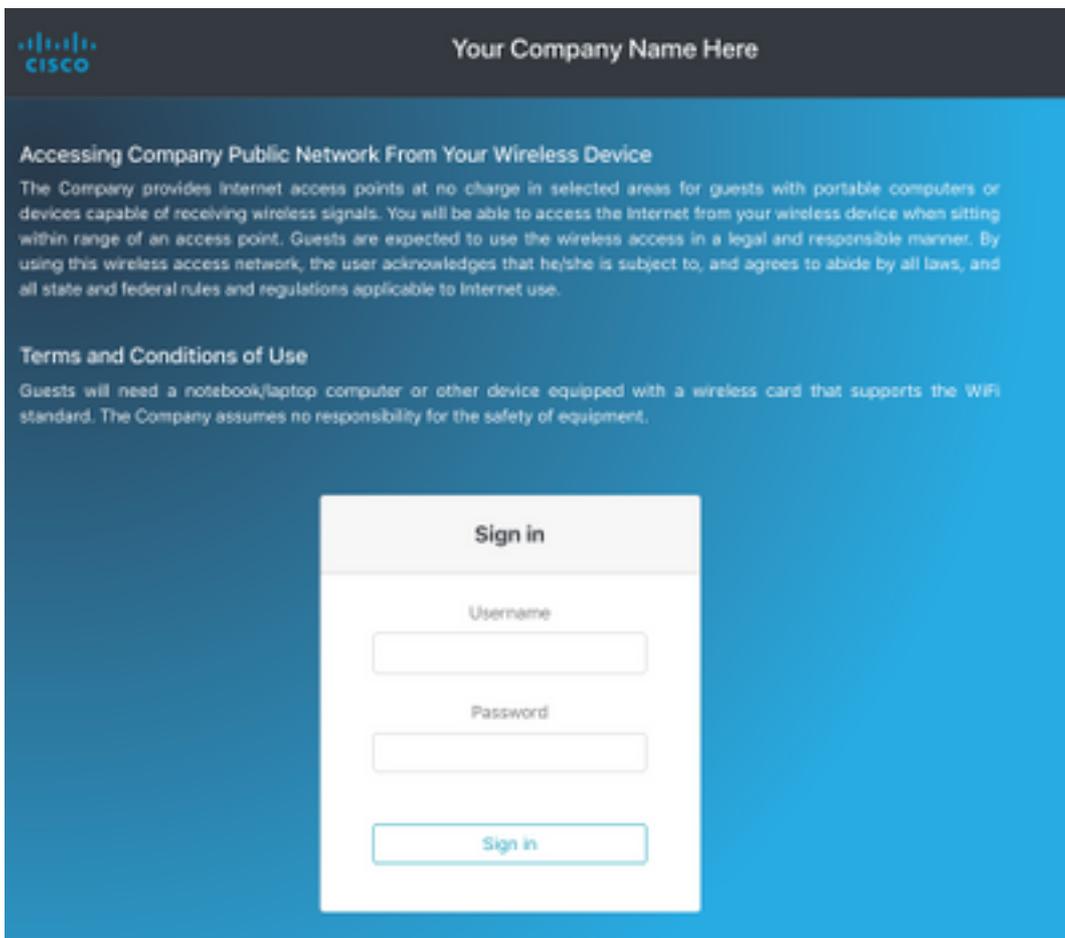
> **Caution**: The background image can not look properly on mobile devices because of its size and the text can be difficult to read due to the image colors.

```
.bg-img{
background-image: url("winter.jpg");
height: 100%;
background-position: center;
background-repeat: no-repeat;
background-size: cover;
}
```
The use of an image as the background looks like the next image:

The class bg5 looks like the next image:

The class **bg6** looks like the next image:

In order to change the page content with your own terms and conditions edit this section:

<h5>Accessing Company Public Network From Your Wireless Device</h5> <p class="text-justify">The Company provides Internet access points at no charge in selected areas for guests with portable computers or devices capable of receiving wireless signals. You will be able to access the Internet from your wireless device when sitting within range of an access point. Guests are expected to use the wireless access in a legal and responsible manner. By using this wireless access network, the user acknowledges that he/she is subject to, and agrees to abide by all laws, and all state and federal rules and regulations applicable to Internet use. </p>
 <h5>Terms and Conditions of Use</h5> <p class="text-justify">Guests will need a notebook/laptop computer or other device equipped with a wireless card that supports the WiFi standard. The Company assumes no responsibility for the safety of equipment.</p>

In order to level up the authentication portal, you can add animations without complexity just edit the animation-name after the **animated** class, on this example, it is used two animations. In order to see the available animations, visit animate.css:

```
...
<body class="animated fadeInUp">
...
<h4 class="align-middle text-white animated fadeInLeft slow">Your Company Name Here</h4>
...
```

This is the final look of the custom web authentication portal with animations, select on the **Result** tab in order to see a live example.

> **Tip**: You can easily edit the background colors and fonts as you want, just create a new class on the **style.css** file and use it.

Upload The Custom Web Authentication Portal to the 9800 WLC and configure it

This section covers a step-by-step process on how to install and configure Custom WebAuth Bundle in Cat 9800.

1. Download the Wireless LAN Controller Web Authentication Bundle (WLC_WEBAUTH_BUNDLE_1.0.zip) from Cisco.com:
https://software.cisco.com/download/home/286316412/type/282791507/release/16.10.1

> Note: The bundle is the same for all 9800 controllers. For example, you can download the file from the 9800-40 and use it for 9800-L or virtual 9800-CL

2. In order to customize the bundle, unzip the bundle to a folder. Open each HTML file that needs to be edited as explained previously, and you can upload the logo along with it. The file names are not important, you can call them anything you want.

After this step, delete the login.tar file because we would need to generate a new one.

Select all the files and right mouse click and select 7-Zip (or any similar program you have installed) and choose to Add to archive…
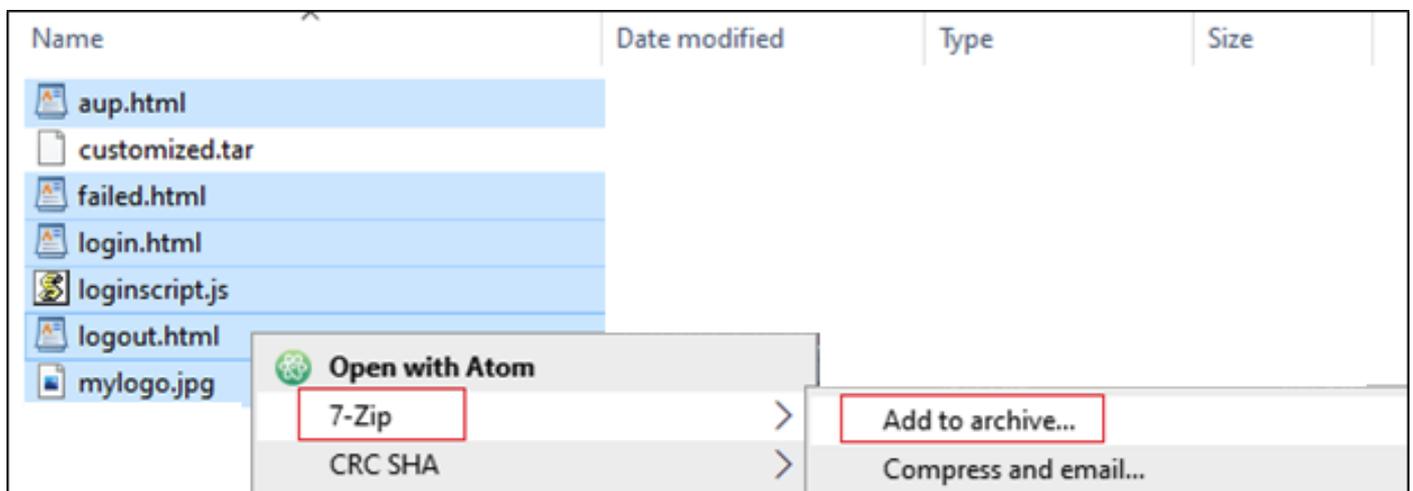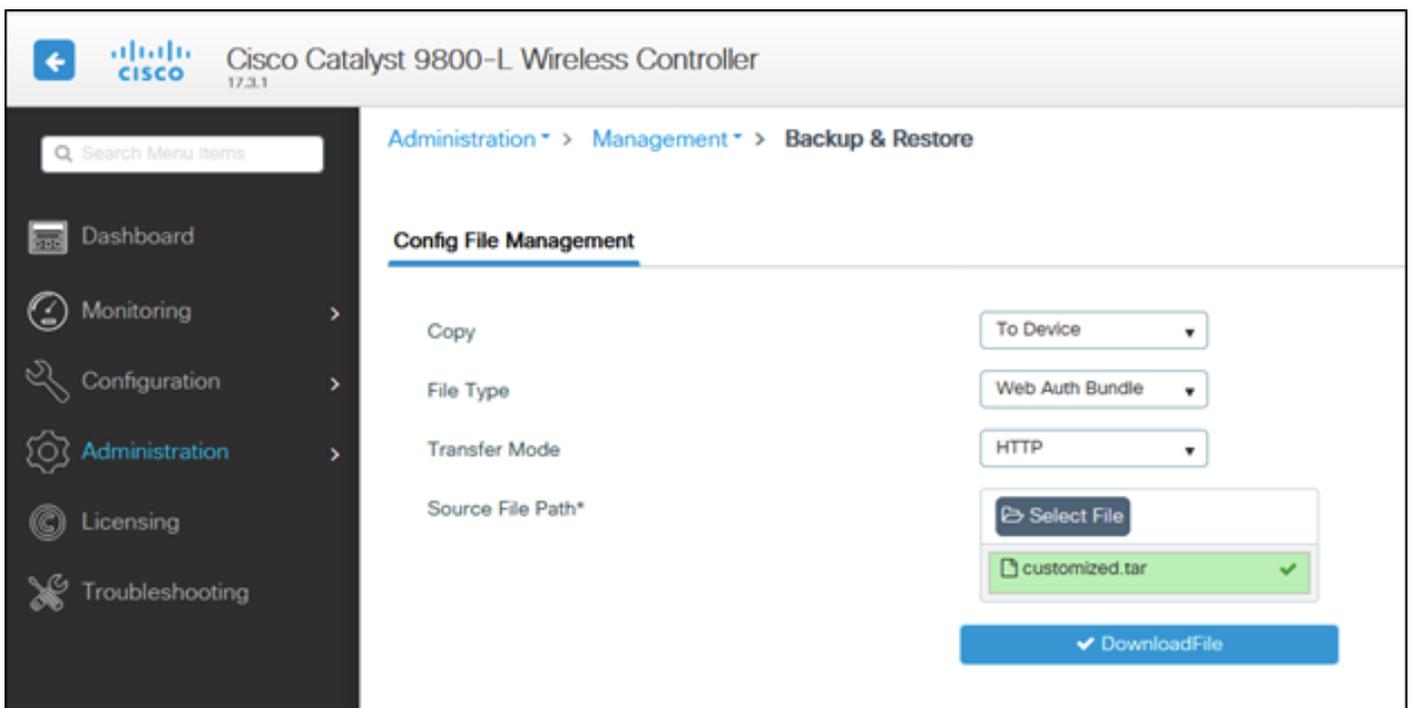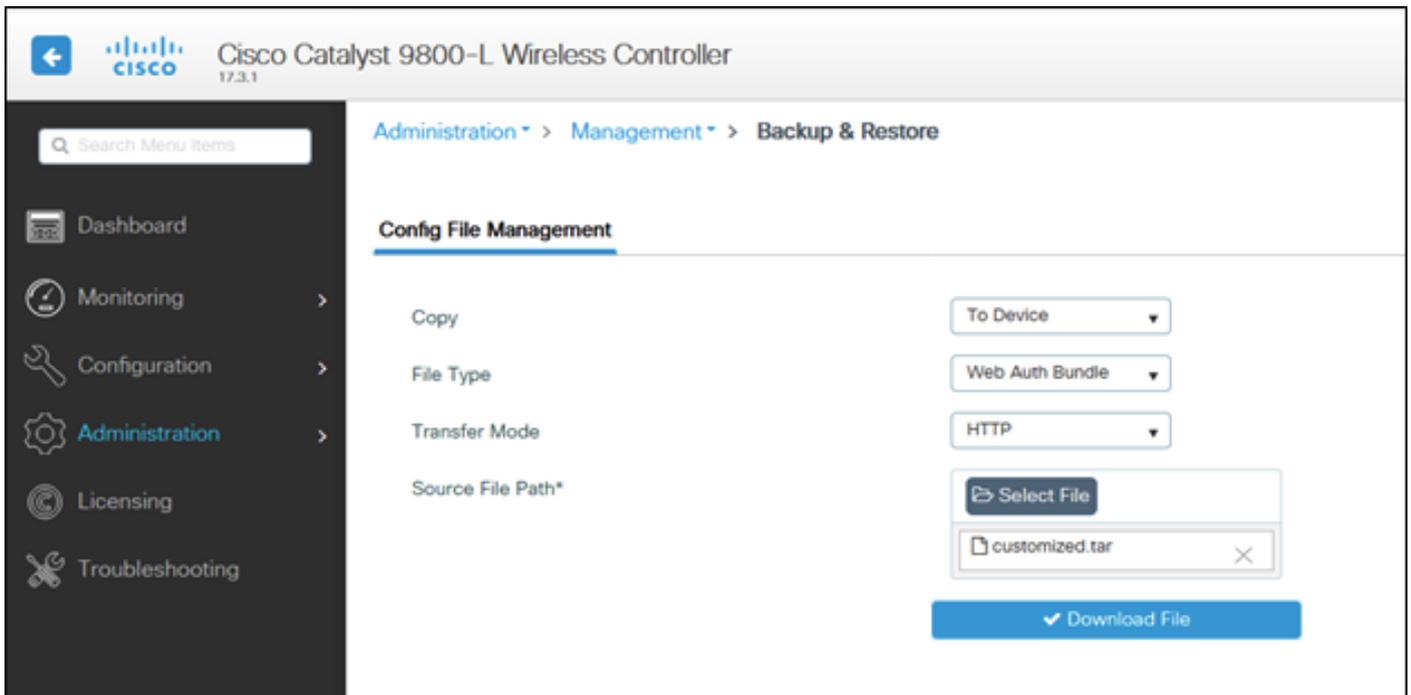

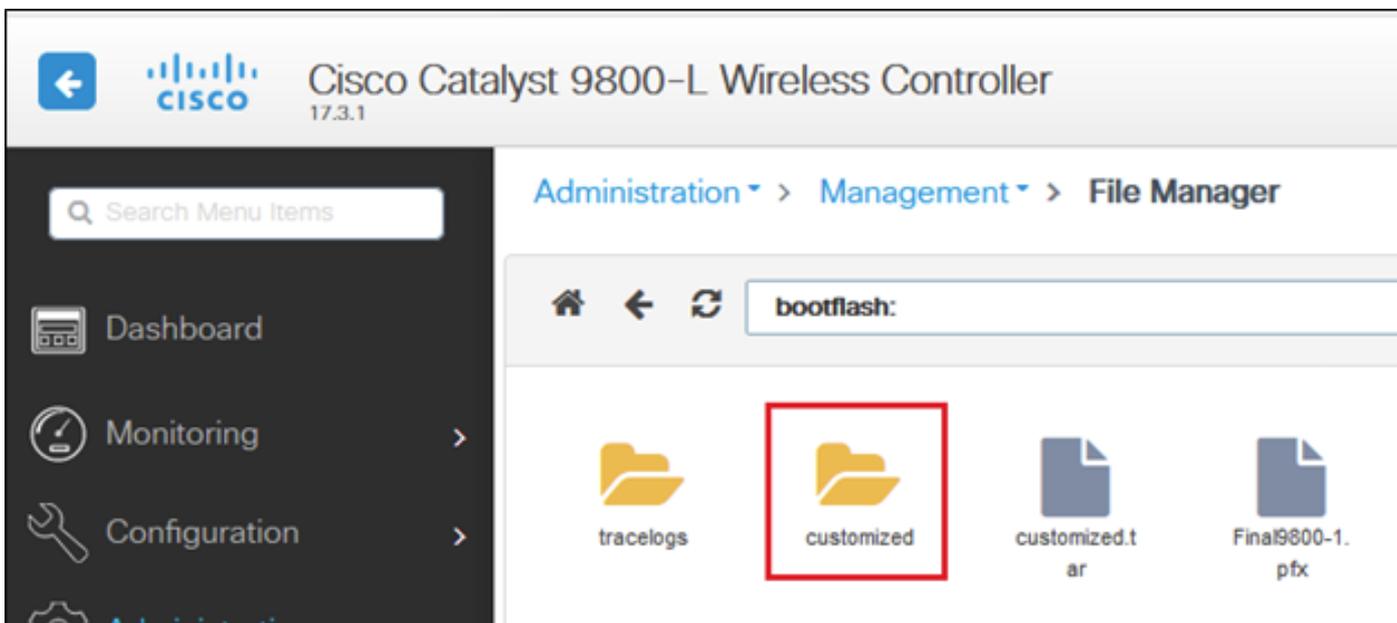Give it any name and choose tar as the Archive format:
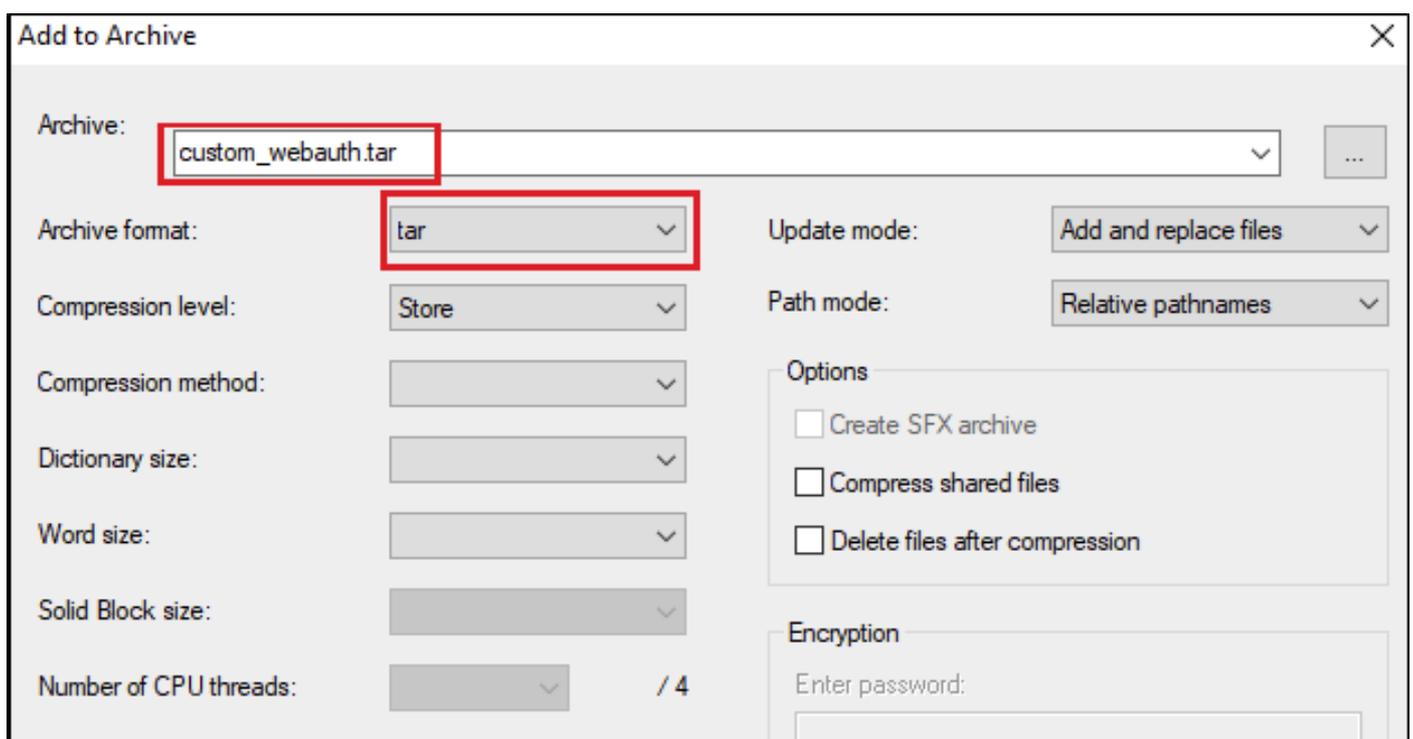
3. Then navigate to the 9800 WLC

Administration > Management > Backup & Restore > change the file type to **Web Auth Bundle** and upload just the customized .tar file

By default, the 9800 will create a folder inside the bootflash: and will call it whatever you called your .tar file and all the files will be in that folder:

If you have HA setup then you need to run 17.3 code (or future releases) because of this enhancement bug:

Cisco bug ID CSCvr05309 : copy webauth tar bundle to standby bootflash also incase of HA setup

To check on both HA (Active and Standby), if a file called *customized.tar* was uploaded

9800-1#show bootflash: | s customized
9800-1#show stby-bootflash: | s customized

```
9800-1#show bootflash: | s customized
1313     161280 Oct 08 2020 16:17:15.0000000000 +00:00 customized.tar
1314       4096 Oct 08 2020 16:17:15.0000000000 +00:00 customized
1315       2595 Oct 08 2020 16:17:15.0000000000 +00:00 customized/aup.html
1316        327 Oct 08 2020 16:17:15.0000000000 +00:00 customized/failed.html
1317       4071 Oct 08 2020 16:17:15.0000000000 +00:00 customized/login.html
1318        318 Oct 08 2020 16:17:15.0000000000 +00:00 customized/loginscript.js
1319       1116 Oct 08 2020 16:17:15.0000000000 +00:00 customized/logout.html
1320     147245 Oct 08 2020 16:17:15.0000000000 +00:00 customized/mylogo.jpg
9800-1#
9800-1#
9800-1#show stby
9800-1#show stby-bootfl
9800-1#show stby-bootflash: | s customized
1154     161280 Oct 08 2020 16:17:15.0000000000 +00:00 customized.tar
1234       4096 Oct 08 2020 16:17:16.0000000000 +00:00 customized
1235       2595 Oct 08 2020 16:17:16.0000000000 +00:00 customized/aup.html
1236        327 Oct 08 2020 16:17:16.0000000000 +00:00 customized/failed.html
1237       4071 Oct 08 2020 16:17:16.0000000000 +00:00 customized/login.html
1238        318 Oct 08 2020 16:17:16.0000000000 +00:00 customized/loginscript.js
1239       1116 Oct 08 2020 16:17:16.0000000000 +00:00 customized/logout.html
1240     147245 Oct 08 2020 16:17:16.0000000000 +00:00 customized/mylogo.jpg
9800-1#
9800-1#
9800-1#
```

Note: **The files that have been uploaded manually will not be synced to the HA Standby.**

Note: You do not need success.html file to make custom webauth work, but if you need that, you can simply create one and add it to the .tar file and upload that tar file to the 9800 WLC

4. Edit the WebAuth Global Parameter Map and set a virtual IP address. The omission of the virtual IP address can cause images not to display properly at the portal page.


Note: Once the virtual IP address is set, wireless clients display the website warning on the browser because the controller virtual interface sends the URL via HTTPS and is not trusted due to the absence of a signed certificate attached to it. In such case, follow the procedure to [generate a CSR](#) and install a valid certificate.

Only if HTTPS is not required, these two commands can be run in order for the URL to be sent via HTTP only (these commands only exist in 17.3.1 and later):

```
#configure terminal
(config)#parameter-map type webauth global
(config-params-parameter-map)#secure-webauth-disable
(config-params-parameter-map)#webauth-http-enable
(config-params-parameter-map)#end
#write
```

5. Next step is to create a new Parameter Map. Navigate from **9800 GUI>>Security>>Web-Auth>>Add**
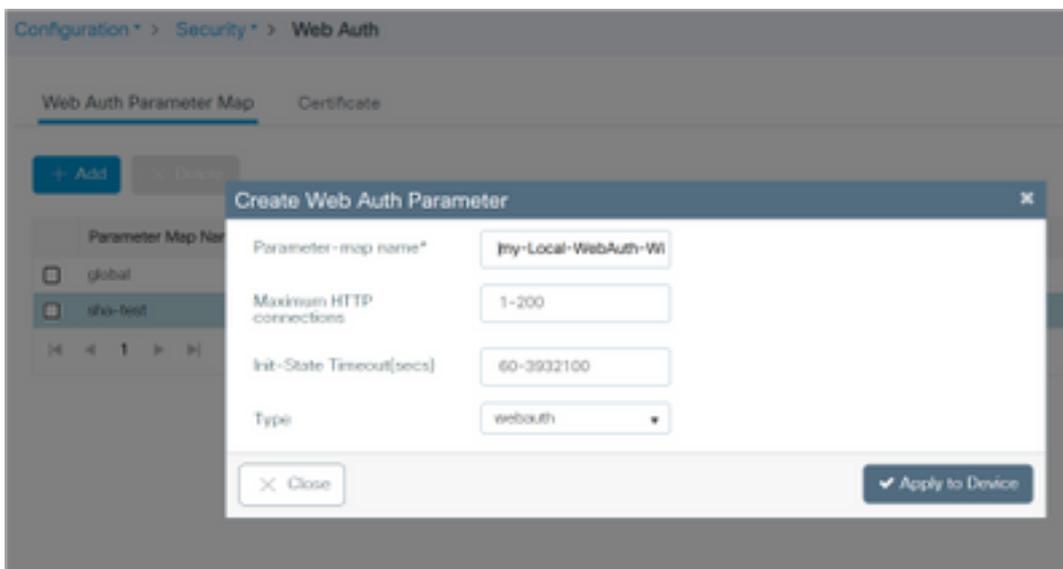
Once created, click on the parameter map name to edit:
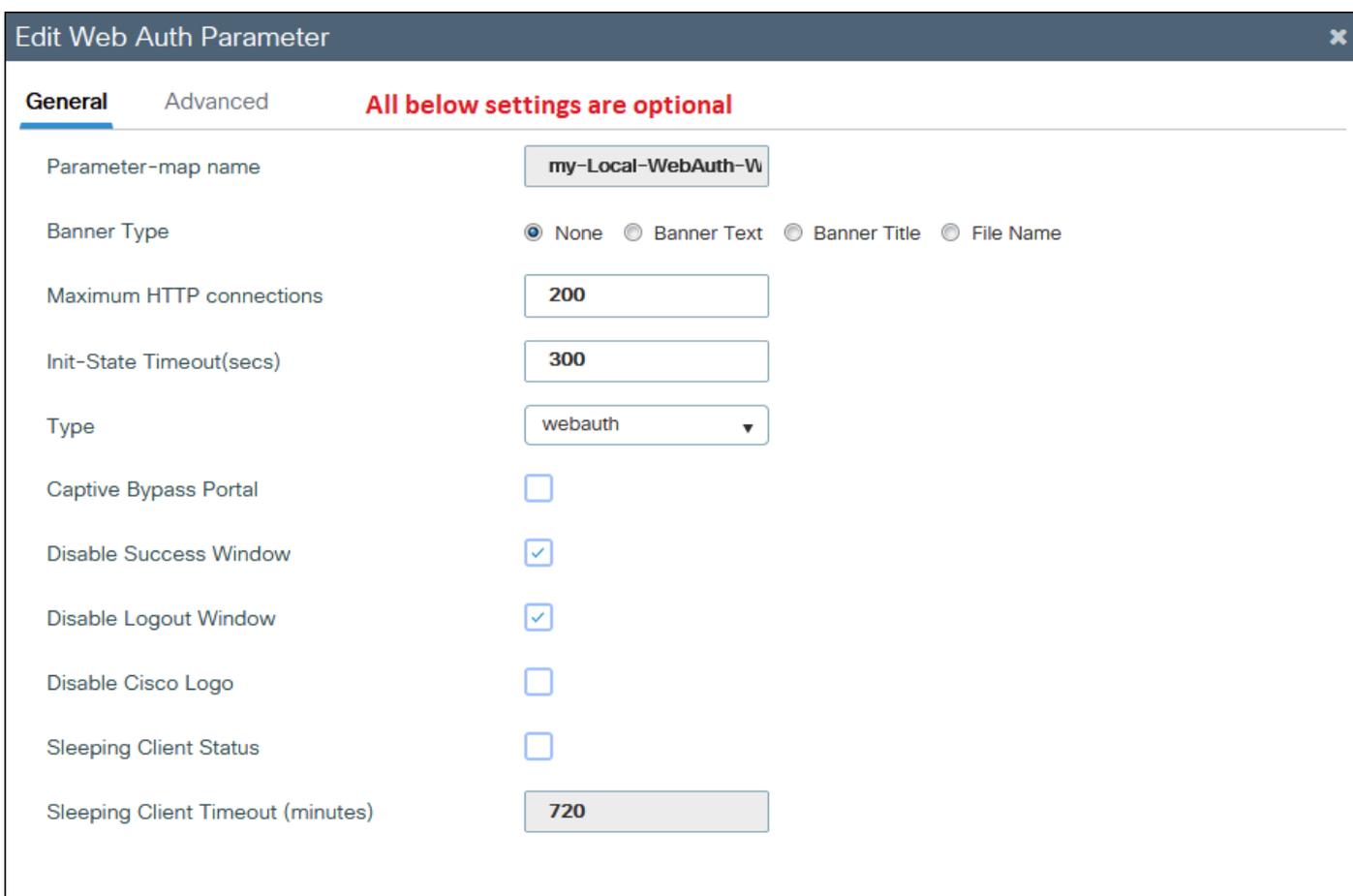
Check "Disable Success Window" to disable the 9800 default success page and not the success.html. If using both, the guest will see dual success pages, one from the 9800 "default success page" and the other from the custom success.html.

Even if you disable all success pages (Disable Success Window and no success.html used) the mobile devices will see the success page like illustrated while PCs will see it for a second and will go away.

Example from iPhone:

captive.apple.com
Local WebAuth Customized

< >   **Log In**   Done

Success

Edit Web Auth Parameter

General   **Advanced**

Redirect to external server

Redirect for log-in	
Redirect On-Success	
Redirect On-Failure	
Redirect Append for AP MAC Address	
Redirect Append for Client MAC Address	
Redirect Append for WLAN SSID	
Portal IPV4 Address	
Portal IPV6 Address	X:X:X:X::X
Express WiFi Key Type	--- Select --- ▼

Customized page

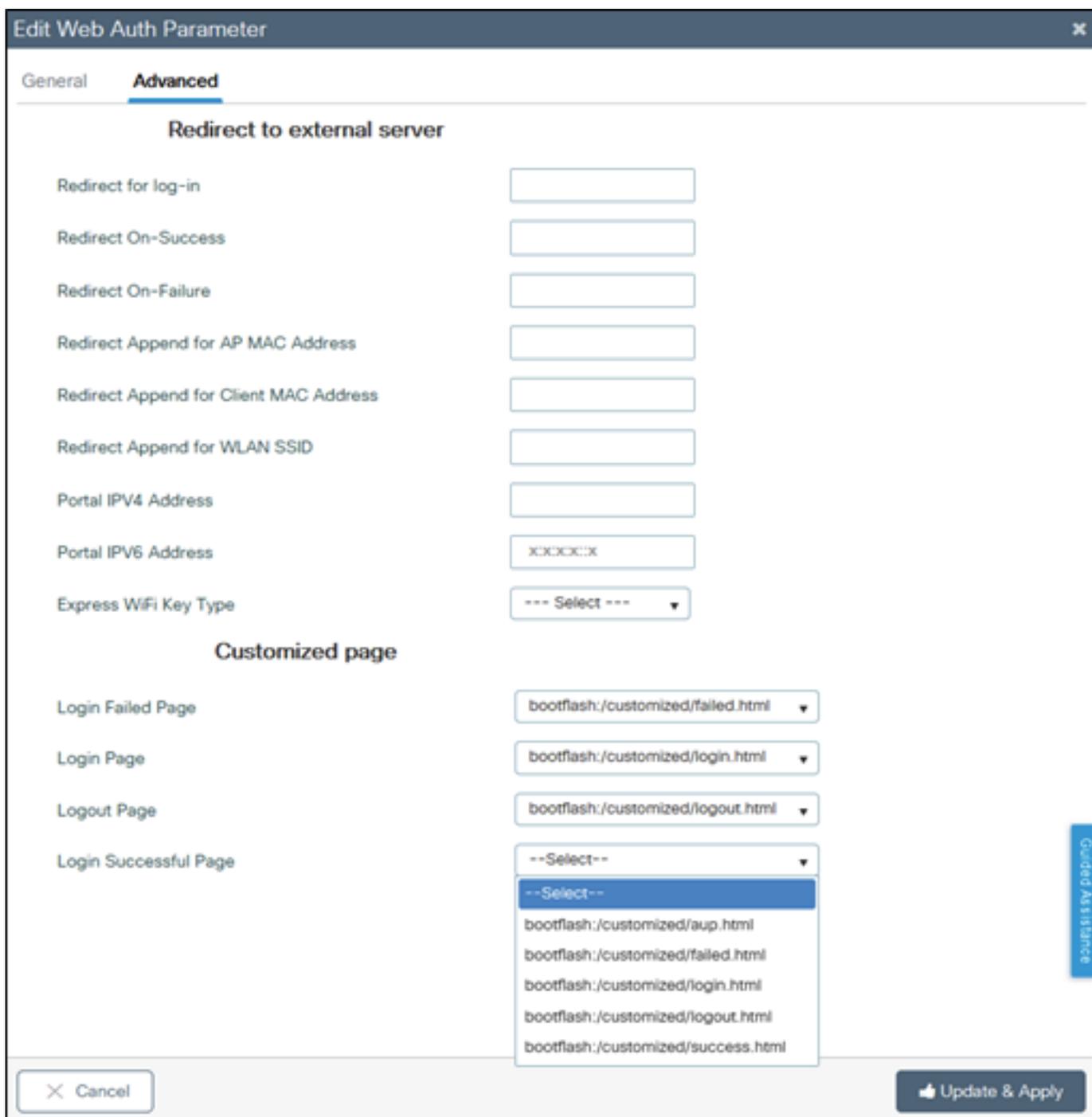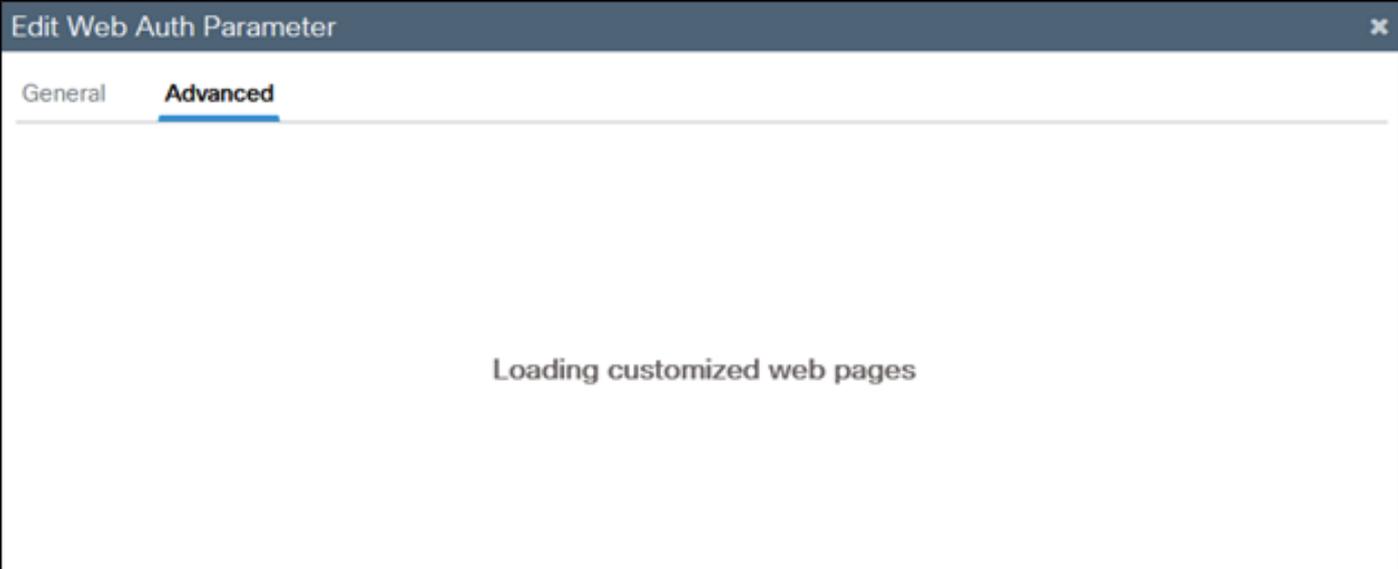|	
Login Failed Page	bootflash:/customized/
Login Page	bootflash:/customized/
Logout Page	bootflash:/customized/
Login Successful Page	

If you click on the blue icon beside any page, the 9800 will try to load that and you can choose the pages as illustrated

Edit Web Auth Parameter

General   **Advanced**

Loading customized web pages

Edit Web Auth Parameter

General   **Advanced**

Redirect to external server

Redirect for log-in	
Redirect On-Success	
Redirect On-Failure	
Redirect Append for AP MAC Address	
Redirect Append for Client MAC Address	
Redirect Append for WLAN SSID	
Portal IPV4 Address	
Portal IPV6 Address	xxxx:x
Express WiFi Key Type	--- Select --- ▼

Customized page

Login Failed Page	bootflash:/customized/failed.html ▼
Login Page	bootflash:/customized/login.html ▼
Logout Page	bootflash:/customized/logout.html ▼
Login Successful Page	--Select-- ▼

--Select--
bootflash:/customized/aup.html
bootflash:/customized/failed.html
bootflash:/customized/login.html
bootflash:/customized/logout.html
bootflash:/customized/success.html

Guided Assistance

✕ Cancel   👍 Update & Apply

6. Next step is to tag the parameter map to the WLAN (**Cat9800 GUI>>Tags and Profiles>>WLAN**). In this example, the WLAN authenticates the guests from local 9800 guest accounts first and then from ISE (RADIUS Server).

> **Note: AAA and pre-auth ACL configurations can optionally be added in this step.**
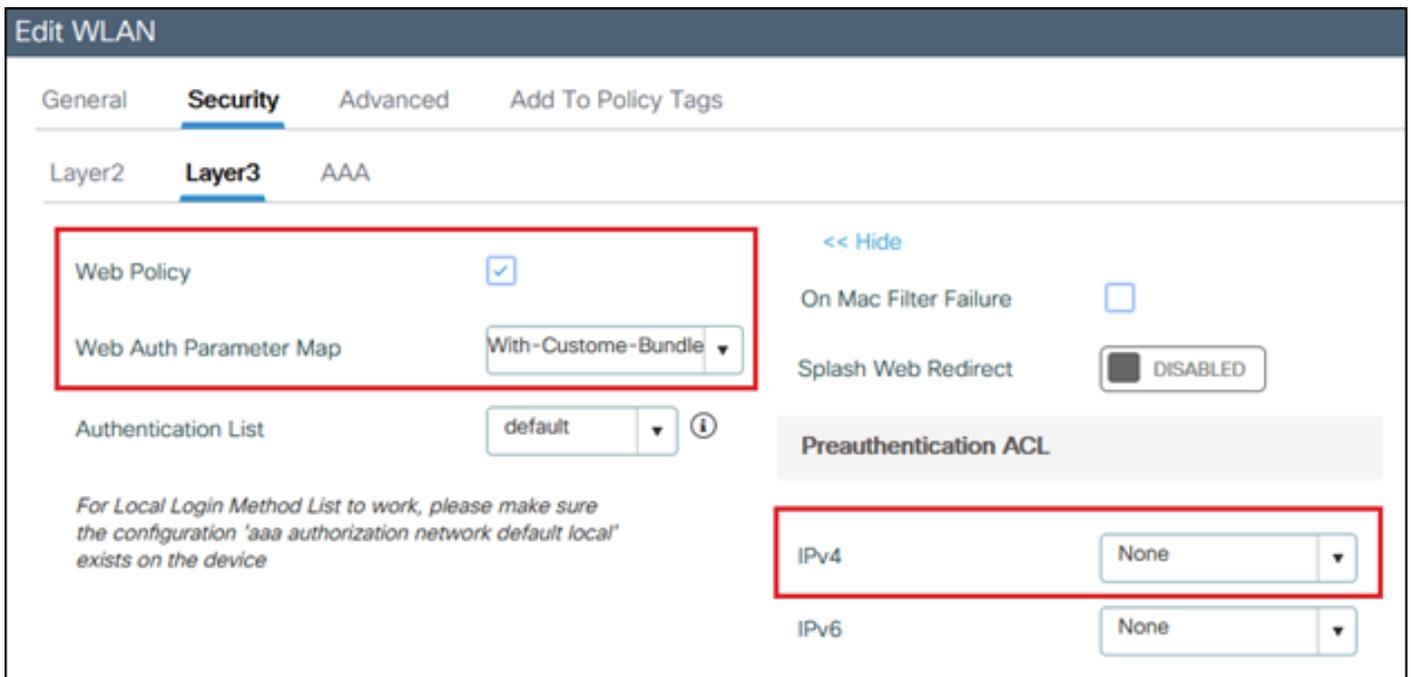
Sample config for ISE or any RADIUS Server:

```
radius server ISE address ipv4 x.x.x.x auth-port 1812 acct-port 1813 timeout 5 retransmit 3
automate-tester username dummy probe-on key XXXXXXXXXXX exit aaa group server radius RADIUS-
GROUP server name ISE exit aaa authentication dot1x ISE-Method group RADIUS-GROUP aaa
authorization network ISE-Method group RADIUS-GROUP aaa accounting identity default start-stop
group RADIUS-GROUP aaa authentication webauth default local group RADIUS-GROUP end
```

> **Note: As evident from the last CLI command, local user authentication check happens first then ISE/RADIUS. You can limit the authentication to local only or to ISE/RADIUS only or leave it as is for both, for example the user, in this case, will be checked locally first then if it's not there then will be checked against RADIUS.**

To add local guest users, navigate to Configuration>>Security>>Guest User
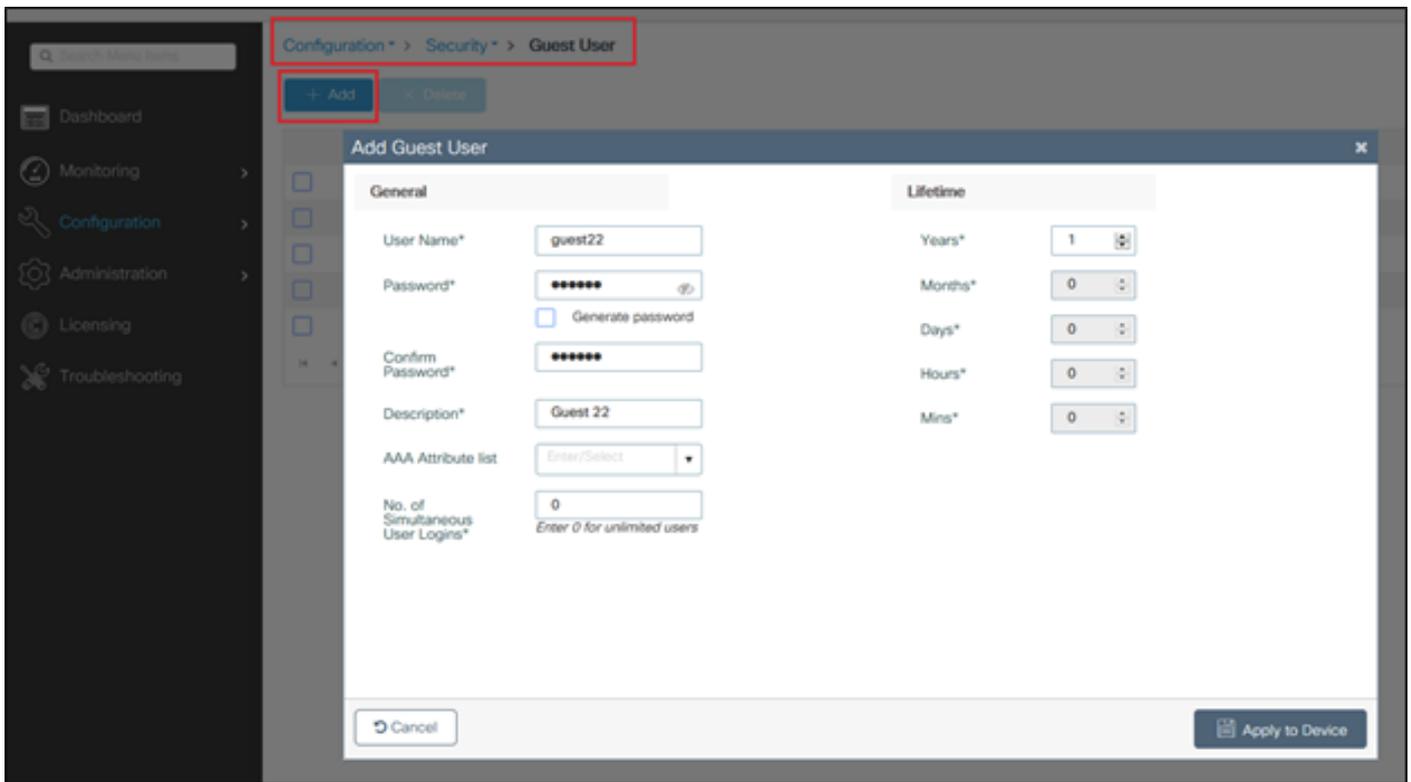
Verify

On your computer open the login.html file with a web browser and confirm that the animations and content is correct.

Troubleshoot

Ensure that all the files are not on subfolders when you upload them on the 9800 WLC and do not have a different name.