ADMINISTRATION GUIDE

Cloudpath Enrollment System Protected Extensible Authentication Protocol (PEAP) Configuration Guide, 5.5

Supporting Cloudpath Software Release 5.5

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Preface

Document Conventions

The following table lists the text conventions that are used throughout this guide.

TABLE 1 Text Conventions

Convention	Description	Example
`monospace`	Identifies command syntax examples	`device(config)# interface ethernet 1/1/6`
bold	User interface (UI) components such as screen or page names, keyboard keys, software buttons, and field names	On the **Start** menu, click **All Programs**.
italics	Publication titles	Refer to the *Ruckus Small Cell Release Notes* for more information.

Notes, Cautions, and Warnings

Notes, cautions, and warning statements may be used in this document. They are listed in the order of increasing severity of potential hazards.

NOTE
A NOTE provides a tip, guidance, or advice, emphasizes important information, or provides a reference to related information.

ATTENTION
An ATTENTION statement indicates some information that you must read before continuing with the current action or task.

CAUTION
A CAUTION statement alerts you to situations that can be potentially hazardous to you or cause damage to hardware, firmware, software, or data.

DANGER
A DANGER statement indicates conditions or situations that can be potentially lethal or extremely hazardous to you. Safety labels are also attached directly to products to warn of these conditions or situations.

Command Syntax Conventions

Bold and italic text identify command syntax components. Delimiters and operators define groupings of parameters and their logical relationships.

Convention	Description
bold text	Identifies command names, keywords, and command options.
italic text	Identifies a variable.
[ ]	Syntax components displayed within square brackets are optional. Default responses to system prompts are enclosed in square brackets.
{ **x** | **y** | **z** }	A choice of required parameters is enclosed in curly brackets separated by vertical bars. You must select one of the options.

Convention	Description
x | **y**	A vertical bar separates mutually exclusive elements.
< >	Nonprinting characters, for example, passwords, are enclosed in angle brackets.
...	Repeat the previous element, for example, *member*[*member*...].
\	Indicates a "soft" line break in command examples. If a backslash separates two lines of a command input, enter the entire command at the prompt without the backslash.

Document Feedback

Ruckus is interested in improving its documentation and welcomes your comments and suggestions.

You can email your comments to Ruckus at #Ruckus-Docs@commscope.com.

When contacting us, include the following information:

- Document title and release number
- Document part number (on the cover page)
- Page number (if appropriate)

For example:

- Ruckus SmartZone Upgrade Guide, Release 5.0
- Part number: 800-71850-001 Rev A
- Page 7

Ruckus Product Documentation Resources

Visit the Ruckus website to locate related documentation for your product and additional Ruckus resources.

Release Notes and other user documentation are available at https://support.ruckuswireless.com/documents. You can locate the documentation by product or perform a text search. Access to Release Notes requires an active support contract and a Ruckus Support Portal user account. Other technical documentation content is available without logging in to the Ruckus Support Portal.

White papers, data sheets, and other product documentation are available at https://www.ruckuswireless.com.

Online Training Resources

To access a variety of online Ruckus training modules, including free introductory courses to wireless networking essentials, site surveys, and Ruckus products, visit the Ruckus Training Portal at https://training.ruckuswireless.com.

Contacting Ruckus Customer Services and Support

The Customer Services and Support (CSS) organization is available to provide assistance to customers with active warranties on their Ruckus products, and customers and partners with active support contracts.

For product support information and details on contacting the Support Team, go directly to the Ruckus Support Portal using https://support.ruckuswireless.com, or go to https://www.ruckuswireless.com and select **Support**.

What Support Do I Need?

Technical issues are usually described in terms of priority (or severity). To determine if you need to call and open a case or access the self-service resources, use the following criteria:

- Priority 1 (P1)—Critical. Network or service is down and business is impacted. No known workaround. Go to the **Open a Case** section.
- Priority 2 (P2)—High. Network or service is impacted, but not down. Business impact may be high. Workaround may be available. Go to the **Open a Case** section.
- Priority 3 (P3)—Medium. Network or service is moderately impacted, but most business remains functional. Go to the **Self-Service Resources** section.
- Priority 4 (P4)—Low. Requests for information, product documentation, or product enhancements. Go to the **Self-Service Resources** section.

Open a Case

When your entire network is down (P1), or severely impacted (P2), call the appropriate telephone number listed below to get help:

- Continental United States: 1-855-782-5871
- Canada: 1-855-782-5871
- Europe, Middle East, Africa, Central and South America, and Asia Pacific, toll-free numbers are available at https://support.ruckuswireless.com/contact-us and Live Chat is also available.
- Worldwide toll number for our support organization. Phone charges will apply: +1-650-265-0903

We suggest that you keep a physical note of the appropriate support number in case you have an entire network outage.

Self-Service Resources

The Ruckus Support Portal at https://support.ruckuswireless.com offers a number of tools to help you to research and resolve problems with your Ruckus products, including:

- Technical Documentation—https://support.ruckuswireless.com/documents
- Community Forums—https://forums.ruckuswireless.com/ruckuswireless/categories
- Knowledge Base Articles—https://support.ruckuswireless.com/answers
- Software Downloads and Release Notes—https://support.ruckuswireless.com/#products_grid
- Security Bulletins—https://support.ruckuswireless.com/security

Using these resources will help you to resolve some issues, and will provide TAC with additional data from your troubleshooting analysis if you still require assistance through a support case or RMA. If you still require help, open and manage your case at https://support.ruckuswireless.com/case_management.

Overview of PEAP Configuration

Protected Extensible Authentication Protocol (PEAP) is one of several methods available for user authentication in Cloudpath.

PEAP is a username/password-based method of authentication.

NOTE
PEAP requires you to already have an external RADIUS server. This document provides the steps on how to configure your controller and your Cloudpath system to communicate with your external RADIUS server. (The Cloudpath onboard RADIUS server does not support PEAP authentication.)

If you will be using a Ruckus ZoneDirector controller to set up PEAP, follow the procedures in these sections:

1. Set up the AAA Authentication Server on the Ruckus ZoneDirector Controller on page 7
2. Configuring a PEAP WLAN on a Ruckus ZoneDirector Controller on page 10
3. Configuring PEAP on Cloudpath to Integrate with the Ruckus Controller on page 20

If you will be using a Ruckus SmartZone controller to set up PEAP, follow the procedures in these sections:

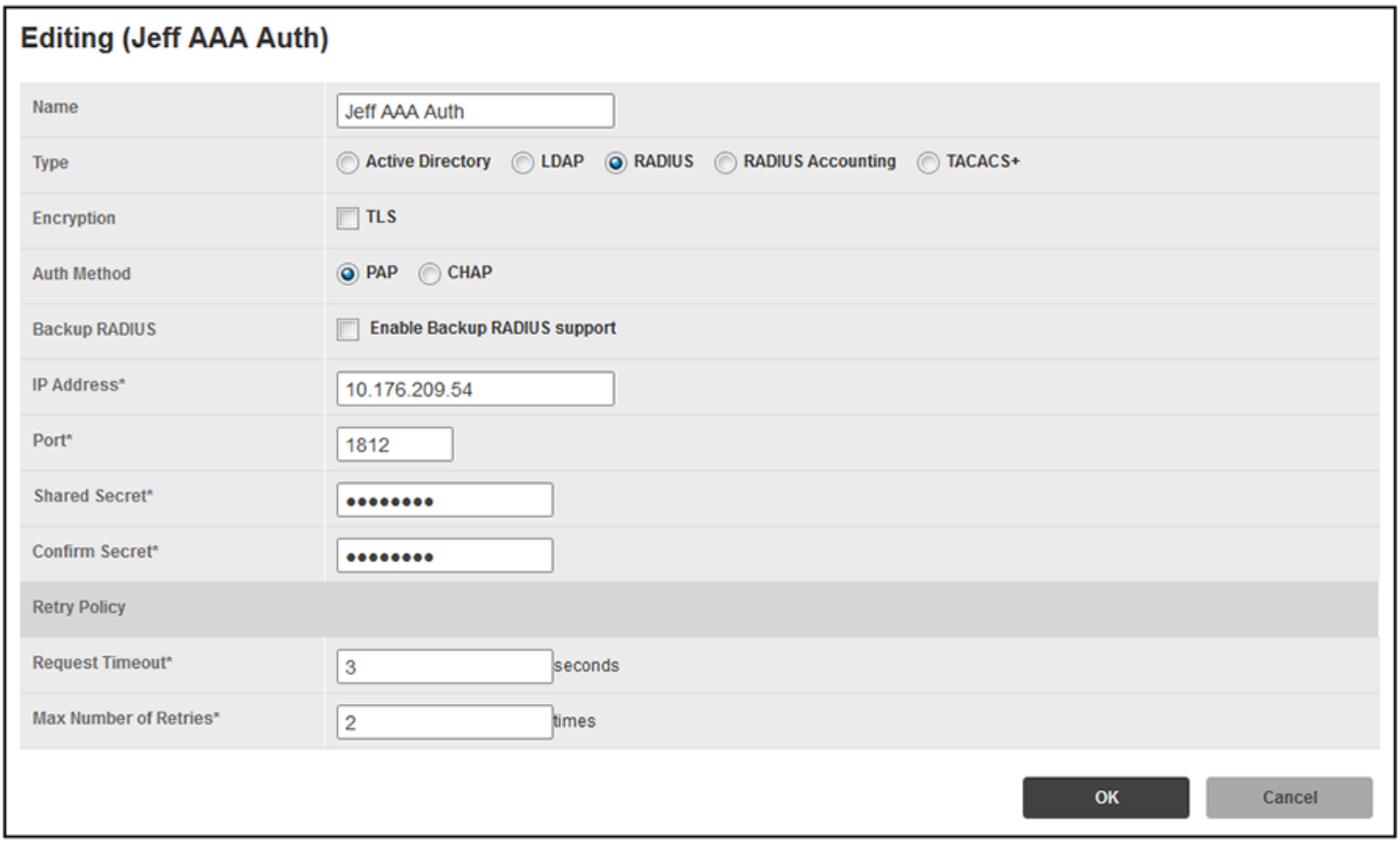
1. Set up the AAA Authentication Server on the Ruckus SmartZone Controller on page 9
2. Conifguring a PEAP WLAN on a Ruckus SmartZone Controller on page 14
3. Configuring PEAP on Cloudpath to Integrate with the Ruckus Controller on page 20

Set up the AAA Authentication Server on the Ruckus ZoneDirector Controller

You must enter information about your existing external RADIUS server in the controller user interface.

Go to **Configure > AAA Servers** on your ZoneDirector controller. The following screen shows the AAA authentication server configuration.

FIGURE 1 Create AAA Authentication Server on ZoneDirector



Enter the following values for the authentication server:

- Name = Any descriptive name you wish.
- Type = RADIUS
- Encryption: Leave the TLS box unchecked.
- Auth Method = PAP
- Backup RADIUS: Refer to your controller documentation if you want to use a backup RADIUS server.
- IP address = The IP address of your external RADIUS server.
- Port = 1812
- Shared Secret = The shared secret of your external RADIUS server.

NOTE
Leave the default values for the remaining fields.

Click **OK**.

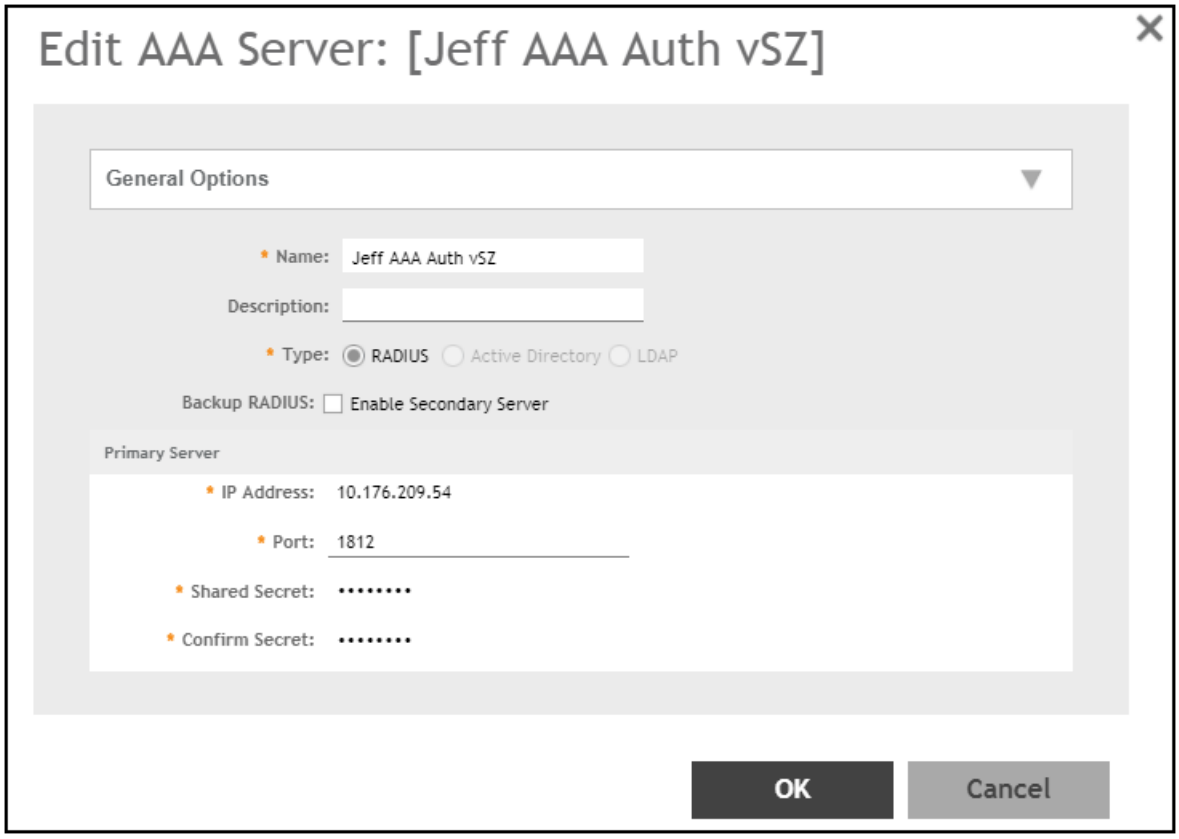
Proceed to Configuring a PEAP WLAN on a Ruckus ZoneDirector Controller on page 10.

Set up the AAA Authentication Server on the Ruckus SmartZone Controller

You must enter information about your existing external RADIUS server in the controller user interface.

Go to **System > Services & Profiles > Authentication** on your SmartZone controller. The following screen shows the AAA authentication server configuration.

FIGURE 2 Create AAA Authentication Server on SmartZone



Enter the following values for the authentication server:

- Name = Any descriptive name you wish.
- Type = RADIUS
- Backup RADIUS: Refer to your controller documentation if you want to use a backup RADIUS server.
- IP address = The IP address of your external RADIUS server.
- Port = 1812
- Shared Secret = The shared secret of your external RADIUS server.

Click **OK**.

Proceed to Conifguring a PEAP WLAN on a Ruckus SmartZone Controller on page 14.

Configuring a PEAP WLAN on a Ruckus ZoneDirector Controller

You can configure a PEAP WLAN on a Ruckus Wireless ZoneDirector controller so that you can then use PEAP as one method of authenticating users to Cloudpath.

Follow these steps to configure a PEAP WLAN on a Ruckus ZoneDirector controller.

NOTE
The procedure shown in this section is based on the user interface of a ZoneDirector controller version 10.0. Different versions of ZoneDirector may have minor differences in terms of which configuration options appear in what sections of a screen.

1. Log in to your Ruckus ZoneDirector controller.
2. Navigate to **Configure > WLANs**.

3. Under the WLAN List section, click **Create New**.

   The **Create New** section of the screen is displayed.

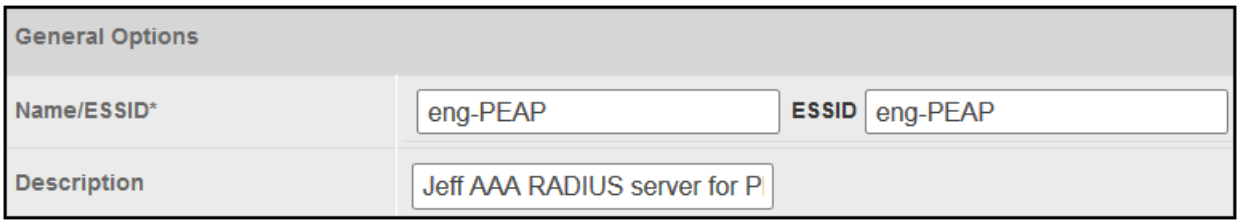
FIGURE 3 Create New WLAN on ZoneDirector

NOTE

Unless otherwise specified in the remaining steps, you do not have to change default values. The procedure described here is specific to Cloudpath; for information about any fields that are not described here, refer to your controller documentation.

4. Complete the General Options section:

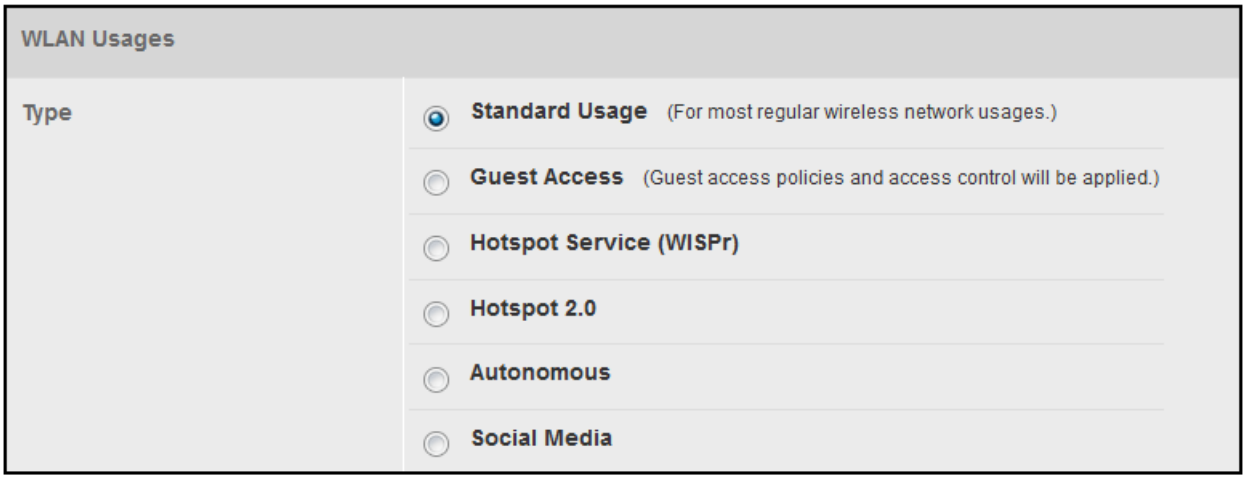
FIGURE 4 General Options Section of Creating a New WLAN



- Name: Enter a meaningful name for the PEAP WLAN you are creating.
- ESSID: When you click in this field, the name you entered in the Name field also appears in this field.
- Description: You can enter a brief description to indicate that you are creating a RADIUS WLAN for PEAP.

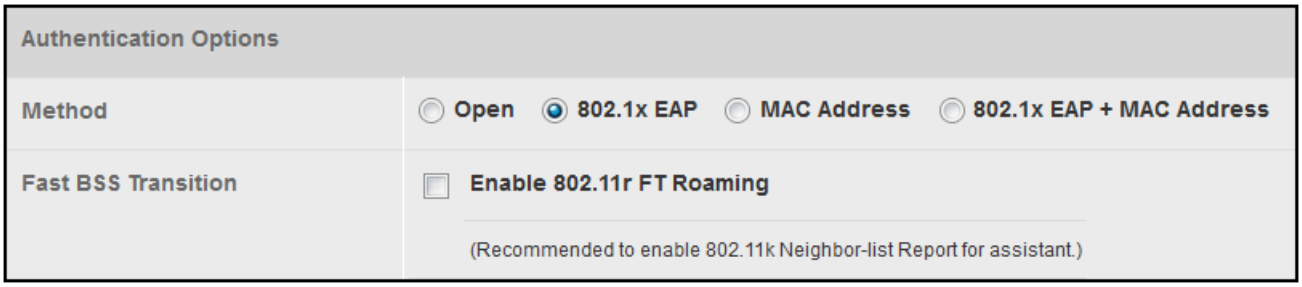
5. In the WLAN Usages section, use the default selection of Standard Usage.

FIGURE 5 WLAN Usage section of Creating a New WLAN



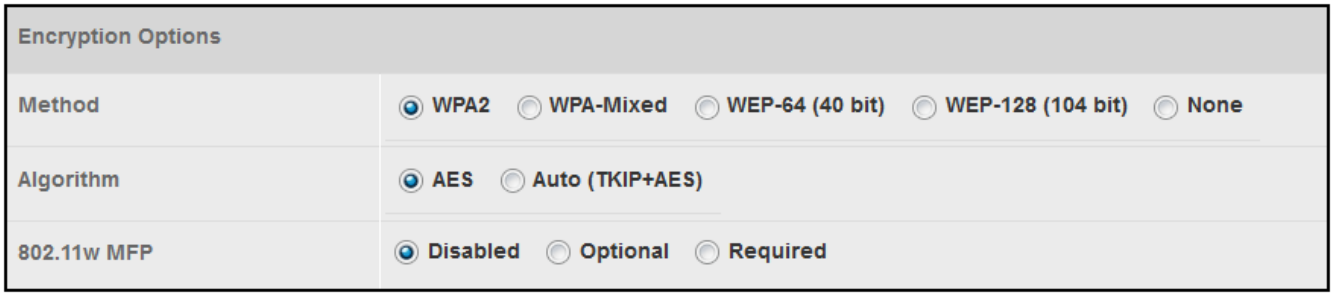
6. In the Authentication Options section, be sure that you select 802.1x EAP.

FIGURE 6 Authentication Options section of Creating a New WLAN



7. In the Encryption Options section, choose WPA2 for the Method. When you choose WPA2, the Encryption Options section appears as shown below:

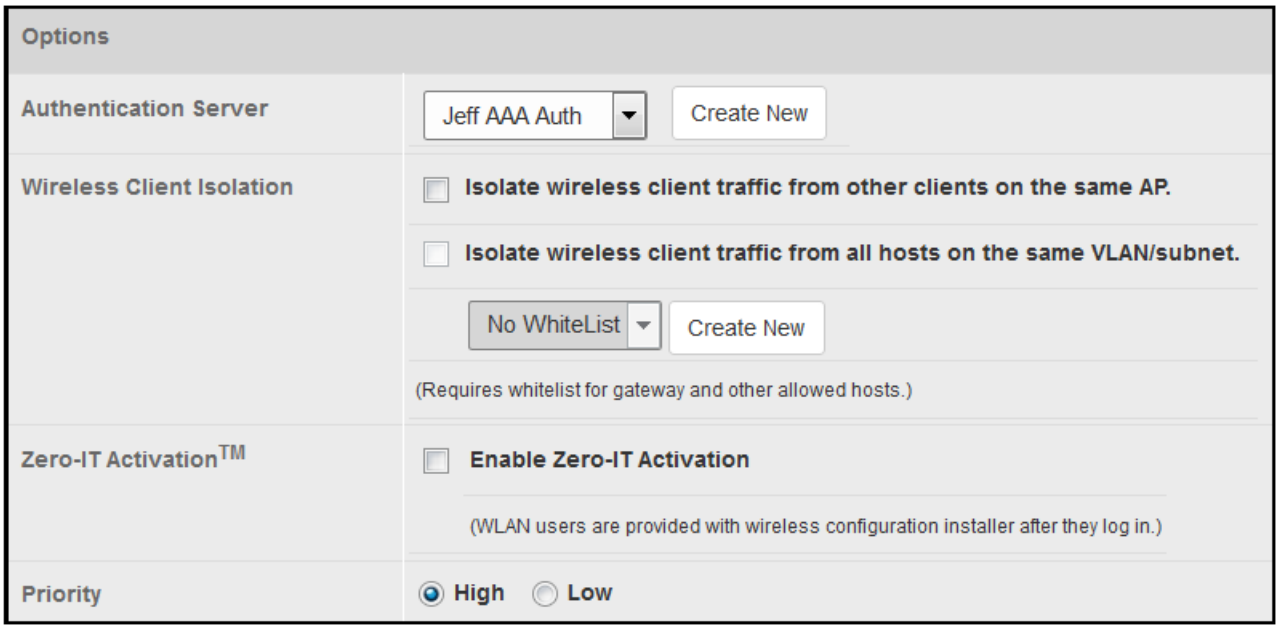
FIGURE 7 Encryptions Options section after choosing WPA2 as the Method



- Algorithm: Be sure that the default value of AES is selected.
- 802.11w MFP: Be sure the default value of Disabled is selected.

8. In the Options section, select the authentication server that you configured in Set up the AAA Authentication Server on the Ruckus ZoneDirector Controller on page 7 from the drop-down list.

FIGURE 8 Options Section After Authentication Server is Selected



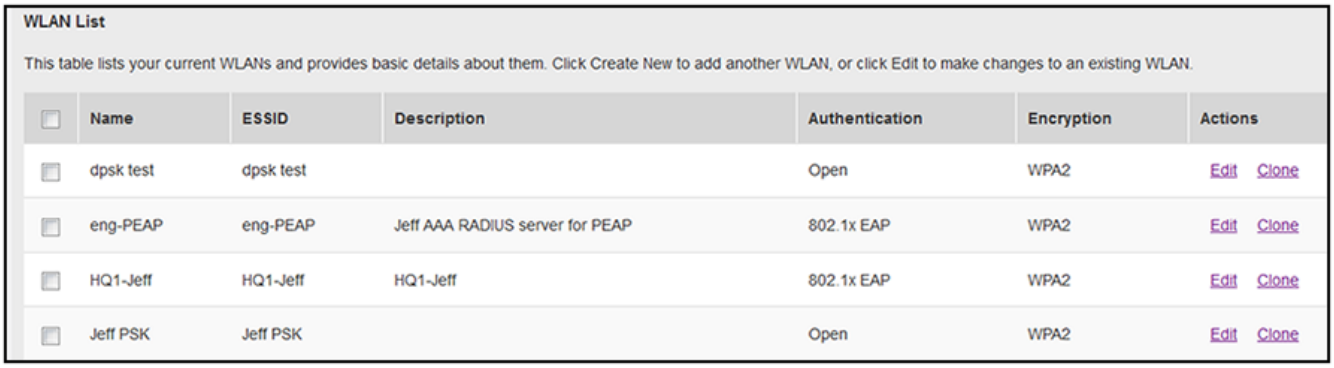
NOTE
Do not configure an accounting server for PEAP.

9. In the Advanced Options section, there are many fields (not shown here), but you can also use all the default values.

10. Click **OK** to complete the PEAP WLAN configuration.

    Your newly created PEAP WLAN should now appear in the WLAN List, "eng-PEAP" in this example:

    FIGURE 9 Newly Created WLAN Appears in WLAN List



    To review the completed configuration or to make any configuration changes, click the **Edit** button.

Proceed to Configuring PEAP on Cloudpath to Integrate with the Ruckus Controller on page 20.

Conifguring a PEAP WLAN on a Ruckus SmartZone Controller

You can configure a PEAP WLAN on a Ruckus Wireless SmartZone controller so that you can then use PEAP as one method of authenticating users to Cloudpath.

Follow these steps to configure a PEAP WLAN on a Ruckus SmartZone controller.

NOTE
The procedure shown in this section is based on the user interface of a SmartZone controller version 3.5.1. Different versions of SmartZone may have minor differences in terms of which configuration options appear in what sections of a screen.

1. Log in to your Ruckus SmartZone controller.

2. Click the **Wireless LANS** tab.

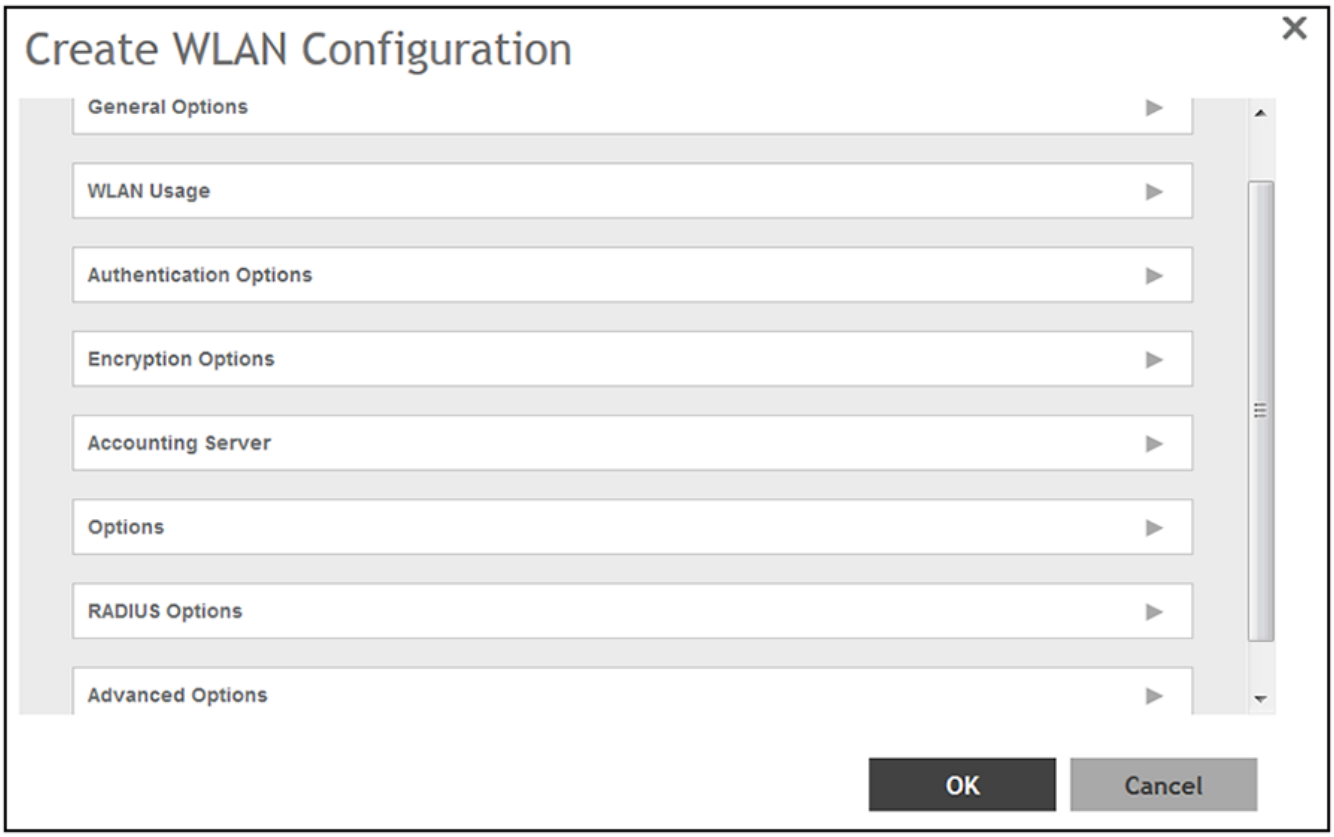
   The following screen appears:

FIGURE 10 Wireless LANs Screen

3. On the Wireless LANs screen, click the **+ Create** button.

   The Create WLAN Configuration appears. This screen is shown below (with each area of the screen in a collapsed view):

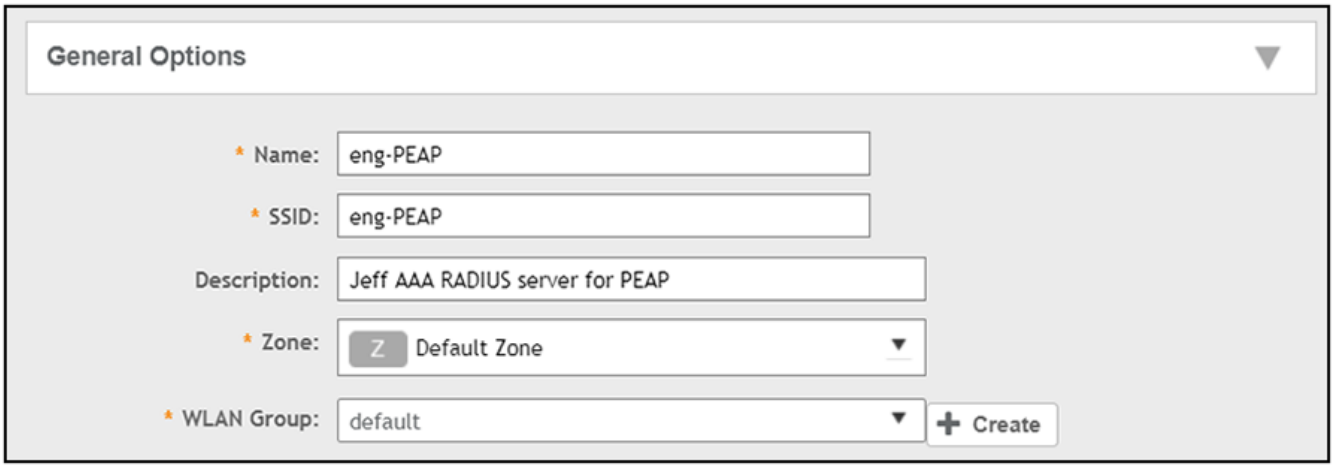
FIGURE 11 Create WLAN Configuration Screen on SmartZone



NOTE
Unless otherwise specified in the remaining steps, you do not have to change default values. The procedure described here is specific to Cloudpath; for information about any fields that are not described here, refer to your controller documentation.

4. Complete the General Options section of the screen:

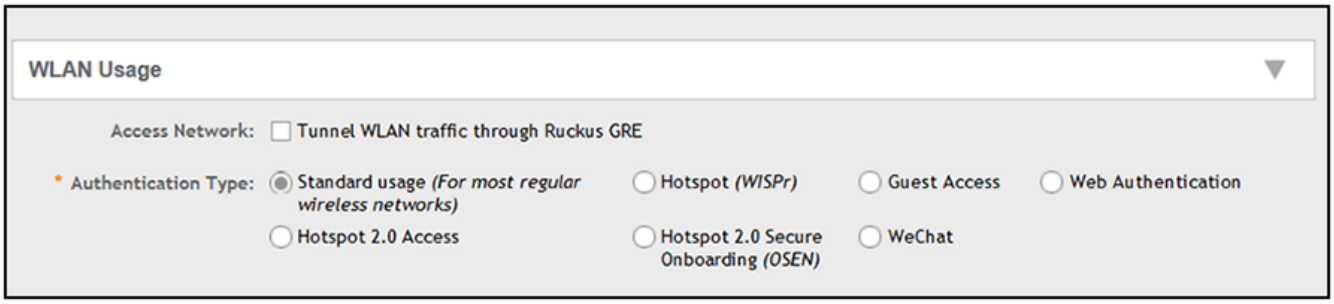
FIGURE 12 General Options Section of the Create WLAN Configuration Screen



- Name: Enter a meaningful name for the PEAP WLAN you are creating.
- SSID: When you click in this field, the name you entered above also appears in this field.
- Description: You can enter a brief description to indicate that you are creating a RADIUS WLAN for PEAP.
- Zone: From the drop-down list, select the zone in which the PEAP WLAN will reside. This can be the default zone.

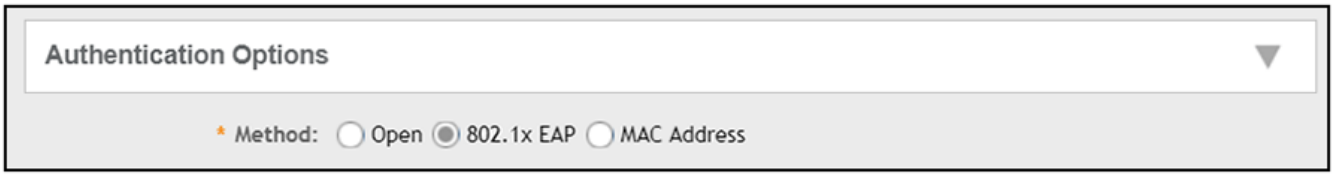
5. In the WLAN Usage section of the screen, use the default selection of Standard usage.

FIGURE 13 WLAN Usage section of the Create WLAN Configuration Screen



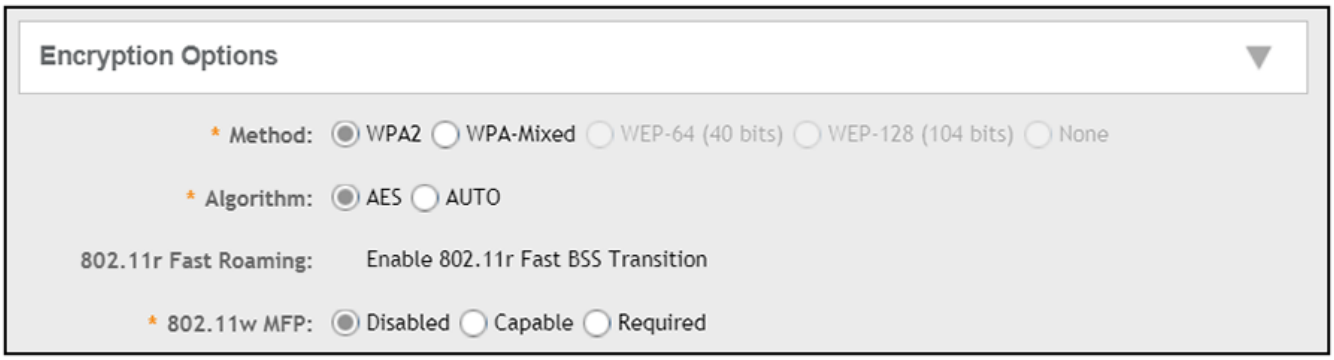
6. In the Authentication Options section of the screen, select 802.1x EAP.

FIGURE 14 Authentication Options section of the Create WLAN Configuration Screen



7. In the Encryptions Options section of the screen, you must select "WPA2," which displays the section as follows:

FIGURE 15 Encryption Options Section After Selecting WPA2 Method



- Algorithm: Be sure that the default value of AES is selected.
- 802.11w MFP: Be sure the default value of Disabled is selected.

8. In the Authentication & Accounting Server section, select the authentication server that you configured in Set up the AAA Authentication Server on the Ruckus SmartZone Controller on page 9 from the drop-down list.

FIGURE 16 Authentication & Accounting Server Section of the Create WLAN Configuration Screen

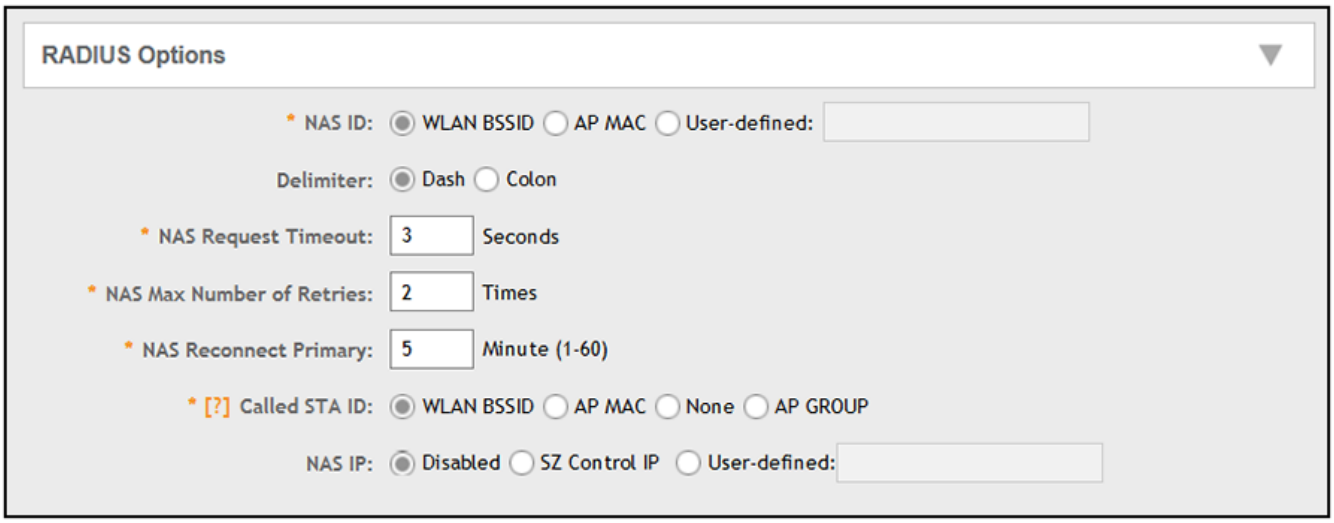
NOTE
Do not configure an accounting server for PEAP.

9. In the Options section, you can use the default values, shown below:

FIGURE 17 Options Section of the Create WLAN Configuration Screen

10. In the RADIUS Options section, you can use the default values, shown below:

FIGURE 18 RADIUS Options section

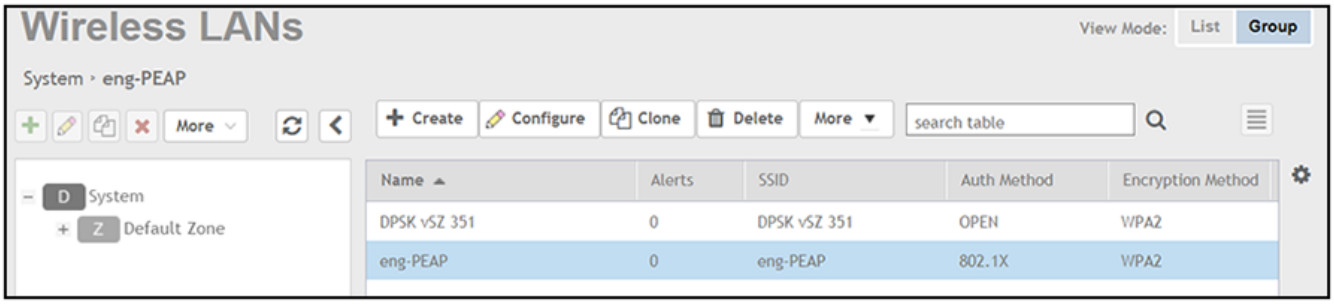


11. In the Advanced Options section, there are many fields (not shown here), but you can also use all the default values.

12. Click **OK** to complete the PEAP Wireless LAN configuration.

    Your newly created PEAP WLAN should now appear in the Wireless LANs List, "eng-PEAP" in this example:

    FIGURE 19 Newly Created WLAN Appears in Wireless LANs List



    To review the completed configuration or to make any configuration changes, click the **Configure** tab when the Wireless LAN is highlighted.

Proceed to Configuring PEAP on Cloudpath to Integrate with the Ruckus Controller on page 20.

Configuring PEAP on Cloudpath to Integrate with the Ruckus Controller

Once you configure a PEAP WLAN on your controller, you need to add a corresponding PEAP configuration to a workflow on your Cloudpath system.

This procedure in this section includes steps for:

- Adding a PEAP Branch to Your Workflow (below)
- Adding a PEAP Device Configuration to Your Workflow on page 23
- Configuring Cloudpath to Communicate with the External RADIUS server on page 25
- Testing the PEAP User Experience on page 27
- Troubleshooting Tips on page 29

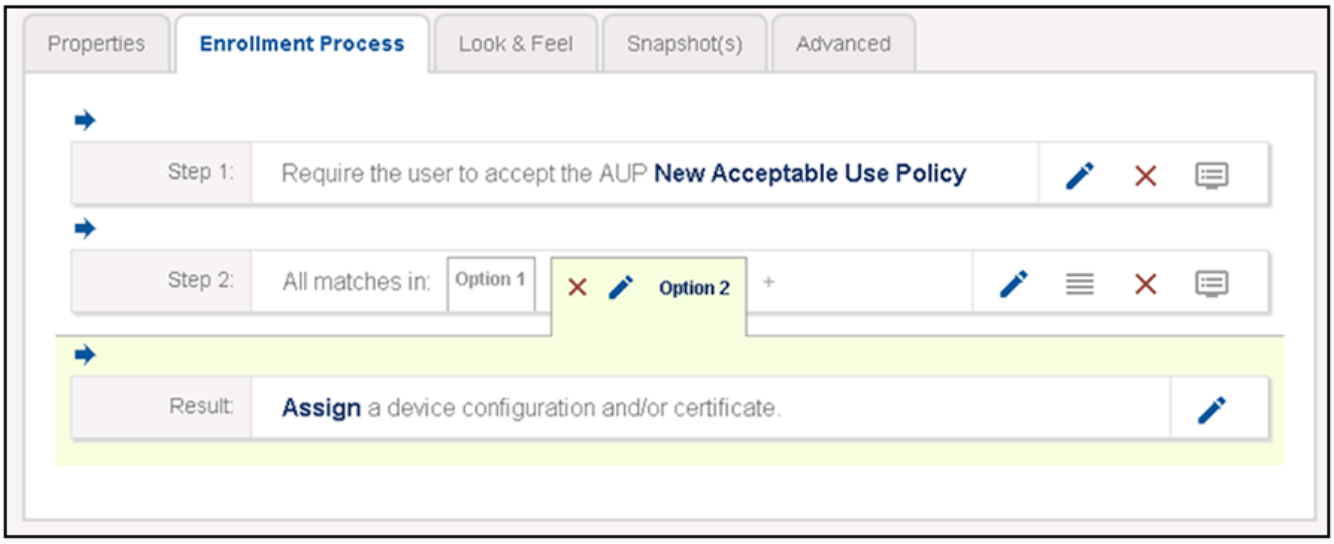
NOTE
The concept of workflows and how to create one is described in detail in the *Cloudpath Deployment Guide* and the *Cloudpath Quick Start Guide*. Therefore, the purpose of the procedure in this section is to demonstrate how to add a PEAP branch to an existing workflow. The same steps included below could also be used to create a new workflow with a PEAP plugin.

Adding a PEAP Branch to Your Workflow

1. Log in to the Cloudpath user interface.
2. Go to **Configuration > Workflows**.

3. Click on a workflow to which you want to add a PEAP branch. An example of a very simple workflow before adding a PEAP branch is shown below:

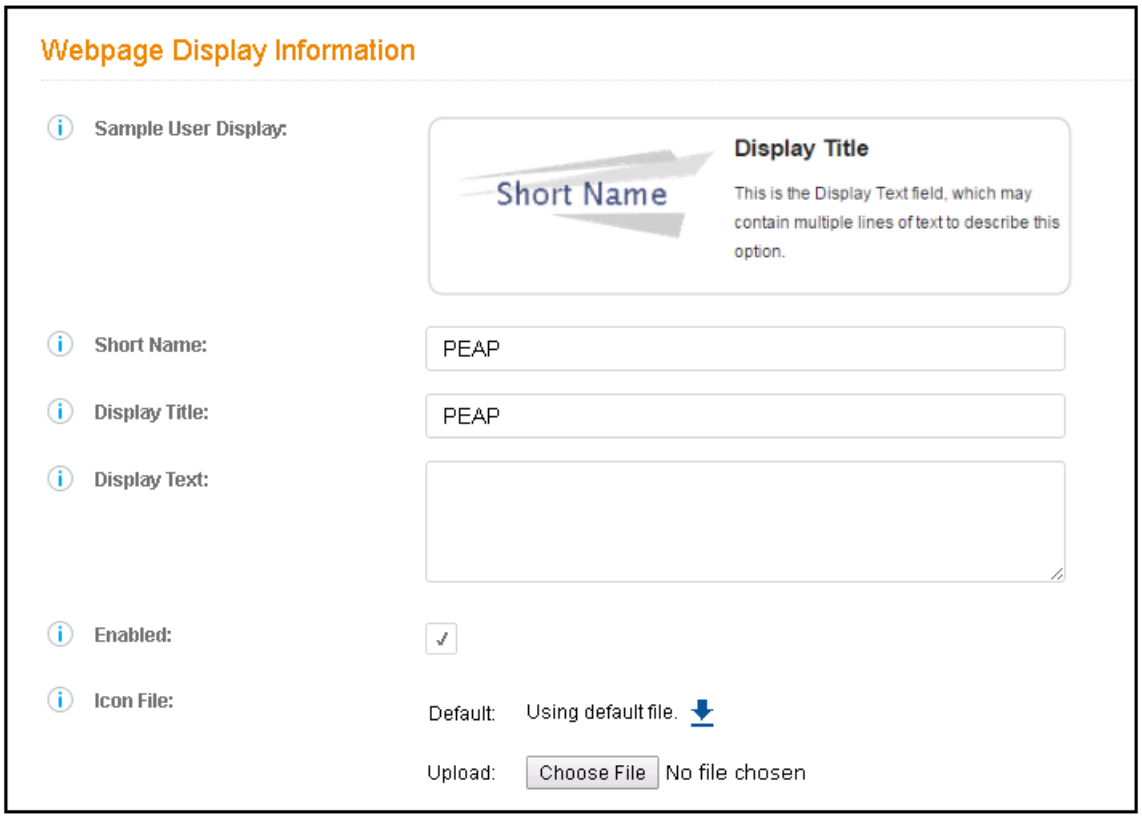
FIGURE 20 Workflow Before Adding PEAP Branch



4. Click the **+** button to create a new branch in your workflow.

   The Webpage Display Information screen is displayed, as shown below, and you add the necessary information.

FIGURE 21 Webpage Display Information Screen is Displayed When You Add a Branch to a Workflow

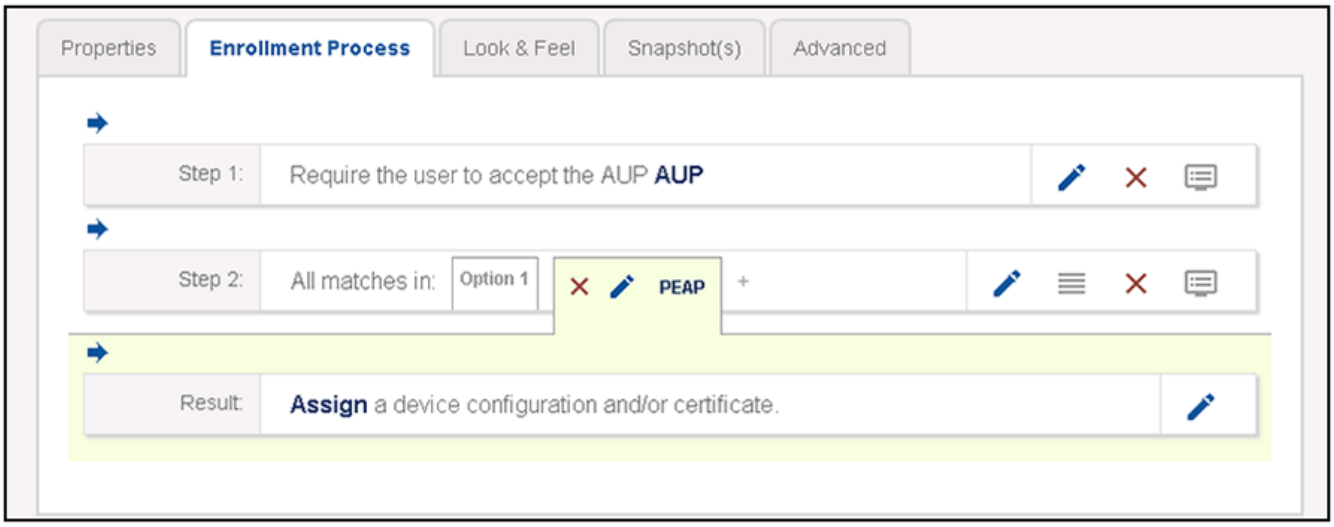


Enter a Short Name and Display Title, and, optionally, Display Text, then click **Save**.

5. On the next screen (**Configuration > Workflows > Modify Step**), click **Done**.

   The PEAP tab has been added, as shown in the following screen.

FIGURE 22 Workflow After Adding Tab for PEAP

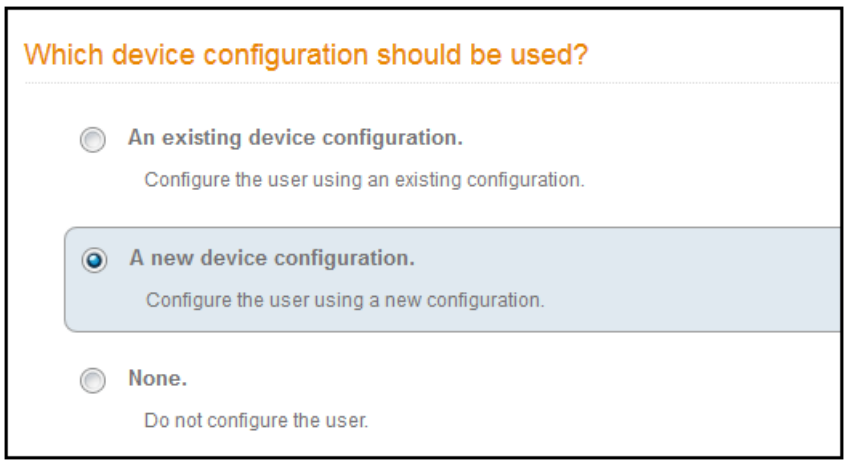


Adding a PEAP Device Configuration to Your Workflow

1. In the workflow, with the PEAP tab highlighted, click the pencil icon to the right of the Result line to "Assign a device configuration and/or certificate."

   The following screen appears:

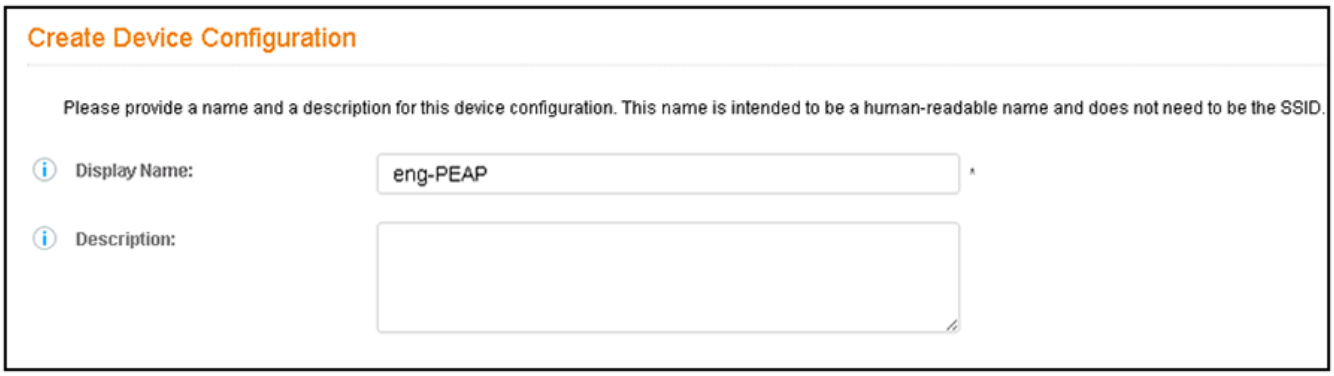
FIGURE 23 Device Configuration Selection Screen



2. Select "A new device configuration," then click **Next**.

   The Create Device Configuration screen is displayed. Enter a descriptive name. The name does not need to be the same as the SSID; however it can be, as shown below.

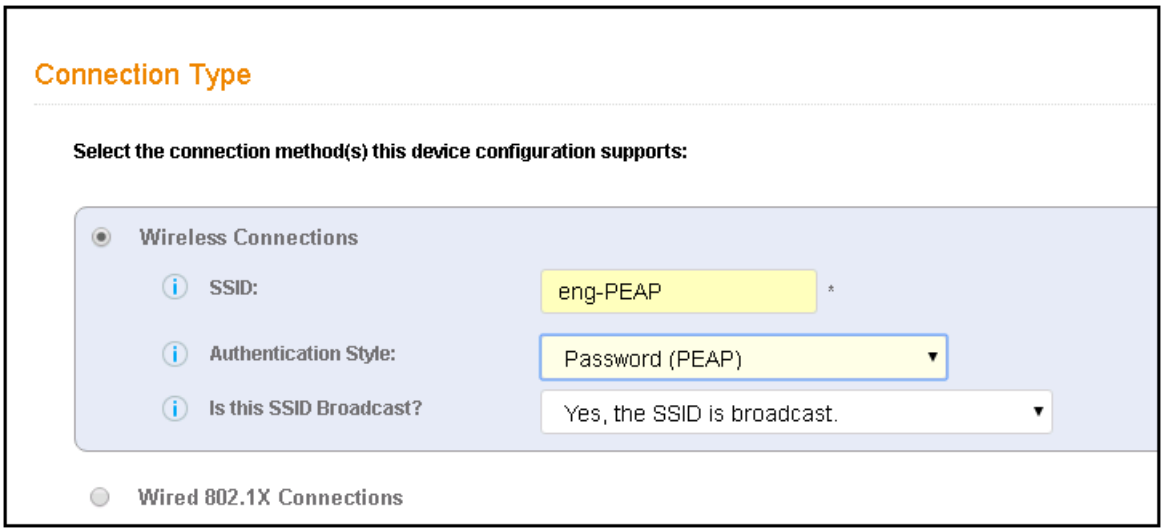
   FIGURE 24 Create Device Configuration Screen



   Click **Next**.

3. The Connection Type screen is displayed; required fields are described below the screen:

   FIGURE 25 Connection Type Screen



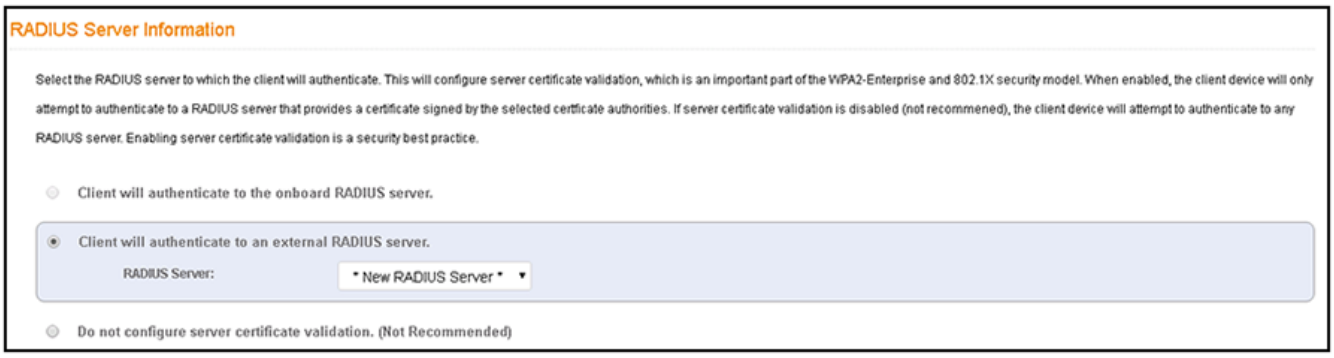
   - The Wireless Connections button must be selected.
   - SSID: This name must match the PEAP SSID exactly as you configured it on the controller:
     - For a Ruckus ZoneDirector controller, it is the name configured in Figure 4 on page 12.
     - For a Ruckus SmartZone controller, it is the name configured in Figure 12 on page 17.
   - Authentication Style: Select Password (PEAP) from the drop-down list.
   - Is this SSID Broadcast?: Leave the default value of Yes, the SSID is broadcast.

   Click **Next**.

Configuring Cloudpath to Communicate with the External RADIUS server

1. For the screens you are presented with next, you can keep all the default values and continue to click **Next** to progress through the screens, until you get to the following screen:

   FIGURE 26 RADIUS Server Information



   With the "Client will authenticate to an external RADIUS server" option selected, be sure that the RADIUS Server value is ***New RADIUS Server**, then, click **Next**.

2. On the screen that appears next (below), use the **Choose File** button to upload the root CA and any intermediates certificates to allow the Cloudpath system to communicate with the external RADIUS server. The following illustration is an example of the RADIUS Server Information screen after the root CA and its intermediate certificate have been uploaded.

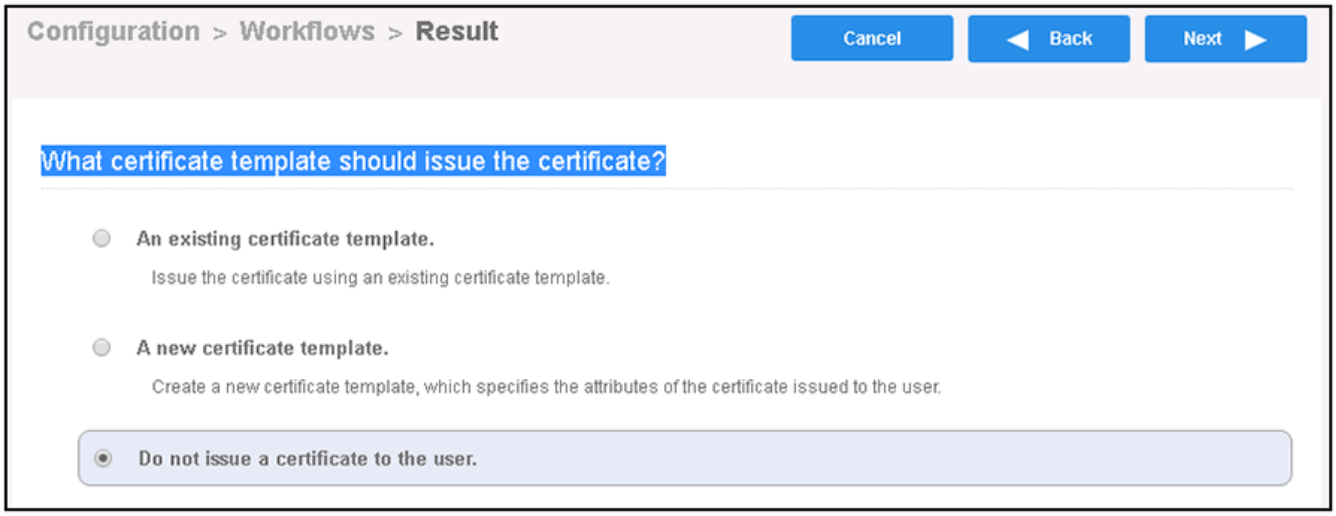
   FIGURE 27 RADIUS Server Information Screen After Uploading Certificates

   The Reference Name is an internal name (typically a name for the external RADIUS server) and is not obtained from the certificate, but the RADIUS Common Name is obtained from the certificate. Both these fields can be left blank if you wish. Click **Next**.

3. On the Additional Options screen, which is displayed next, leave the default values and click **Next**.

4. On the "What certificate template should issue the certificate?" screen, select "Do not issue a certificate to the user."

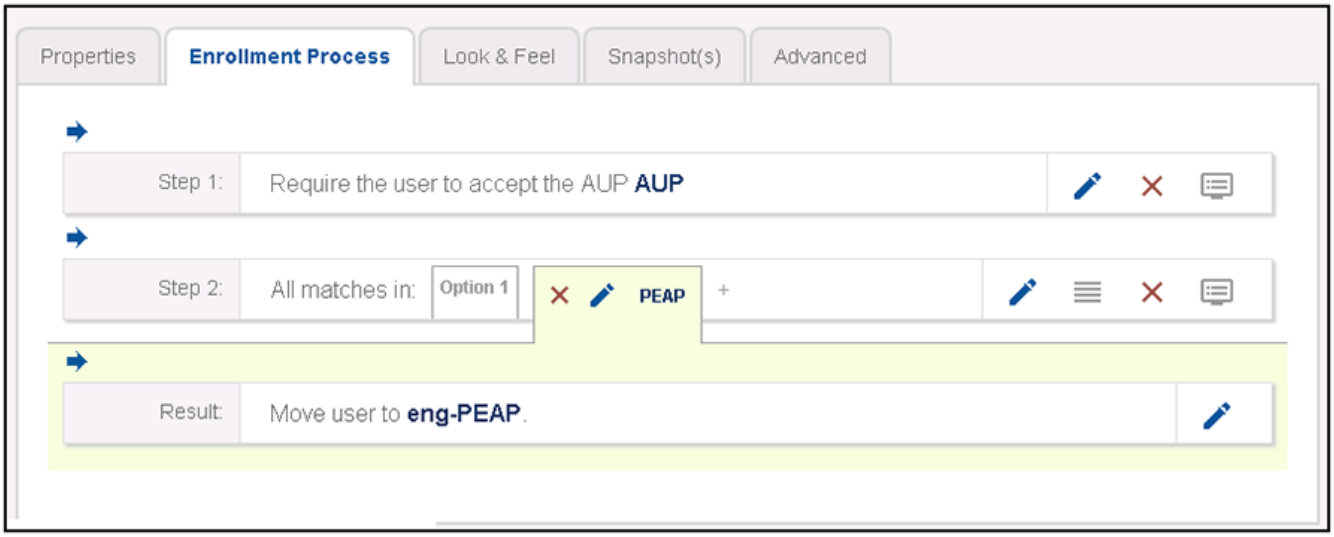
FIGURE 28 What certificate template should issue the certificate?



Click **Next**.

5. You are returned to the workflow. Make sure the Result step has been added successfully, as shown below:

FIGURE 29 Workflow After Completing the Device Configuration "Result"



Publish the workflow by clicking the **Publish** icon to the left of the workflow name at the top of the **Configuration > Workflows** screen.

Testing the PEAP User Experience

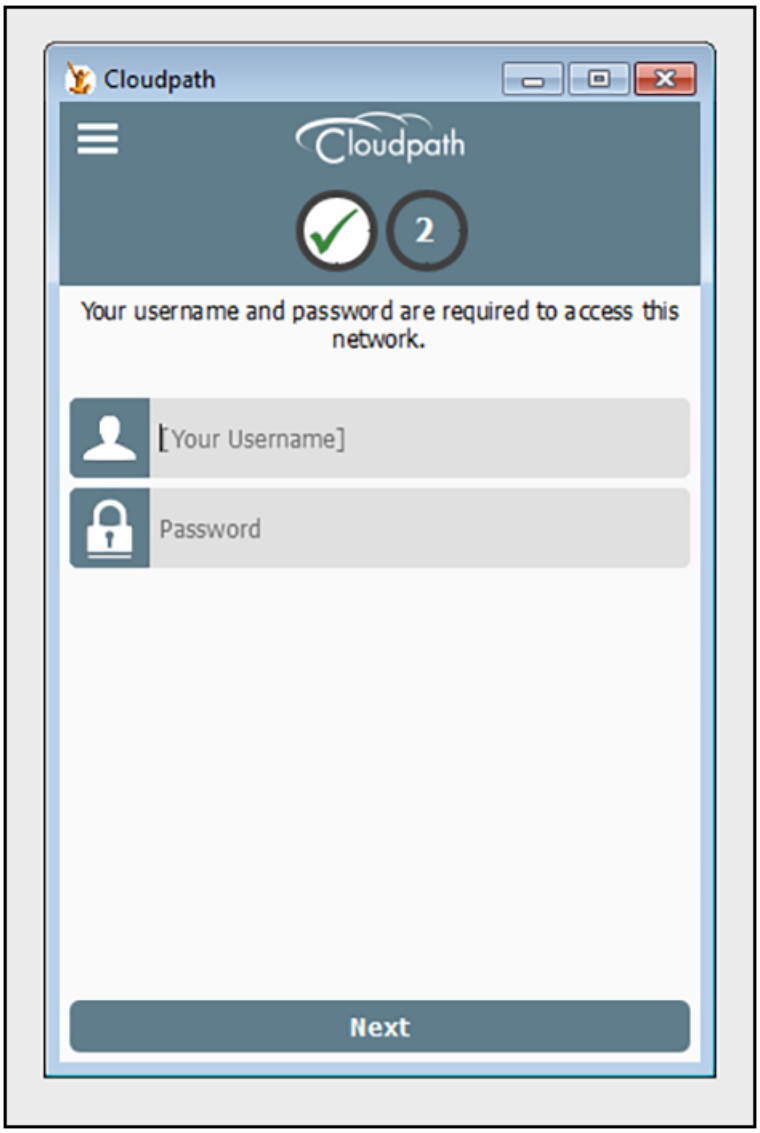
1. Test the Enrollment process by clicking on the enrollment portal URL for the workflow at the top of the **Configuration > Workflows** screen.
2. When are you presented with the with the Welcome screen, click **Start**.
3. When you are presented with various branches of your workflow, click the "PEAP" branch:

   FIGURE 30 Testing the Workflow - PEAP Branch

4. Follow any prompts to continue.

5. The user is presented with a screen similar to the one shown in the following figure to enter username and password.

FIGURE 31 PEAP User Credentials Screen



Enter the credentials for the external RADIUS server, then click **Next**.

6. Proceed with the enrollment. If enrollment is successful, you will receive some status screens indicating the following status as the process is in progress:
   - "Configuring this device"
   - "Attempting to connect to the network"
   - "Congratulations! You are now connected to the network."

Troubleshooting Tips

If an error occurs during the workflow-publishing or enrollment process, check the following:

- Make sure that you have selected **Password (PEAP)** as the Authentication Style in the Cloudpath Connection Type screen.
- Make sure that you have added the correct Cloudpath PEAP SSID to the final result step in your workflow.
- Verify that the shared secret configured of your external RADIUS server matches the shared secret on the Create AAA Authentication Server configuration screen on your controller.
- Verify that the Cloudpath server can ping the external RADIUS server, and vice versa.
- Verify that you have the correct Root and any Intermediate CAs for the external RADIUS server.

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