

Cloudpath Enrollment System for Hotspot 2.0 (Passpoint) Release 1 Configuration Guide, 5.12

Supporting Cloudpath Software Release 5.12

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Contact Information, Resources, and Conventions

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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.ruckusnetworks.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://community.ruckuswireless.com>
- 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.

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.ruckusnetworks.com>.

Online Training Resources

To access a variety of online RUCKUS training modules, including free introductory courses to wireless networking essentials, site surveys, and products, visit the RUCKUS Training Portal at <https://commscopeuniversity.myabsorb.com/>. The registration is a two-step process described in this [video](#). You create a CommScope account and then register for, and request access for, CommScope University.

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	<code>device(config)# interface ethernet 1/1/6</code>
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 .
<i>italics</i>	Publication titles	Refer to the <i>RUCKUS Small Cell Release Notes</i> for more information.

Notes, Cautions, and Safety 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.
<i>italic text</i>	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.
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, <i>member[member...]</i> .
\	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.

Hotspot 2.0 Release 1 Overview

Hotspot 2.0 (HS 2.0), often referred to as Wi-Fi Certified Passpoint, is the new standard for Wi-Fi public access that automates and secures the connection.

The focus of Release 1 is over-the-air security and network discovery and selection. The main enabling protocols are IEEE 802.11u, along with IEEE 802.1X, selected EAP methods, and IEEE 802.11i. Release 1 uses the WPA2-Enterprise certification program in the Wi-Fi Alliance.

The IEEE 802.11u protocol allows a mobile device to have a dialog with a Wi-Fi AP "pre-association" to determine the capabilities that the network can support. The two protocols that 802.11u uses to make this happen are the generic advertisement service (GAS) and the access network query protocol (ANQP). These protocols run on top of 802.11 and enable the Hotspot 2.0 experience.

Supported Devices:

Hotspot 2.0 Release 1 can be used with iOS devices running iOS 7 and later versions.

Main Steps:

The following is a list of the main steps you need to perform to configure Hotspot 2.0 Release 1 on your vSZ controller and your Cloudpath system:

1. [Configuring Hotspot 2.0 Release 1 Wi-Fi Operator Profile](#) on page 11: This profile defines all the properties pertaining to an operator. You configure the domain of your Cloudpath system here. This profile will later be linked to a WLAN profile.
2. [Configuring Hotspot 2.0 Release 1 Identity Provider](#) on page 12: This profile is where you enter network-identifying information such as Network Access Identifier (NAI) realms, and also where you can add authentication and accounting servers. This profile will also later be linked to a WLAN profile.
3. [Creating a Hotspot Portal for Hotspot 2.0 Release 1](#) on page 22: This is where you create a captive hotspot portal to send unauthenticated users for Cloudpath enrollment.
4. [Configuring an Onboarding SSID for Hotspot 2.0 R1](#) on page 24: This is the open, wireless LAN that you create for users to begin their onboarding process.
5. [Creating a Hotspot 2.0 WLAN Profile](#) on page 26: This profile is where you select the previously configured Wifi Operator and Identity Provider profiles.
6. [Configuring a Secure SSID for Hotspot 2.0 R1](#) on page 28: This is the secure network you create to which Cloudpath users will be connected upon successful authentication and enrollment.
7. [Configuring Hotspot 2.0 Release 1 on Cloudpath](#) on page 31: This is the configuration you must perform on the Cloudpath UI to successfully link the Hotspot 2.0 Release 1 configuration you performed on the controller to a Hotspot 2.0 Release 1 Cloudpath workflow.

Hotspot 2.0 Release 1 Controller Configuration

- Controller Information..... 11
- Configuring Hotspot 2.0 Release 1 Wi-Fi Operator Profile..... 11
- Configuring Hotspot 2.0 Release 1 Identity Provider..... 12
- Creating a Hotspot Portal for Hotspot 2.0 Release 1..... 22
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- Creating a Hotspot 2.0 WLAN Profile..... 26
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Controller Information

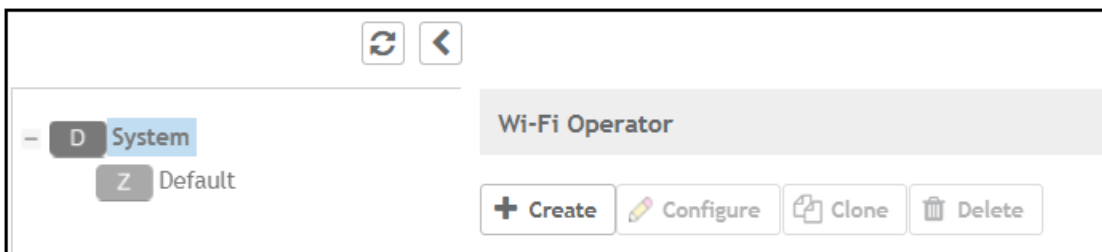
Hotspot 2.0 Release 1 is supported on the Ruckus Virtual SmartZone (vSZ) controller, version 3.2.1.0.245 and above. The configuration described here is for version 3.6.0. If you are running a different version of vSZ, refer to your controller documentation for differences.

Configuring Hotspot 2.0 Release 1 Wi-Fi Operator Profile

A Wi-Fi operator profile is required for Hotspot 2.0 Release 1.

1. Navigate to **Configuration > Services & Profiles > Hotspots & Portals**, then click the **Hotspot 2.0** tab.
2. Be sure that "System" is highlighted:

FIGURE 1 Highlighting the "System" Area Before Creating Wi-Fi Operator Profile



3. Under "WiFi Operator," click **Create**.

The Create Hotspot 2.0 WiFi Operator Profile screen appears. An example of how you can configure this screen follows:

FIGURE 2 Hotspot 2.0 Wi-Fi Operator Profile Screen

The screenshot shows a web form titled "Create Hotspot 2.0 Wi-Fi Operator Profile". The form contains the following elements:

- Name:** A text input field containing "Test Operator".
- Description:** An empty text input field.
- Domain Names:** A section with a "Domain Name" input field, an "+ Add" button, an "X Cancel" button, and a trash icon labeled "Delete". Below this is a table with one row: "Domain Name" | "cloudpath.net".
- Signup Security:** A checkbox labeled "Support Anonymous Authentication (OSEN)" which is unchecked.
- Certificate:** A dropdown menu showing "No data available" and a "+ Create" button.
- Friendly Names:** A section with a "Language" dropdown menu set to "English" and a "Name" input field. It also has "+ Add", "X Cancel", and "Delete" buttons. Below is a table with one row: "Language" | "English" | "Name" | "cloudpath".
- Buttons:** "OK" and "Cancel" buttons are located at the bottom right of the form.

4. In the Name field, enter a descriptive name of your choice.
5. In the Domain Name field, enter the domain name of your Cloudpath system, then click **Add**. You can repeat this process to add multiple domain names.
6. For Friendly Names, select a Language, then enter the Friendly Name for the Cloudpath system and click **Add**. You can enter multiple languages for the same Friendly Name.
7. Click **OK**.

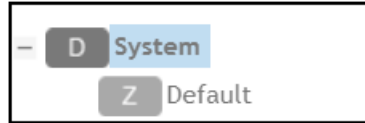
Configuring Hotspot 2.0 Release 1 Identity Provider

An identity provider is required for Hotspot 2.0 Release 1.

1. Navigate to **Configuration > Services & Profiles > Hotspots & Portals**, then click the **Hotspot 2.0** tab.

2. Be sure that "System" is highlighted:

FIGURE 3 Highlighting "System" Before Creating Identity Provider Profile



3. Under the "Identity Provider" section of the screen, click **Create**.

The Create Hotspot 2.0 Identity Provider screen appears. The Hotspot Identity Provider screen consists of the following tabs, as shown in [Figure 4](#) on page 14:

- Network Identifier
- Online Signup & Provisioning
- AAA Authentication
- AAA Accounting
- Review

Network Identifier Tab

The Network Identifier tab of the Identity Provider screen is shown below, with an example configuration.

FIGURE 4 Creating the Identity Provider - Network Identifier Tab

The screenshot shows the 'Create Hotspot 2.0 Identity Provider: Test Identity Provider' configuration page. At the top, there is a navigation bar with five tabs: 'Network Identifier' (selected), 'Online Signup & Provisioning', 'Authentication', 'Accounting', and 'Review'. Below the navigation bar, the configuration is organized into several sections:

- Name:** A text field containing 'Test Identity Provider'.
- Description:** An empty text field.
- PLMNs:** Two text fields for 'MCC' and 'MNC', both currently empty. To the right are '+ Add', 'X Cancel', and 'Delete' buttons.
- Realms:** A section containing:
 - Name:** An empty text field.
 - Encoding:** A dropdown menu set to 'RFC-4282'.
 - EAP Methods:** Four tabs labeled '#1', '#2', '#3', and '#4'. Below them is a dropdown menu for 'EAP Method' set to 'N/A'.
- Table:** A table with three columns: 'Name', 'Encoding', and 'EAP Methods'. It contains one row with the following data:

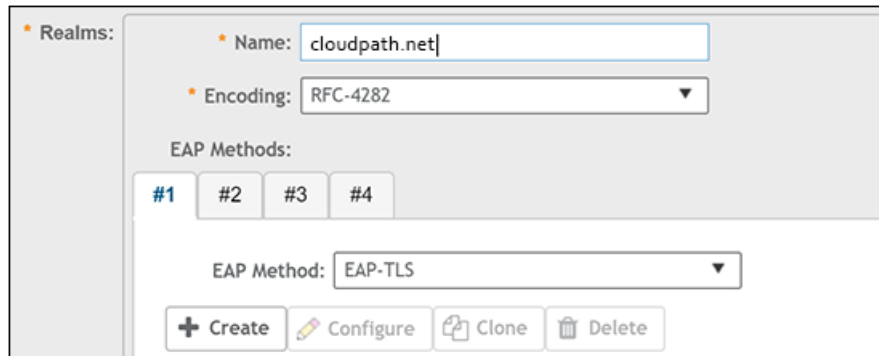
Name	Encoding	EAP Methods
cloudpath.net	RFC-4282	#1: EAP-TLS #2: N/A #3: N/A #4: N/A
- Home OIs:** A section with three text fields for 'Name', 'Length', and 'Organization ID'. The 'Length' dropdown is set to '5 Hex'. To the right are '+ Add', 'X Cancel', and 'Delete' buttons.

At the bottom right of the form, there are two buttons: 'Next' and 'Cancel'.

1. In the Name field, enter a descriptive name for the identity provider.
2. The MCC and MNC fields can be left blank.

3. In the Realms section, do the following to create a Network Access Identifier (NAI) realm :
 - a) Enter the name of the realm for the Cloudpath system.
 - b) From the Encoding drop-down list, select RFC-4282.
 - c) From the EAP Method drop-down list, select EAP-TLS for the identity provider. You can enter multiple EAP methods for the same realm.
 - d) Click **Create** (see the following figure):

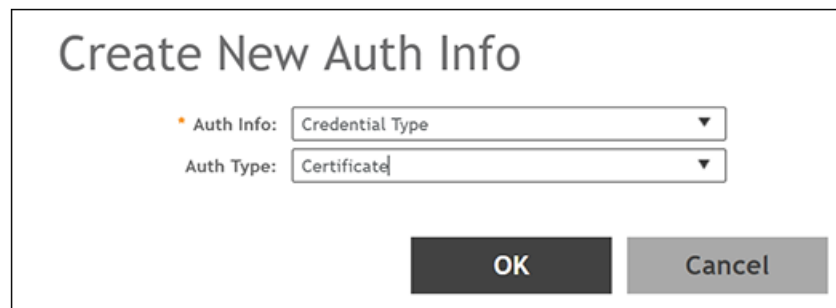
FIGURE 5 Configuring a Realm



The screenshot shows a configuration window for a realm. The 'Name' field is filled with 'cloudpath.net'. The 'Encoding' dropdown is set to 'RFC-4282'. Under 'EAP Methods', there are four slots labeled #1, #2, #3, and #4. The first slot is active, and its 'EAP Method' dropdown is set to 'EAP-TLS'. At the bottom, there are four buttons: '+ Create', 'Configure', 'Clone', and 'Delete'.

- e) In the ensuing Create New Auth Info screen, select "Credential Type" from the Auth Info drop-down list, and select "Certificate" from the Auth Type drop-down list:

FIGURE 6 Selecting Auth Info and Auth Type for Realm



The screenshot shows a dialog box titled 'Create New Auth Info'. It has two dropdown menus: 'Auth Info' is set to 'Credential Type' and 'Auth Type' is set to 'Certificate'. At the bottom, there are two buttons: 'OK' and 'Cancel'.

- f) Click **OK**.
- g) Click **Add** to add the realm to the list of configured realms.

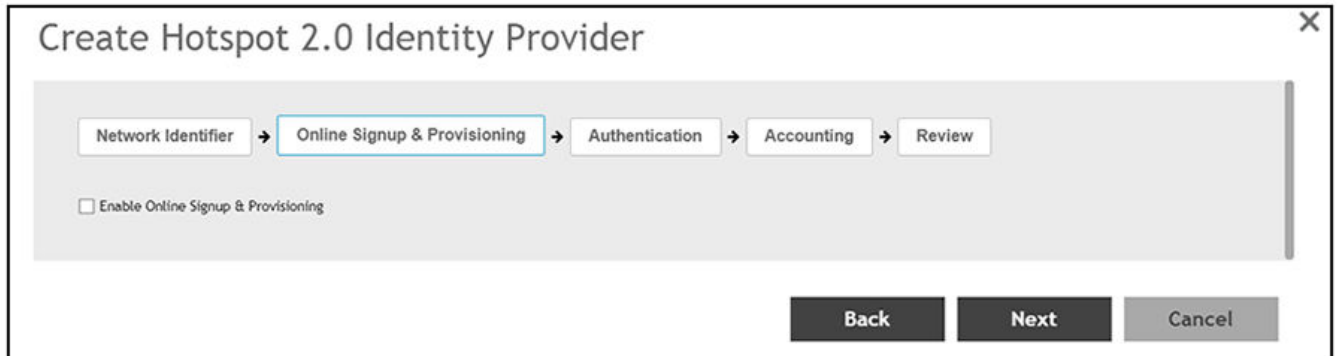
You can repeat this step to add additional realms. As many as 16 NAI realm entries can be created. Each NAI realm entry can contain up to four EAP methods.

4. Home OIs can be left blank.

5. Click **Next** to apply the configuration and continue to Online Signup & Provisioning.

The following screen appears:

FIGURE 7 Do Not Enable Checkbox for Online Signup & Provisioning



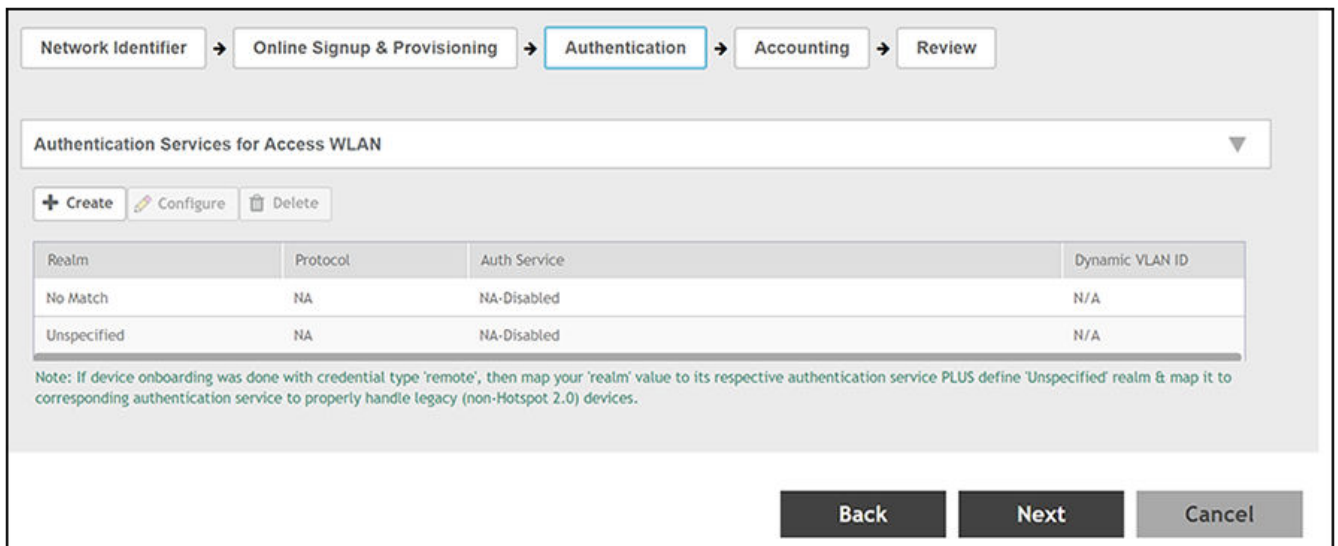
6. Do not check the Enable Online Signup & Provisioning box; click **Next** and continue to the **Authentication** tab.

Creating the Identity Provider - Authentication Tab

Add an authentication server during the Identity Provider configuration process by following these steps:

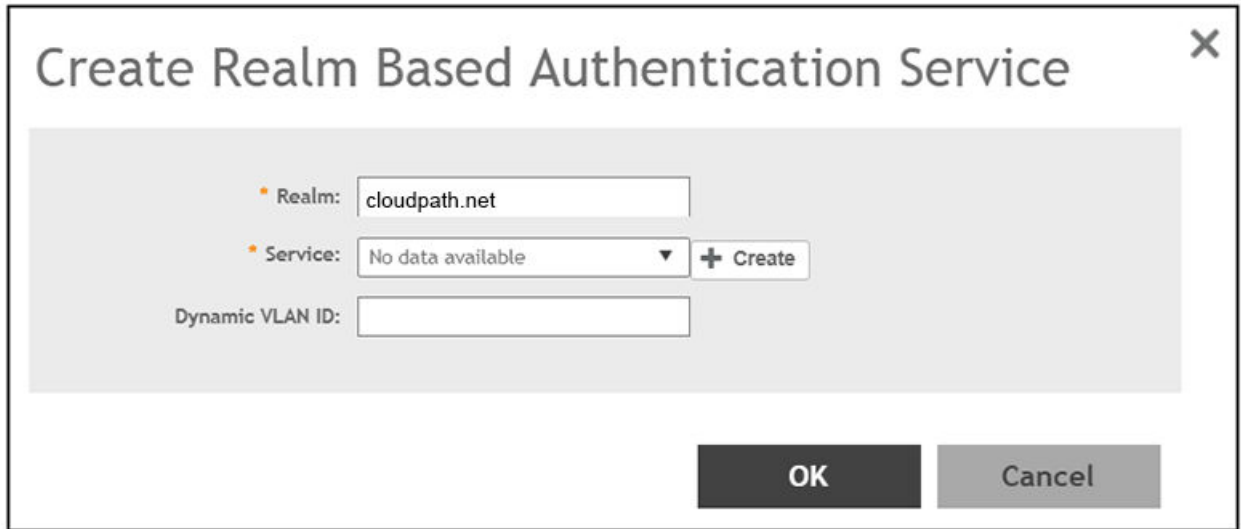
1. From the Authentication tab (see screen below), click **Create**.

FIGURE 8 Authentication Tab



2. In the Create Realm Based Authentication Service screen, enter the name of the Realm, then click **Create**.

FIGURE 9 Creating Authentication Service for Realm



Create Realm Based Authentication Service

• Realm:

• Service: ▼

Dynamic VLAN ID:

3. Configure the Create Authentication Service screen, as shown in the following example:

FIGURE 10 Configuring the Authentication Service

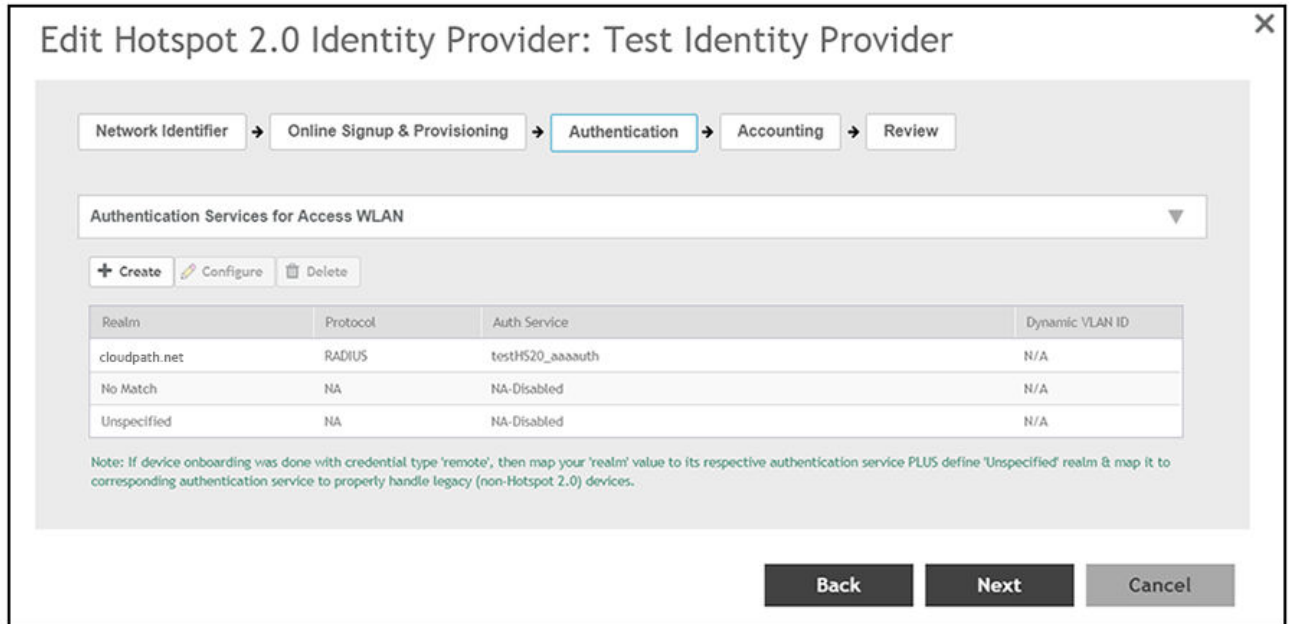
The screenshot shows a web-based configuration window titled "Create Authentication Service". The window has a close button (X) in the top right corner. The main content area is light gray and contains the following fields and options:

- Name:** A text input field containing "testHS20_000auth".
- Friendly Name:** An empty text input field.
- Description:** An empty text input field.
- Service Protocol:** Three radio buttons: RADIUS, Active Directory, and LDAP.
- RADIUS Service Options:** A section with a dashed border containing:
 - RFC 5580 Out of Band Location Delivery:** Enable for Ruckus AP Only
 - Primary Server:** A dropdown menu showing "Primary Server".
 - IP Address:** A text input field containing "192.168.5.42".
 - Port:** A text input field containing "1812".
 - Shared Secret:** A text input field containing "*****".
 - Confirm Secret:** A text input field containing "*****".
 - Secondary Server:** A dropdown menu showing "Secondary Server".
 - Backup RADIUS:** Enable Secondary Server and Automatic Fallback Disable.

At the bottom right of the window, there are two buttons: a dark gray "Create" button and a light gray "Cancel" button.

- a) In the Name field, enter a descriptive name of your choice.
- b) For Service Protocol, the radio button selected must be RADIUS.
- c) In the IP Address field, enter the IP address of the Cloudpath system.
- d) In the Port field, enter 1812.
- e) The Shared Secret and Confirm Secret fields must match the shared secret for the Cloudpath onboard RADIUS server (the navigation path on your Cloudpath system is **Configuration > RADIUS Server**).
- f) You can use the default values for remaining fields, then click **Create**.
- g) When you are returned to the Create Realm Based Authentication Service screen, click **OK**.
- h) The new authentication server should now appear in the "Authentication Services for Access WLAN" list.

FIGURE 11 Authentication Services List Displaying Newly Created Service



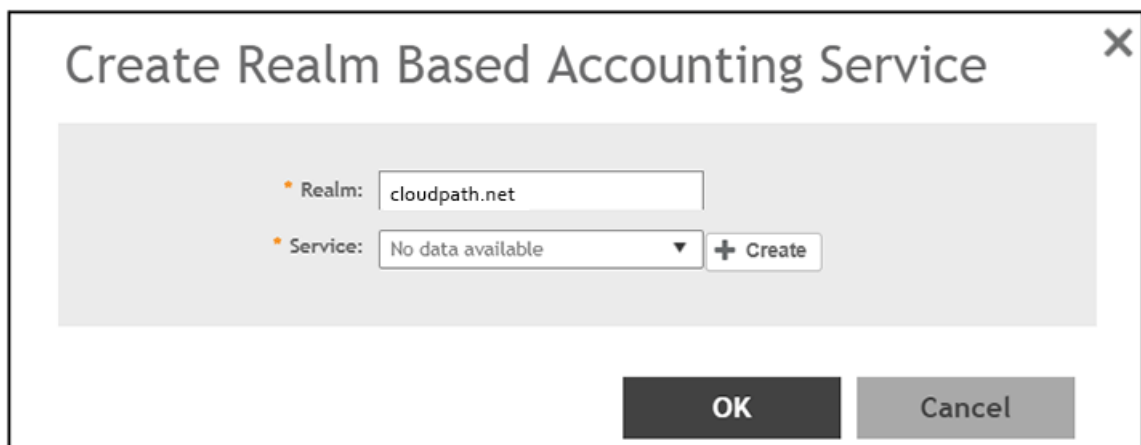
4. Click **Next** to proceed to the Accounting tab.

Creating the Identity Provider - Accounting Tab

Optionally, you can add an Accounting server during the Identity Provider configuration process by following these steps:

1. From the Accounting tab, check the **Enable Accounting** box.
2. Click **Create**.
3. In the Create Realm Based Accounting Service screen, enter the name of the Realm, then click **Create**.

FIGURE 12 Creating Accounting Service for Realm



4. Configure the Create Accounting Service screen, as shown in the following example:

FIGURE 13 Configuring the Accounting Service

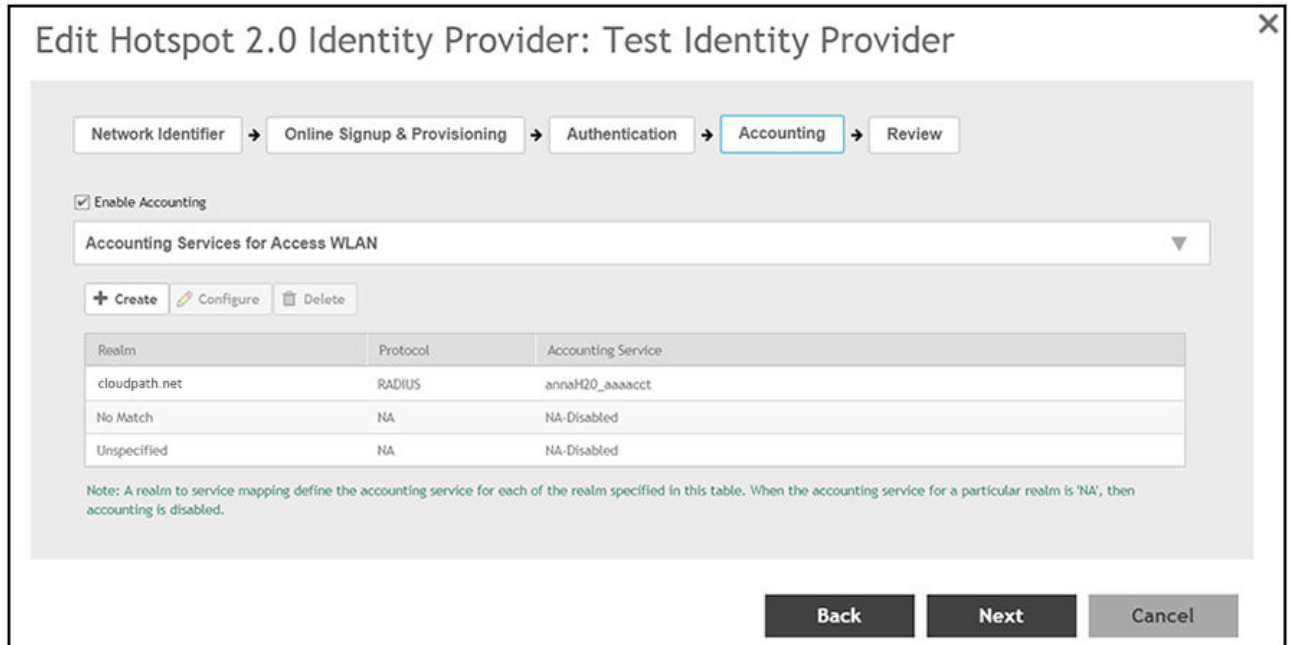
The screenshot shows a web-based configuration window titled "Create Accounting Service". The window has a close button (X) in the top right corner. The main content area is light gray and contains the following fields and controls:

- Name:** Text input field containing "annaH20_aaaacct".
- Description:** Text input field, currently empty.
- Service Protocol:** Radio button group with "RADIUS Accounting" selected.
- RADIUS Service Options:** A section containing:
 - Primary Server:** A dropdown menu showing "Primary Server".
 - IP Address:** Text input field containing "192.168.5.42".
 - Port:** Text input field containing "1813".
 - Shared Secret:** Text input field containing masked characters "*****".
 - Confirm Secret:** Text input field containing masked characters "*****".
- Secondary Server:** A dropdown menu showing "Secondary Server".
- Backup RADIUS:** A section with two checkboxes: "Enable Secondary Server" (unchecked) and "Automatic Fallback Disable" (unchecked).
- IP Address:** Text input field, currently empty.
- Port:** Text input field containing "1813".

At the bottom right of the window, there are two buttons: "Create" (dark gray) and "Cancel" (light gray).

- a) In the Name field, enter a descriptive name of your choice.
- b) For Service Protocol, the radio button selected must be RADIUS Accounting.
- c) In the IP Address field, enter the IP address of the Cloudpath system.
- d) In the Port field, enter 1813.
- e) The Shared Secret and Confirm Secret fields must match the shared secret for the Cloudpath onboard RADIUS server (the navigation path on your Cloudpath system is **Configuration > RADIUS Server**).
- f) You can use the default values for remaining fields, then click **Create**.
- g) When you are returned to the Create Realm Based Authentication Service screen, click **OK**.
- h) The new Accounting server should now appear in the "Accounting Services for Access WLAN" list:

FIGURE 14 Accounting Services List Displaying Newly Created Service



5. Click **Next** to proceed to the Review tab.

Creating the Identity Provider - Review Tab

Use the Review tab to check all your previous steps.

1. If any of the information shown when you click on the Review tab needs to be changed, click the applicable tab to reconfigure any information, then return to the Review tab.

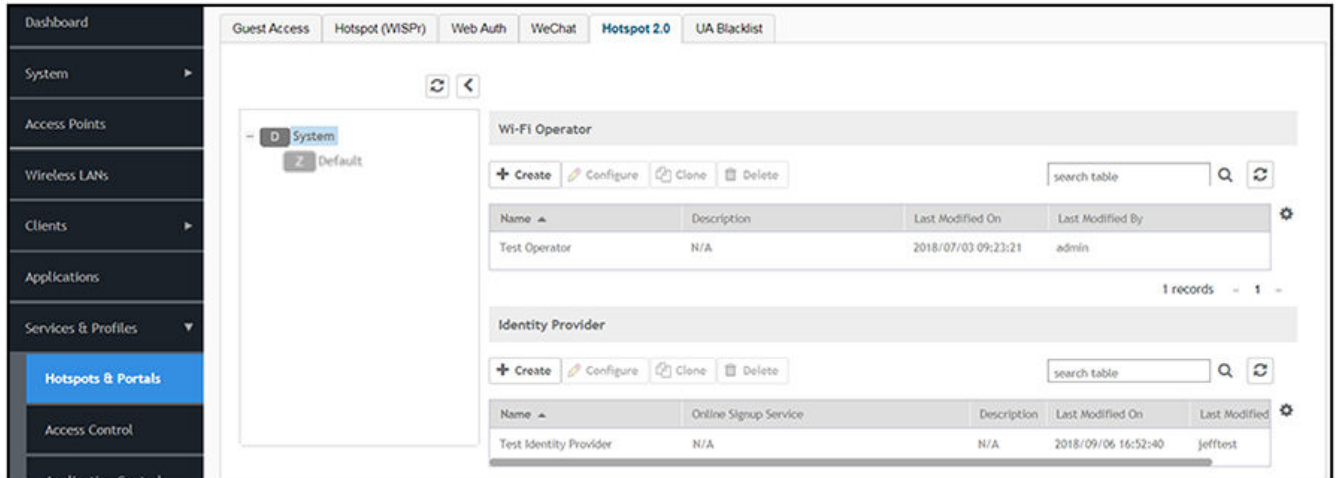
Hotspot 2.0 Release 1 Controller Configuration

Creating a Hotspot Portal for Hotspot 2.0 Release 1

2. After you have checked all configuration information displayed in the Review tab, click **OK**.

If you receive no error messages, the configuration of the Identity Provider is submitted to the controller, and you are returned to the main Hotspot 2.0 screen, as shown in the following example screen:

FIGURE 15 Main Hotspot 2.0 Screen After WiFi Operator and Identity Provider are Configured

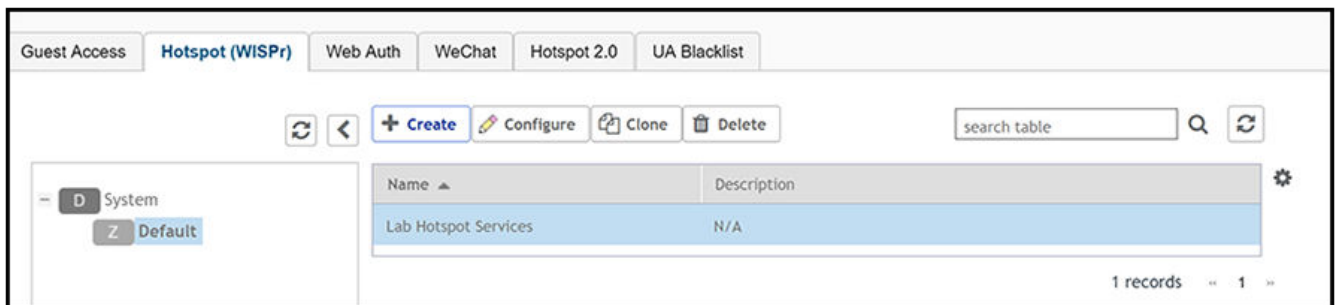


Creating a Hotspot Portal for Hotspot 2.0 Release 1

A hotspot portal is required for Hotspot 2.0 Release 1.

1. In the Controller UI, be sure to navigate to **Configuration > Services & Profiles > Hotspots & Portals**, then click the **Hotspot (WISPr)** tab.
2. Be sure to highlight the zone in which you wish to create the hotspot portal. (You cannot highlight "System" to create the hotspot portal.) In the example below, the Default zone is used.

FIGURE 16 Highlighting the Zone Before Creating the Hotspot Portal



3. Click **Create**.

The Create Hotspot Portal screen appears. An example of how you configure this screen follows:

FIGURE 17 Creating a Hotspot Portal

The screenshot shows the 'Create Hotspot Portal' configuration window. It is divided into several sections:

- General Options:** Portal Name: JW Hotspot 101; Portal Description: (empty).
- Redirection:** Smart Client Support: None; Logon URL: Internal, External; Redirect unauthenticated user: Primary: https://qa101.cloudpath.net/enroll/JoesAutomation54/Pro; Redirected MAC Format: AA:BB:CC:DD:EE:FF; Start Page: After user is authenticated, Redirect to the URL that user intends to visit.; HTTPS Redirect: ON.
- User Session:** (empty)
- Location Information:** (empty)

Buttons for 'OK' and 'Cancel' are located at the bottom right.

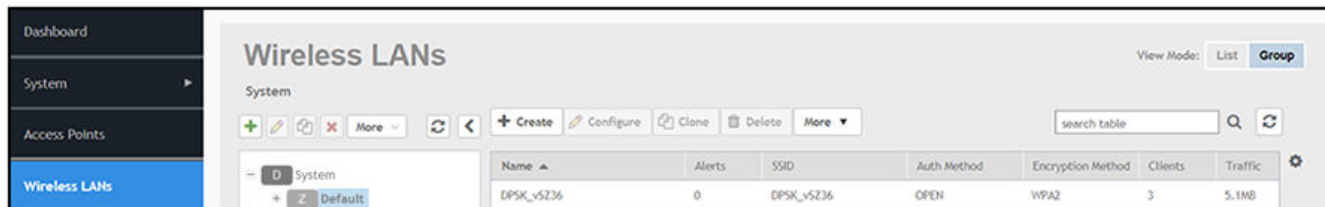
4. In the Name field, enter a descriptive name for the hotspot portal.
5. For the Smart Client Support field, select None.
6. For the Login URL field, select External.
7. In the Redirect unauthenticated user field, enter the URL to which you want to send an unauthenticated user. This is the URL that the user will be taken to begin the Cloudpath enrollment process. To find this URL, on your Cloudpath system go to **Configuration > Workflows**, then click the **Advanced** tab. Copy the Enrollment Portal URL from there and paste it into the **Redirect unauthenticated user** field in the screen shown above on your vSZ controller.
8. For the Start Page field, be sure that the radio button called "Redirect to the URL that user intends to visit." is selected.
9. Use the default values for the remaining fields, then click **OK**.

Configuring an Onboarding SSID for Hotspot 2.0 R1

An onboarding SSID is required for Hotspot 2.0 Release 1.

1. In the Controller UI, go to Wireless LANs.
2. Be sure to highlight the zone where you want to add the onboarding SSID. This example uses the Default zone.

FIGURE 18 Highlighting the Zone in Which to Create the Onboarding SSID



3. Click **Create**.

The Create WLAN Configuration screen appears. An example of how you configure this screen follows:

FIGURE 19 Creating a Hotspot 2.0 Onboarding SSID

The screenshot shows the 'Create WLAN Configuration' screen with the following settings:

- General Options:**
 - Name: Hotspot Onboarding
 - SSID: Hotspot Onboarding
 - Description: (empty)
 - Zone: Z Default
 - WLAN Group: default
- Authentication Options:**
 - Authentication Type: Hotspot (WISPr)
 - Method: Open
- Encryption Options:**
 - Method: None
- Data Plane Options:**
 - Access Network: Tunnel WLAN traffic through Ruckus GRE
- Hotspot Portal:**
 - Hotspot (WISPr) Portal: JW Hotspot 101
 - Bypass CNA: ON
 - Authentication Server: Use the Controller as Proxy (testHS20_aaaaauth)
 - Accounting Server: Use the Controller as Proxy (Disable)
- Options:**
 - Wireless Client Isolation: ON Isolate wireless client traffic from all hosts on the same VLAN/subnet
 - Isolation Whitelist: Gateway Only (Automatic)
 - Priority: High
- RADIUS Options:** (collapsed)
- Advanced Options:** (collapsed)

4. In the Name field, enter a descriptive name for the onboarding SSID.
5. From the Zone drop-down list, make sure the correct zone for your onboarding SSID is selected.
6. From the WLAN Group drop-down list, make sure that you select the WLAN group where the onboarding SSID resides.
7. For Authentication Type, select Hotspot (WISPr).
8. For Authentication Method, select Open.
9. For Encryption Method, select None.
10. From the Hotspot (WISPr) Portal drop-down list, select the hotspot portal you previously configured.

Hotspot 2.0 Release 1 Controller Configuration

Creating a Hotspot 2.0 WLAN Profile

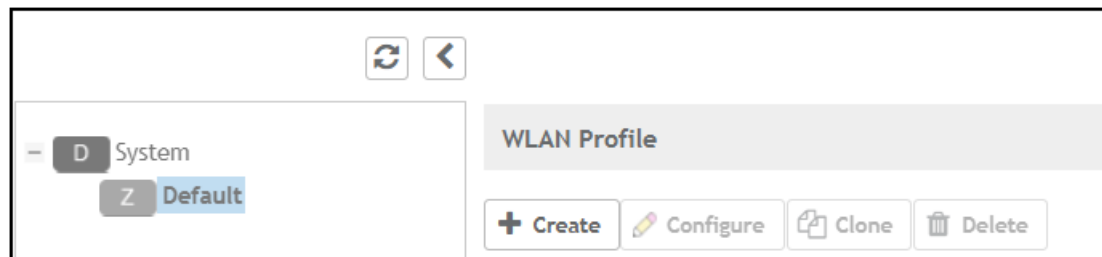
11. For the Authentication Server, be sure the corresponding button is ON, then select the authentication server from the drop-down list that you configured while you were setting up the Identity Provider.
12. For the Accounting Server, you can optionally set the corresponding button is ON, then select the accounting server from the drop-down list if you configured one while you were setting up the Identity Provider.
13. Use the default values for the remaining fields, and click **OK**.

Creating a Hotspot 2.0 WLAN Profile

A WLAN Profile is required for Hotspot 2.0 Release 1.

1. In the Controller UI, be sure to navigate to **Configuration > Services & Profiles > Hotspots & Portals**, then click the **Hotspot 2.0** tab.
2. Be sure to highlight the zone where you want this profile to reside. (You cannot create the WLAN profile with "System" highlighted.) The example below uses the Default zone.

FIGURE 20 Highlighting the Zone Before Creating the Hotspot 2.0 WLAN Profile



3. In the WLAN Profile section of the screen (shown above), click **Create**.

The Create Hotspot 2.0 WLAN Profile screen appears. An example of how you configure this screen follows:

FIGURE 21 Creating a Hotspot 2.0 WLAN Profile

Create Hotspot 2.0 WLAN Profile: TestWLANProfile

Name:

Description:

Operator: **+ Create**

Identity Providers: **+ Add** **✕ Cancel** **🗑 Delete** **📄 Create**

Identity Provider	Online Signup Service	Default
Test Identity Provider	Disabled	<input checked="" type="radio"/>

You can configure an Onboarding SSID when you add an identity provider that has Online Signup & Provisioning enabled

Advanced Options ▾

Internet Option: Specified with connectivity to the Internet

Access Network Type:

IPv4 Address:

IPv6 Address:

OK **Cancel**

4. In the Name field, enter a descriptive name for the profile.
5. In the Operator field, use the drop-down list to select the previously configured Wi-Fi Operator.
6. In the Identity Providers field, use the drop-down list to select the previously configured Identity Provider, then click **Add**.
7. Use the default values for the remaining fields, then click **OK**.

The WLAN profile should now appear in the list of configured WLAN profiles:

FIGURE 22 WLAN Profiles List

WLAN Profile

+ Create **✎ Configure** **📄 Clone** **🗑 Delete** **🔍** **🔄**

Name ▲	Description	Last Modified On	Last Modified By
TestWLANProfile	N/A	2018/07/03 09:31:40	admin

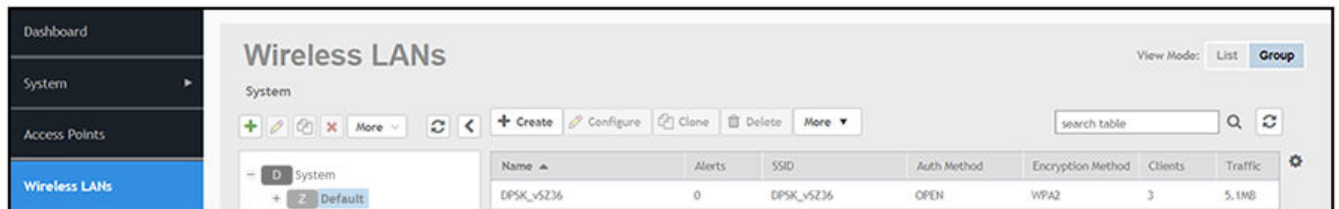
1 records 1

Configuring a Secure SSID for Hotspot 2.0 R1

A secure SSID is required for Hotspot 2.0 Release 1.

1. In the Controller UI, go to Wireless LANs.
2. Be sure to highlight the Zone in which you want to the Secure SSID to reside. This example uses the Default zone.

FIGURE 23 Highlighting the Zone in Which to Create the Secure SSID



3. Click **Create**.

The Create WLAN Configuration screen appears. An example of how you configure this screen follows:

FIGURE 24 Creating a Hotspot 2.0 Secure SSID

Create WLAN Configuration

General Options

Name: Hotspot20R1
SSID: Hotspot20R1
HESSID:
Description:
Zone: Default
WLAN Group: default + Create

Authentication Options

Authentication Type: Standard usage (For most regular wireless networks) Hotspot (WISPr) Guest Access Web Authentication
 Hotspot 2.0 Access Hotspot 2.0 Onboarding WeChat

Method: Open 802.1X EAP MAC Address 802.1X & MAC

Encryption Options

Method: WPA2 WPA-Mixed WEP-64 (40 bits) WEP-128 (104 bits) None

Algorithm: AES AUTO

802.11r Fast Roaming: Enable 802.11r Fast BSS Transition

802.11w MFP: Disabled Capable Required

Data Plane Options

Access Network: Tunnel WLAN traffic through Ruckus GRE

Hotspot 2.0 Profile

Hotspot 2.0 Profile: TestWLANProfile + Create

Authentication Server: Enable RFC 5580 Location Delivery Support, this flag will not working if property through Controller is disable(false)

Accounting Server: Send interim update every 5 Minutes (0-1440)

Options ▶

RADIUS Options ▶

Advanced Options ▶

OK Cancel

4. In the Name field, enter a descriptive name for the secure SSID.
5. From the Zone drop-down list, be sure that the zone where the Secure SSID resides is selected.
6. From the WLAN Group drop-down list, select the WLAN group where the Secure SSID resides.
7. For Authentication Type, select Hotspot 2.0 Access.
8. For Authentication Method, select 802.1x EAP.
9. For Encryption Method, select WPA2.
10. For Encryption Algorithm, select AES.

Hotspot 2.0 Release 1 Controller Configuration

Configuring a Secure SSID for Hotspot 2.0 R1

11. For the Hotspot 2.0 profile, use the drop-down list to select the previously configured Hotspot 2.0 profile.
12. Use the default values for the remaining fields, and click **OK**.

The secure SSID should now appear in the list of configured wireless LANs.

Configuring Hotspot 2.0 Release 1 on Cloudpath

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- Adding a Hotspot 2.0 Release 1 branch to the Workflow..... 35
- Adding a Device Configuration to the Workflow..... 37
- Configuring the Certificate Template 37
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Once you configure a Hotspot 2.0 Release 1 on your SmartZone controller, you need to add a corresponding Hotspot 2.0 Release 1 configuration to a workflow on your Cloudpath system.

Creating a Hotspot 2.0 Release 1 Device Configuration

You can first create your device configuration, and then add it to your workflow for Hotspot 2 Release 1.

1. In the Cloudpath UI, navigate to **Configuration > Device Configurations**.
2. Click **Add Device Configuration**.
3. In the ensuing Create Device Configuration screen, give a meaningful name to the device configuration (as shown below), then click **Next**.

Configuration > Device Configurations > Create

Cancel Next

Create Device Configuration

Please provide a name and a description for this device configuration. This name is intended to be a human-readable name and does not need to be the SSID.

i Display Name:

i Description:

4. Configure the Connection Type information of the Create Device Configuration screen as shown and described below:

FIGURE 25 Connection Type Information

The screenshot shows a web interface for configuring a device. At the top, there is a breadcrumb trail: "Configuration > Device Configurations > Create". To the right of the breadcrumb are two blue buttons: "Back" with a left-pointing arrow and "Next" with a right-pointing arrow. Below the breadcrumb, the section title "Connection Type" is displayed in orange. Underneath, the instruction "Select the connection method(s) this device configuration supports:" is shown. There are two main options: "Wireless Connections" (selected with a radio button) and "Wired 802.1X Connections" (unselected). The "Wireless Connections" section contains three fields: "SSID:" with a text input containing "Hotspot20R1", "Authentication Style:" with a dropdown menu showing "Client Certificate [Recommended]", and "Is this SSID Broadcast?" with a dropdown menu showing "Yes, the SSID is broadcast."

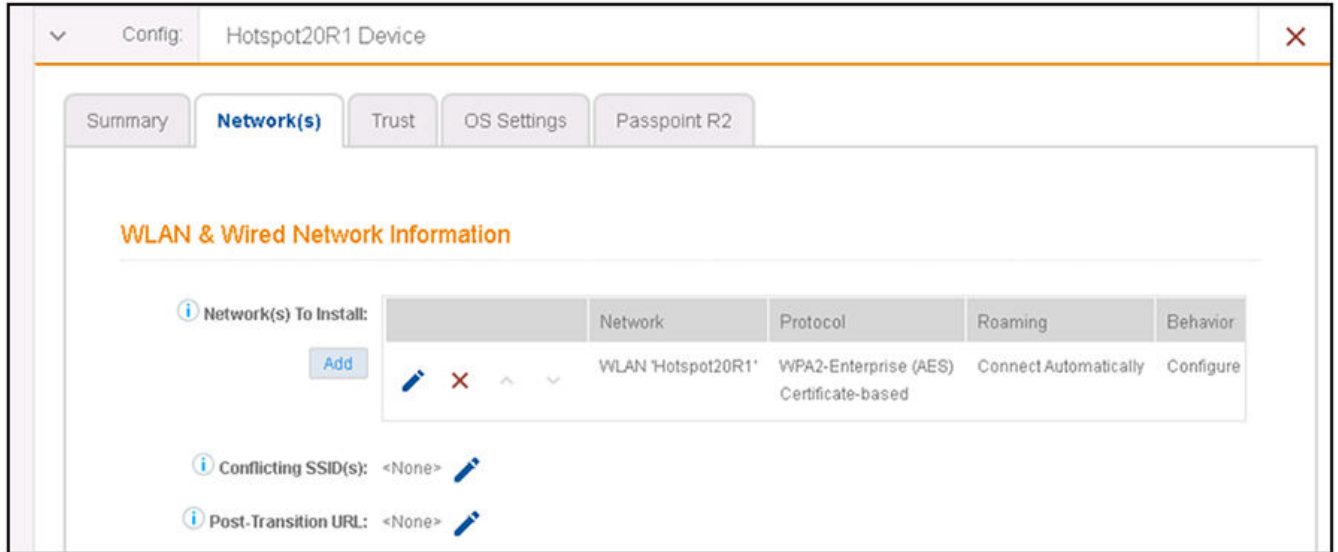
- The Wireless Connections button must be selected.
- SSID: This name must *exactly* match the SSID name you assigned during the Secure SSID configuration on your vSZ controller. Therefore, edit the name shown above accordingly.
- Authentication Style: Leave the default value of **Client Certificate [Recommended]**.
- Is this SSID Broadcast?: Leave the default value of **Yes, the SSID is broadcast.**

Click **Next**.

5. 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 Summary screen for the device configuration.

6. Click the **Network(s)** tab:

FIGURE 26 Device Configuration Network(s) Tab



7. Click the pencil icon below and slightly to the right of the "Network(s) to Install" label to go to the Modify Network configuration screen.

Configuring Hotspot 2.0 Release 1 on Cloudpath

Creating a Hotspot 2.0 Release 1 Device Configuration

- Configure the Modify Network screen, an example of which is shown and described below:

FIGURE 27 Modify Network Configuration Screen

Configuration > Device Configurations > Modify Network

Cancel Save

Network Information

SSID: Hotspot20R1

Network Authentication: WPA2-Enterprise

Data Encryption: AES

SSID Type: Use Passpoint R1 (Hotspot 2.0) When Possible

EAP Method: EAP-TLS

Migration Behavior: Configure and move to network. (Onsite)

Advanced

Broadcast SSID: Yes, the SSID is broadcast.

Connect Automatically: Yes.

iOS Hotspot: Yes, include the hotspot flag for lower prioritization.

Mac & iOS Hotspot 2.0 (Release 1)

The following settings control the Hotspot 2.0 release 1 characteristics for this WLAN. When configured for HS2, the SSID above will not normally be used.

NOTE: Hotspot 2.0 requires a specific configuration on access points beyond the traditional WPA2-Enterprise configuration.

Operator Name: Test Operator

Domain Name: cloudpath.net

MMC & MNCs:

Realm Names: cloudpath.net

Roaming OIs:

Roaming:

- In the SSID field, enter a descriptive name. (The SSID name can be any name you want because Hotspot 2.0 uses the Wifi operator and identity provider settings to identify the WLAN.)
- For Network Authentication, select WPA2-Enterprise.
- For Data Encryption, select AES.
- For SSID Type, select "Use Passpoint R1 (Hotspot 2.0) When Possible."
- For EAP Method, select EAP-TLS.
- For Migration Behavior, select "Configure and move to network. (Onsite)"
- For Broadcast SSID, select "Yes, the SSID is broadcast."

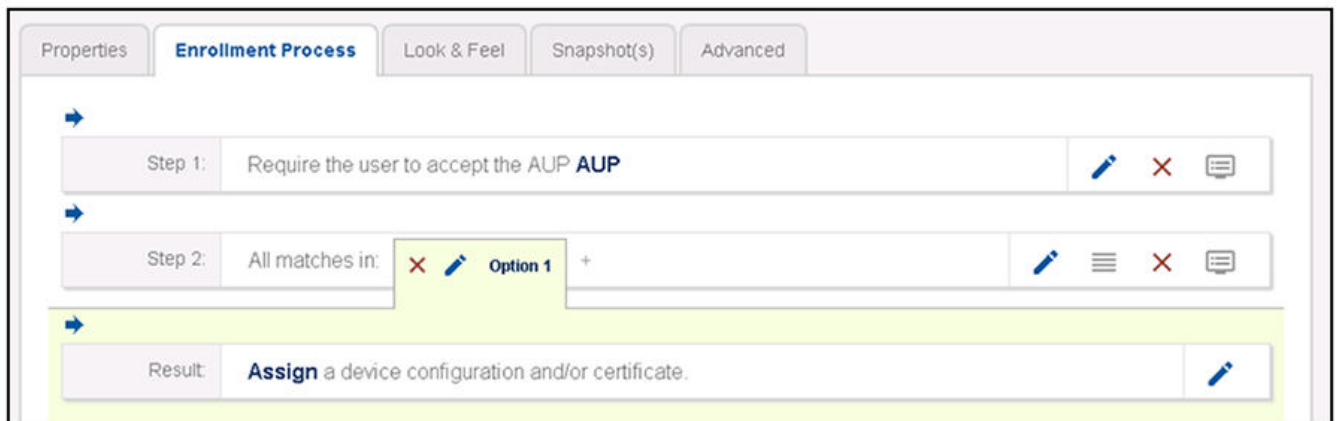
- h) For Connect Automatically, select Yes.
- i) For iOS Hotspot, "select Yes, include the Hotspot flag for lower prioritization."
- j) For Operator Name, enter the same name that you configured in the Wifi Operator screen. Refer to the [Figure 2](#) on page 12.
- k) For Domain Name, enter the same domain name that you configured in the Wifi Operator screen. Refer to the [Figure 2](#) on page 12.
- l) For MMC & MNCs (only needed if you configured these on the controller), enter the same two codes, separated by semicolons, that you configured in the Network Identifier tab of the Identity Provider configuration screen. Refer to the [Figure 4](#) on page 14 screen.
- m) For Realm Names, enter the name of the desired realm that you configured in the Network Identifier tab of the Identity Provider configuration screen. Refer to the [Figure 4](#) on page 14 screen.
- n) For Roaming OIs (only needed if you configured these on the controller), enter the hexadecimal Organizational ID address of the Home OI that you configured in the Network Identifier tab of the Identity Provider configuration screen. Refer to the [Figure 4](#) on page 14 screen.
- o) Enable Roaming.
- p) When you complete the configuration, click **Save**.

Adding a Hotspot 2.0 Release 1 branch to the Workflow

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 Hotspot 2.0 Release 1 branch to an existing workflow. The same steps included below could also be used to create a new workflow with a Hotspot 2.0 Release 1 branch.

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 Hotspot 2.0 Release 1 branch. An example of a very simple workflow before adding a Hotspot 2.0 Release 1 branch is shown below:

FIGURE 28 Workflow Before Adding Hotspot 2.0 Release 1 Branch



Configuring Hotspot 2.0 Release 1 on Cloudpath

Adding a Hotspot 2.0 Release 1 branch to the Workflow

- Click the + button located to the right of the "Option 1" tab shown above 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 29 Webpage Display Information Screen is Displayed When You Add a Branch to a Workflow

Configuration > Workflows > Insert Step

Cancel Save

Webpage Display Information

Sample User Display:

Short Name: Hotspot20R1

Display Title: This is the Display Text field, which may contain multiple lines of text to describe this option.

Display Text:

Enabled:

Icon File: Default: Using default file

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

- You are presented with a screen called **Configuration > Workflows > Modify Step** that shows the branch options. Click **Done** if the display is correct.
- Check that your newly named branch ("Hotspot 20R1" in this example) now appears in your workflow, as shown below:

FIGURE 30 New Branch Name ("Hotspot 20R1") Appears in Workflow

Properties Enrollment Process Look & Feel Snapshot(s) Advanced

Step 1: Require the user to accept the AUP AUP

Step 2: All matches in: Option 1 Hotspot20R1 +

Result: Assign a device configuration and/or certificate.

Adding a Device Configuration to the Workflow

1. In the workflow, click the pencil icon to the right of the Result called "Assign a device configuration and/or certificate."
You are presented with a screen that displays the question: "Which device configuration should be used?"
2. From the drop-down list of existing device configurations, select the device configuration you previously performed for Hotspot 2.0 Release 1, then click **Next**.

The screenshot shows a configuration window titled "Configuration > Workflows > Result". In the top right corner, there are "Cancel" and "Next" buttons. The main heading is "Which device configuration should be used?". There are three radio button options: "An existing device configuration." (selected), "A new device configuration.", and "None.". Under the selected option, there is a sub-heading "Device Configuration:" followed by a dropdown menu showing "Hotspot20R1".

3. Proceed to [Configuring the Certificate Template](#) on page 37.

Configuring the Certificate Template

1. On the screen shown below, select the "A new certificate template" option, then click **Next**.

FIGURE 31 Certificate Template Screen

The screenshot shows a configuration window titled "Configuration > Workflows > Result". In the top right corner, there are "Cancel", "Back", and "Next" buttons. The main heading is "What certificate template should issue the certificate?". There are three radio button options: "An existing certificate template.", "A new certificate template." (selected), and "Do not issue a certificate to the user.". Under the selected option, there is a sub-heading "Create a new certificate template, which specifies the attributes of the certificate issued to the user."

Configuring Hotspot 2.0 Release 1 on Cloudpath

Configuring the Certificate Template

2. On the **Manage Templates > Create** screen, which has the question, "Which CA should sign the certificates?," select the "Use an onboard certificate authority" radio button and select the certificate from the drop-down list (shown below) , then click **Next**.

The screenshot shows the 'Manage Templates > Create' interface. At the top right are 'Cancel' and 'Next' buttons. The main heading is 'Which CA should sign the certificates?'. There are five radio button options:

- Use an onboard certificate authority.**
This option uses a certificate authority within the Cloudpath ES to sign certificates.
Select the CA to use: **Anna243 5.4.4048 Test BVT Intermediate CA 1**
- Use a Microsoft Certificate Authority.**
This option allows certificates to be pulled from a Microsoft CA. Using a Microsoft CA requires that the Integration Module is installed on a Windows web server on the same domain as the Microsoft CA.
- Use inCommon Certificate Services.**
This option allows certificates to be pulled from inCommon. inCommon is a certificate service, operated by Internet2, for research and higher education in the United States.
- Use NetworkFX Certificate Services.**
This option allows certificates to be pulled from Network FX.
- Use a custom external certificate authority.**

3. On the ensuing **Manage Templates > Create** screen, you can change username decorations as desired, shown in the example below, then click **Next**:

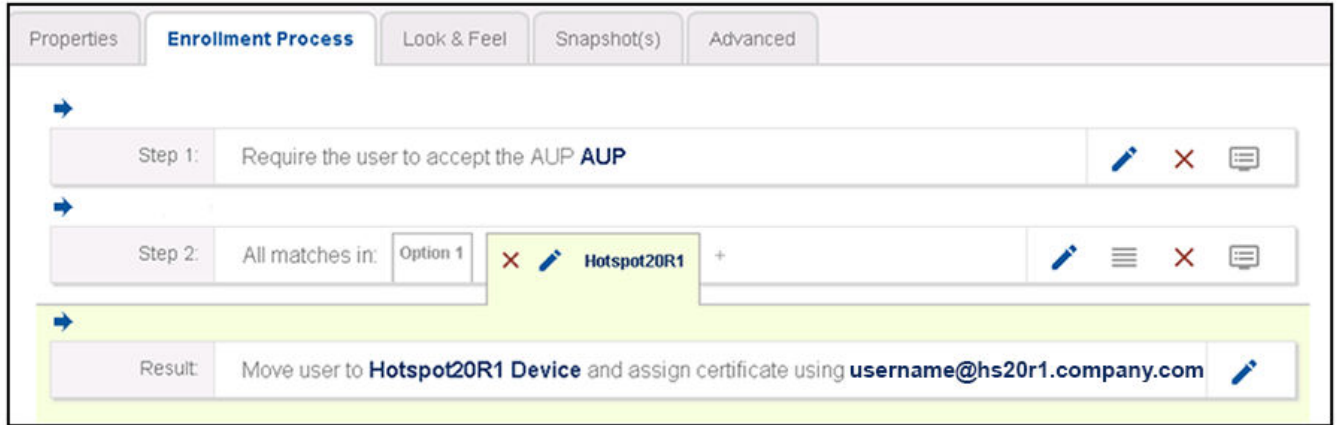
FIGURE 32 Username Decorations Screen

The screenshot shows the 'Manage Templates > Create' interface. At the top right are 'Cancel' and 'Next' buttons. The main heading is 'Client Certificates'. Below it is a description: 'Used on clients to authenticate the client. The decoration of the username within the certificate allows RADIUS policies to be applied appropriately.' There is an information icon (i) next to the 'Username Decoration:' label. A list of radio button options is shown:

- username@byod.company.com
- username@contractor.company.com
- username@faculty.company.com
- username@guest.company.com
- username@it.company.com
- username@student.company.com
- username@hs20r1.company.com

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

FIGURE 33 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 Hotspot 2.0 Release 1 User Experience

Test the Enrollment process by performing the following steps:

1. On your iOS device, connect to the onboarding SSID.
2. When you are presented with the Welcome screen, click **Start**.
3. When you are presented with various branches of your workflow, click the branch of the workflow that you created for Hotspot 2.0 Release 1.
4. Follow any prompts to continue. You are directed to download the configuration and install the wi-fi credentials to connect to the secure SSID.

NOTE

The user must set the iOS device to manually *forget* the onboarding SSID, then turn wi-fi off and on, and the device discovers the Hotspot 2.0 Release 1 secure SSID.



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