CONFIGURATION GUIDE

Configuring Cloudpath to Support Hotspot 2.0 Release 2 (Passpoint)

Supporting Software Release 5.2

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Passpoint 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.

Passpoint Release 1

Release 1 of HS 2.0 was based on the IEEE 802.11u standard and introduced new capabilities for automatic Wi-Fi network discovery, selection and 802.1X authentication based on the Access Network Query Protocol (ANQP).

Passpoint Release 2

Release 2 is largely focused on standardizing the management of the credentials; how they are provisioned, how they are stored on the device, how they are used in network selection, and how long they are valid. Some of these capabilities aren't applicable to cellular credentials (SIM/USIM), because those are provisioned by the home mobile network operator (MNO) and are themselves the stored credential.

In Release 2 mobile devices use Online Sign-Up (OSU) to accomplish registration and credential provisioning to obtain secure network access. Each Service Provider network has an OSU Server, an AAA Server, and access to a certificate authority (CA). The CA is known by two attributes: its name and its public key.

One of the requirements for a mobile device and the hotspot to trust each other is that OSU Server shall hold a certificate signed by a Certificate Authority whose root certificate is issued by one of the CAs authorized by Wi-Fi Alliance, and that these trust root CA certificates are installed on the mobile device.

All certificates for Release 2 of the Passpoint program are governed by the Hotspot 2.0 Online Sign-Up Certificate Policy Specification. An OSU server certificate should be obtained from any of the CAs authorized by Wi-Fi Alliance.

Prerequisites

To configure passpoint with your Cloudpath system, you need a Hotspot 2.0 WWW certificate with Common Language icon embedded, signed by a certified Hotspot 2.0 Root CA.

Devices That Support Passpoint

At the time of the Cloudpath 5.1 release, this device supported Hotspot 2.0 Release 2:

- Samsung Galaxy S5, running OS 4.4.2, kernel version 3.4.0-2727827eng, build number kltexx-eng 4.4.2 KOT49H G900FXXUTAMK6 test-keys.

> NOTE
> Reportedly, Windows 10 supports Hotspot 2.0 R2, but it does not support the open browser command, and it only supports the PEAP EAP method. Therefore, Cloudpath 5.1 cannot support Windows 10 devices with a passpoint configuration.

Controller Configuration

Passpoint is supported on the Ruckus Virtual SmartZone (vSZ) controller, version 3.2.1.0.245.

Controller Configuration Summary

The following is a list of configuration steps on the vSZ controller:

- Configure AAA Services
- Configure Hotspot 2.0 Wi-Fi Operator Profile
- Configure Hotspot 2.0 Identity Provider
- Configure Guess Access Portal
- Configure Onboarding SSID
- Configure Hotspot 2.0 Profile
- Configure Secure SSID

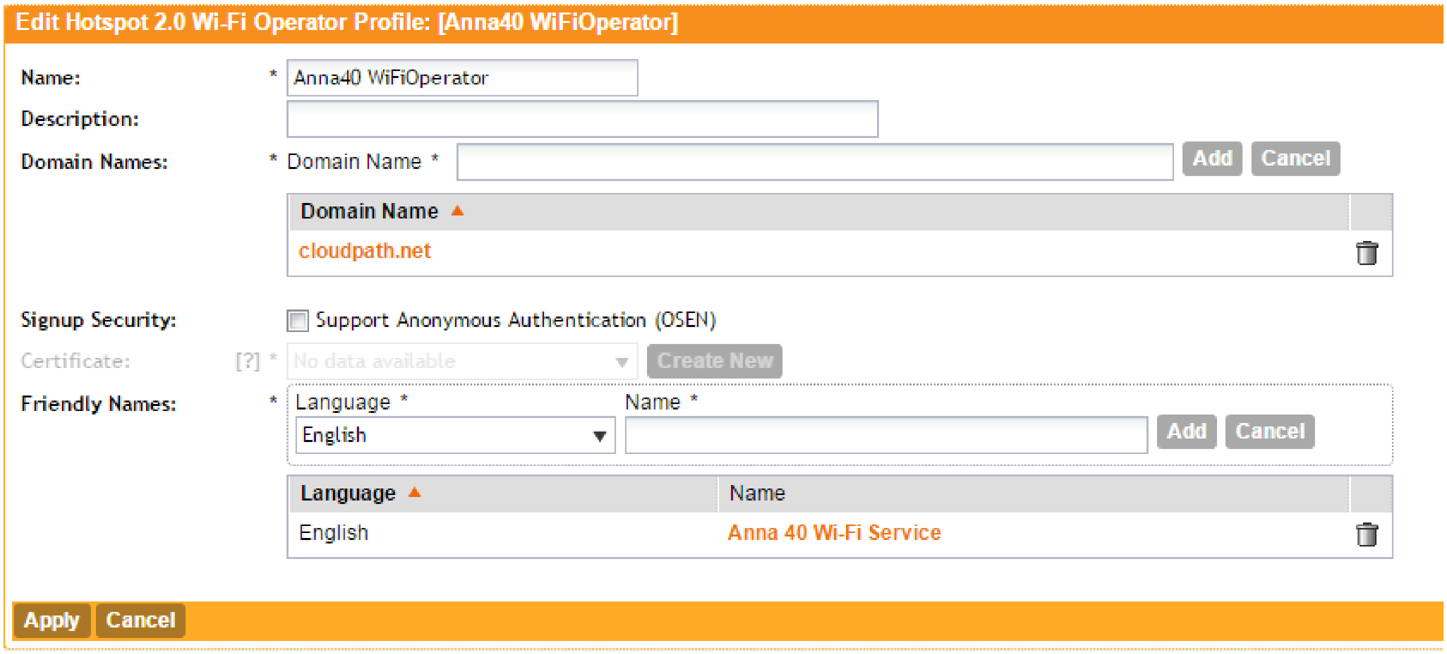
Configure AAA Services

There are several places on the vSZ controller to configure AAA services. Be sure to configure them under Services.

1. Navigate to Configuration > Service and Profiles > Services to configure AAA Authentication and Accounting Services
2. For the AAA Authentication server, use the IP address of the Cloudpath system and port 1812.
3. For the AAA Accounting server, use the IP address of the Cloudpath system and port 1813.
4. The Shared Secret must match the shared secret for the Cloudpath onboard RADIUS server (Configuration > Advanced > RADIUS Server).
5. Leave the default values for the remaining fields, and Apply changes.

Configure Hotspot 2.0 Wi-Fi Operator Profile

FIGURE 1 Wi-Fi Operator Profile



Edit Hotspot 2.0 Wi-Fi Operator Profile: [Anna40 WiFiOperator]

Name: * Anna40 WiFiOperator

Description:

Domain Names: * Domain Name *

Domain Name ▲
cloudpath.net

Signup Security: □ Support Anonymous Authentication (OSEN)

Certificate: [?] * No data available

Friendly Names: * Language * English ▼ Name *

Language ▲	Name
English	Anna 40 Wi-Fi Service

1. Navigate to Configuration > Service and Profiles > Service Profiles > Hotspot 2.0 Wi-Fi Operator.
2. Enter a Name for the Wi-Fi Operator profile.
3. Add the Domain Name for the Cloudpath system.
4. Select a Language, and Add the Friendly Name for the Cloudpath system. You can enter multiple languages for the same Friendly Name.

   NOTE
   The Friendly Name in the vSZ controller must match the Friendly Name in the Hotspot 2.0 WWW certificate on the Cloudpath system.

5. Leave the default values for the remaining fields, and click Apply.

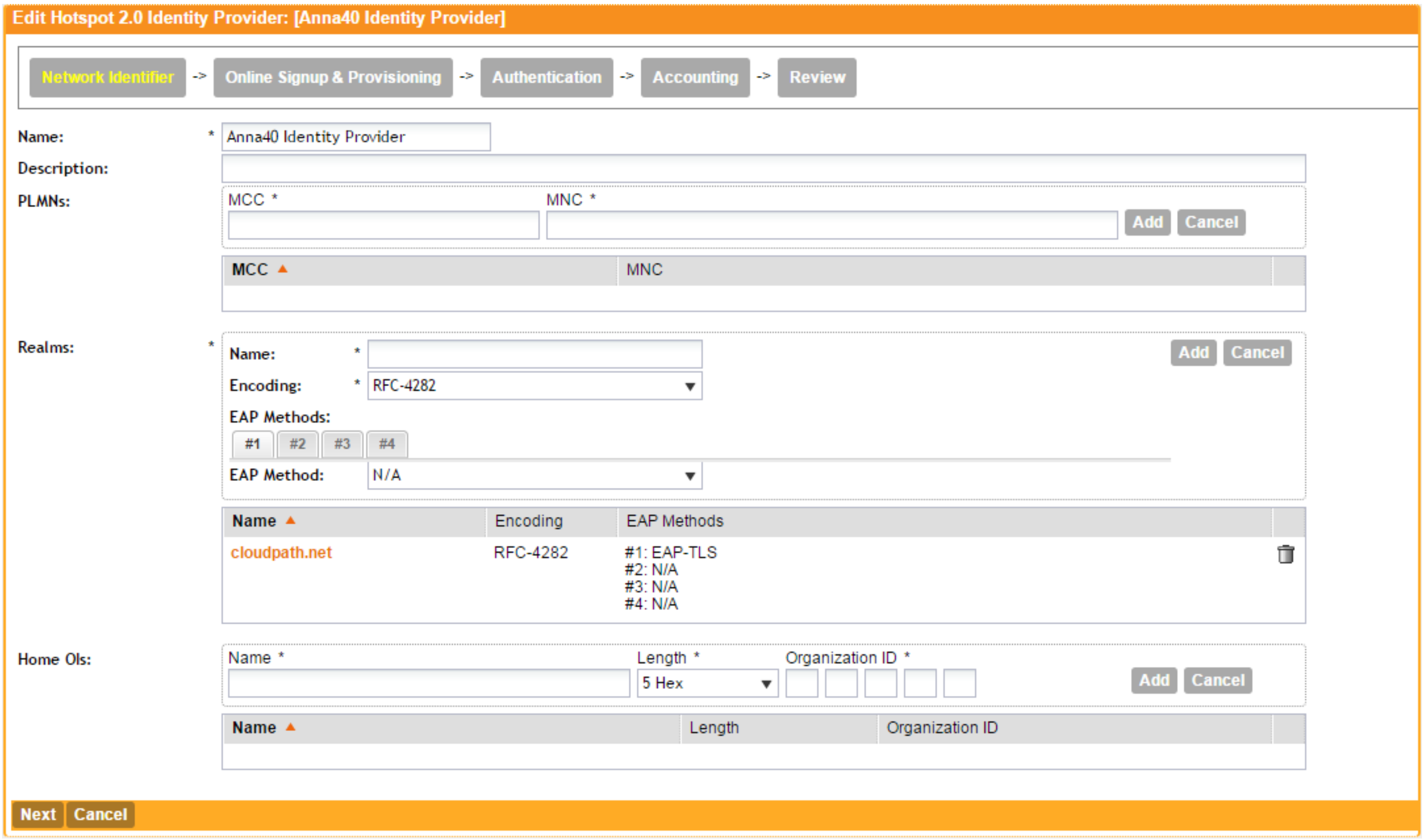
Configure Hotspot 2.0 Identity Provider

Navigate to Configuration > Service and Profiles > Service Profiles > Hotspot 2.0 Identity Provider. The Hotspot Identity Provider consists of the following information:

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

Configure Network Identifier

FIGURE 2 Configure Network Identifier



Edit Hotspot 2.0 Identity Provider: [Anna40 Identity Provider]

Name: * Anna40 Identity Provider

Description:

PLMNs: MCC * MNC *

MCC ▲	MNC

Realms: *

Name: *

Encoding: * RFC-4282

EAP Methods:

EAP Method: N/A

Name ▲	Encoding	EAP Methods
cloudpath.net	RFC-4282	#1: EAP-TLS #2: N/A #3: N/A #4: N/A

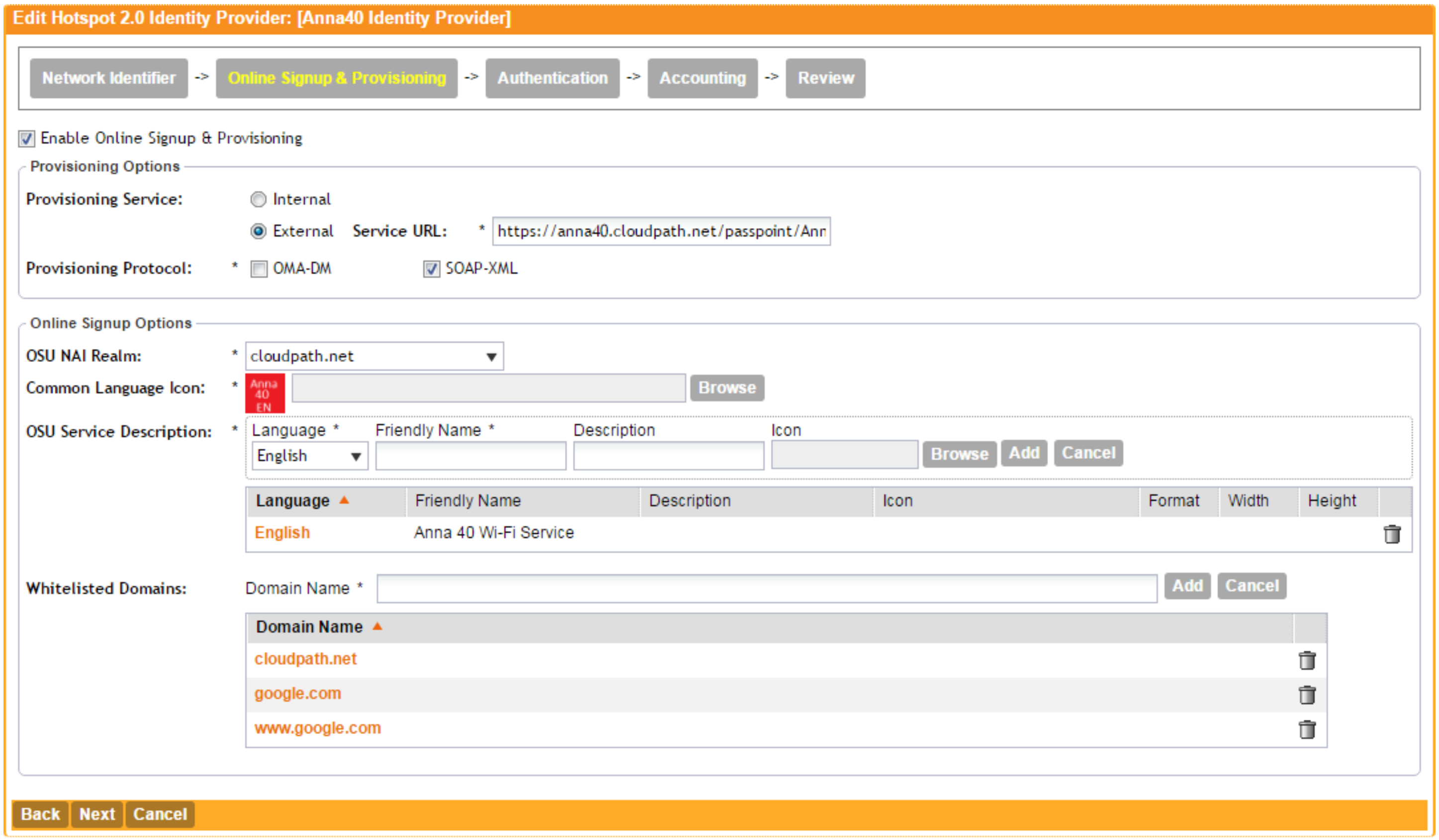
Home OIs: Name * Length * 5 Hex Organization ID *

Name ▲	Length	Organization ID

1. On the Network Identifier tab, Enter a Name for the Identity Provider.
2. Enter the Realm for the Cloudpath system, and EAP Method for the Identity Provider. You can enter multiple EAP Methods for the same Realm.
3. Leave the default values for the remaining fields, and click Next to apply changes and continue with Online Signup & Provisioning.

Configure Online Signup & Provisioning

FIGURE 3 Online Signup & Provisioning



Edit Hotspot 2.0 Identity Provider: [Anna40 Identity Provider]

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

☑ Enable Online Signup & Provisioning

Provisioning Options

Provisioning Service: ○ Internal
● External Service URL: * https://anna40.cloudpath.net/passpoint/Anr

Provisioning Protocol: * □ OMA-DM ☑ SOAP-XML

Online Signup Options

OSU NAI Realm: * cloudpath.net ▼

Common Language Icon: * Anna 40 EN

OSU Service Description: * Language * English ▼ | Friendly Name * | Description | Icon

Language ▲	Friendly Name	Description	Icon	Format	Width	Height	
English	Anna 40 Wi-Fi Service						🗑

Whitelisted Domains: Domain Name *

Domain Name ▲	
cloudpath.net	🗑
google.com	🗑
www.google.com	🗑

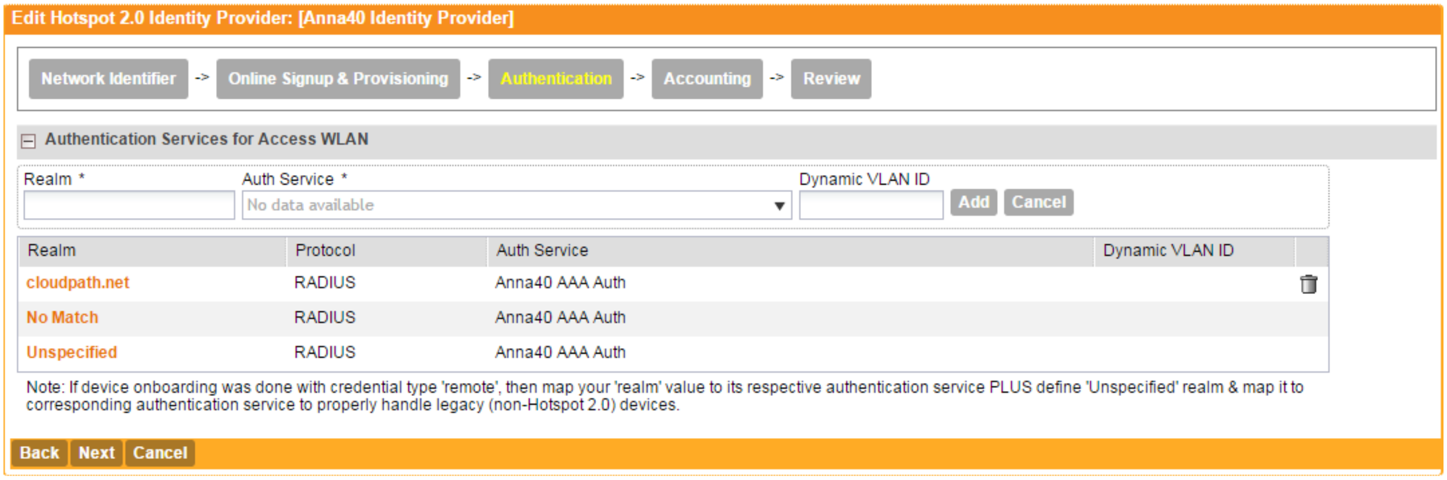
1. On the Online Signup & Provisioning tab, enable Online Signup & Provisioning.
2. Select External Provisioning Service and enter the Service URL. The Service URL on the controller must match the Passpoint OSU URL displayed on the Cloudpath system Deploy page (Configuration > Deploy).
3. Enter the OSU NAI Realm of the Cloudpath system.

   NOTE
   The Realm of the Cloudpath system should be consistent throughout the Identity Provider configuration.

4. Upload the Common Language Icon. This is the icon embedded in the Hotspot 2.0 WWW certificate on the Cloudpath system. Support file size = 64x64 pixels, file type = PNG.
5. Add one or more Languages for the Friendly Name. The Friendly Name must match the Friendly Name in the Hotspot 2.0 WWW certificate on the Cloudpath system.
6. Add one or more Whitelisted Domains. The domain of the Cloudpath system must be included.
7. Leave the default values for the remaining fields, and click Next to apply changes and continue with Authentication.

Authentication Services for Access WLAN

FIGURE 4 AAA Authentication Services



Edit Hotspot 2.0 Identity Provider: [Anna40 Identity Provider]

⊟ Authentication Services for Access WLAN

Realm *

Auth Service * No data available ▾

Dynamic VLAN ID

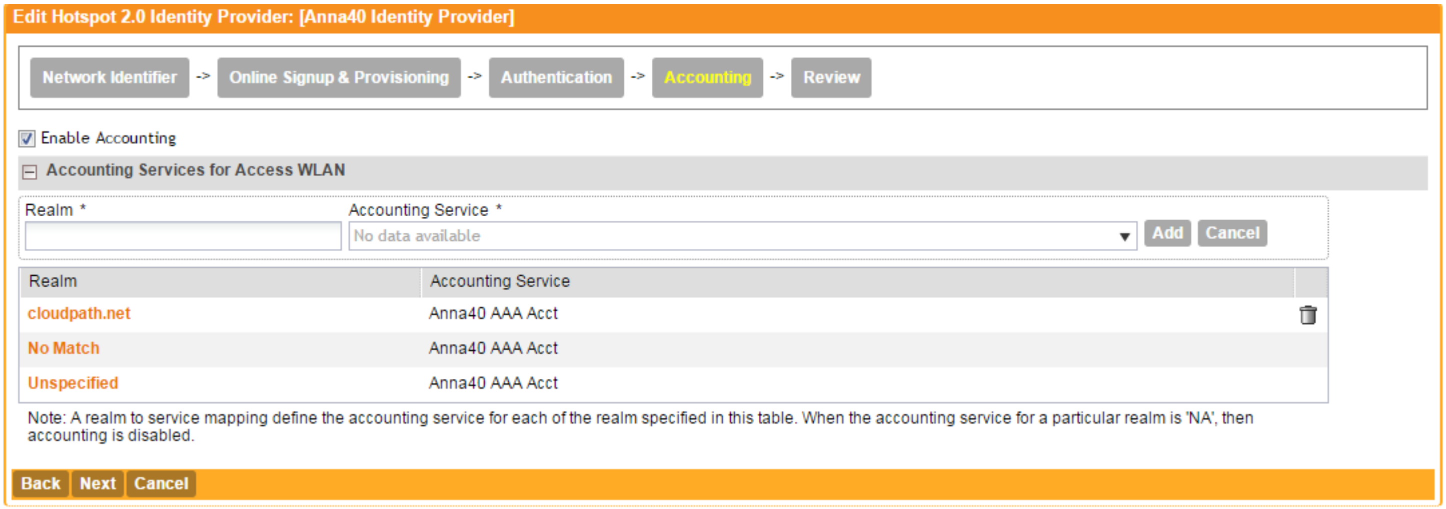
Realm	Protocol	Auth Service	Dynamic VLAN ID	
cloudpath.net	RADIUS	Anna40 AAA Auth		🗑
No Match	RADIUS	Anna40 AAA Auth		
Unspecified	RADIUS	Anna40 AAA Auth		

Note: If device onboarding was done with credential type 'remote', then map your 'realm' value to its respective authentication service PLUS define 'Unspecified' realm & map it to corresponding authentication service to properly handle legacy (non-Hotspot 2.0) devices.

1. On the Authentication tab, add one or Realms for RADIUS authentication. Enter an authentication service for the Cloudpath system realm, for systems that do not match the Cloudpath realm, and for unspecified realms.
2. Specify the Authentication server previously configured in Authentication Services.
3. Specify the RADIUS protocol.
4. Leave the default values for the remaining fields, and click Next to apply changes and continue with Accounting.

Accounting Services for Access WLAN

FIGURE 5 AAA Acounting Services



Edit Hotspot 2.0 Identity Provider: [Anna40 Identity Provider]

☑ Enable Accounting

⊟ Accounting Services for Access WLAN

Realm *

Accounting Service * No data available ▾

Realm	Accounting Service	
cloudpath.net	Anna40 AAA Acct	🗑
No Match	Anna40 AAA Acct	
Unspecified	Anna40 AAA Acct	

Note: A realm to service mapping define the accounting service for each of the realm specified in this table. When the accounting service for a particular realm is 'NA', then accounting is disabled.

1. On the Accounting tab, enable Accounting.
2. Add one or Realms for RADIUS accounting. Enter an accounting service for the Cloudpath system realm, for systems that do not match the Cloudpath realm, and for unspecified realms.

3. Specify the Accounting server previously configured in Accounting Services.
4. Leave the default values for the remaining fields, and click **Next** to apply changes and continue with Accounting.

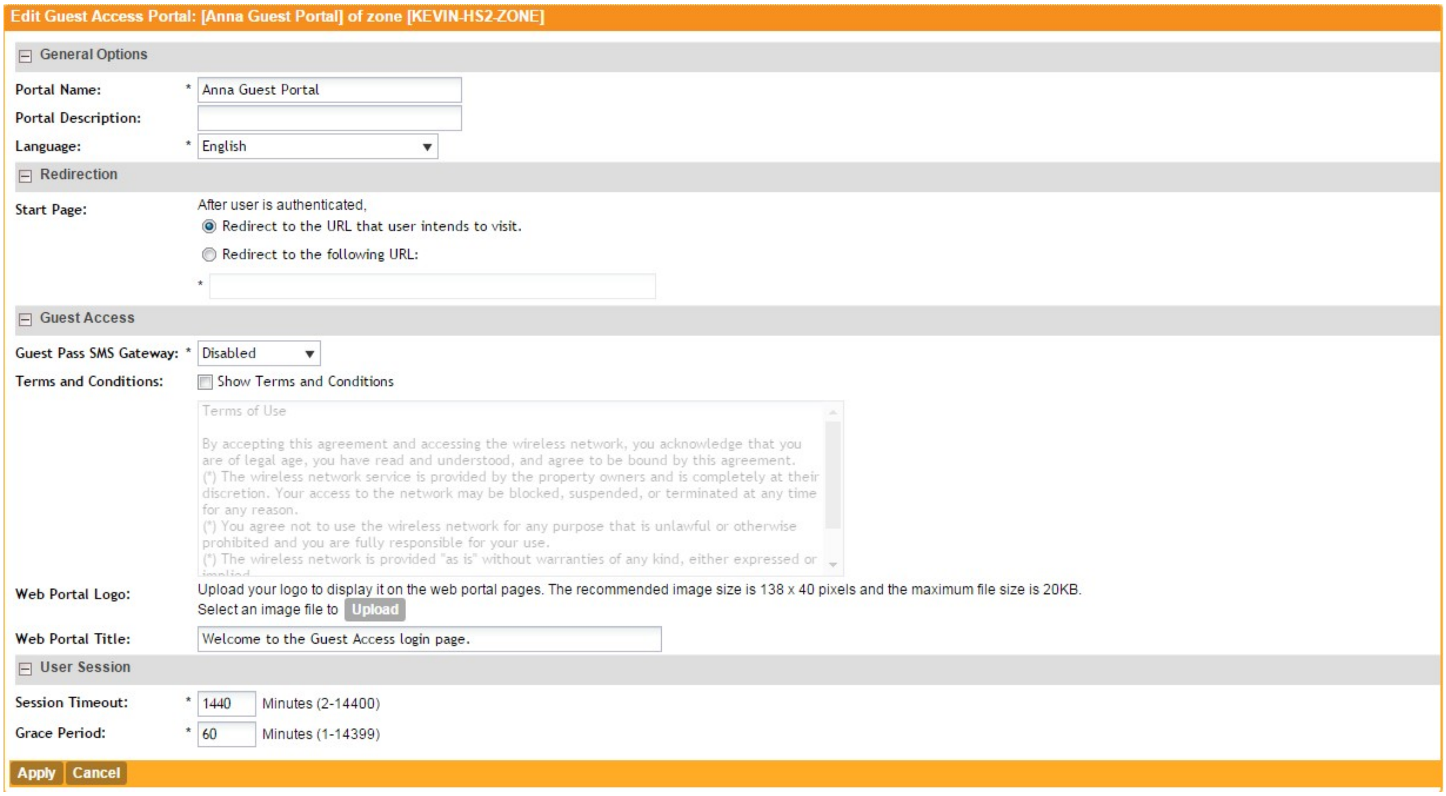
Review Identity Provider Configuration

On the **Review** tab, verify the Identity Provider configuration and **Apply** changes.

Configure Guest Access Portal

Navigate to your AP Zone for Zone Configuration. This the portal for iOS devices.

FIGURE 6 Guest Access Portal



Edit Guest Access Portal: [Anna Guest Portal] of zone [KEVIN-HS2-ZONE]

⊟ General Options

Portal Name: * Anna Guest Portal

Portal Description:

Language: * English ▼

⊟ Redirection

Start Page: After user is authenticated,

● Redirect to the URL that user intends to visit.

○ Redirect to the following URL:

*

⊟ Guest Access

Guest Pass SMS Gateway: * Disabled ▼

Terms and Conditions: □ Show Terms and Conditions

Terms of Use

By accepting this agreement and accessing the wireless network, you acknowledge that you are of legal age, you have read and understood, and agree to be bound by this agreement.
(*) The wireless network service is provided by the property owners and is completely at their discretion. Your access to the network may be blocked, suspended, or terminated at any time for any reason.
(*) You agree not to use the wireless network for any purpose that is unlawful or otherwise prohibited and you are fully responsible for your use.
(*) The wireless network is provided "as is" without warranties of any kind, either expressed or implied.

Web Portal Logo: Upload your logo to display it on the web portal pages. The recommended image size is 138 x 40 pixels and the maximum file size is 20KB.
Select an image file to Upload

Web Portal Title: Welcome to the Guest Access login page.

⊟ User Session

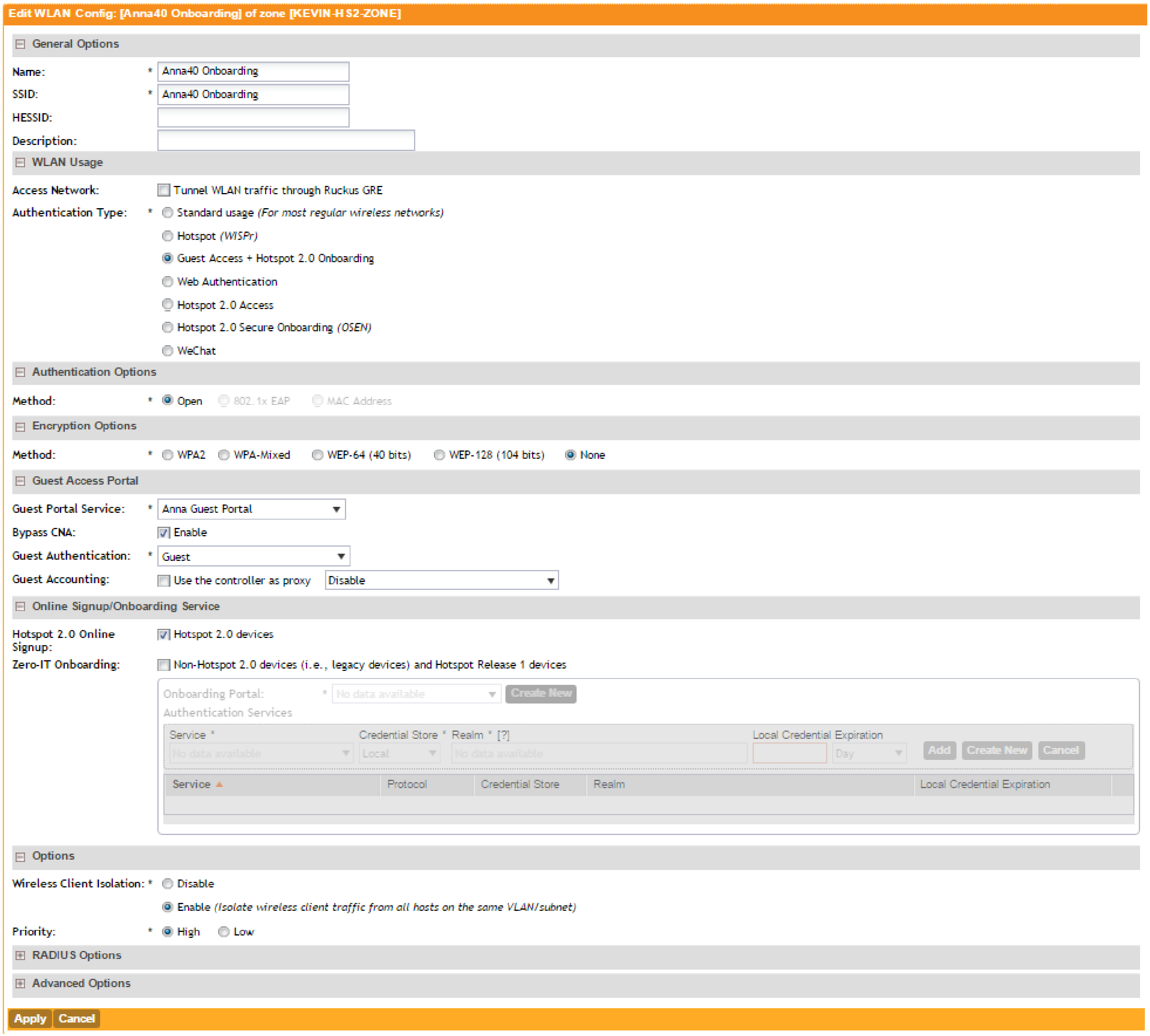
Session Timeout: * 1440 Minutes (2-14400)

Grace Period: * 60 Minutes (1-14399)

1. Enter a **Portal Name** and **Description**.
2. The **Start Page** must be Redirect to the URL that the user intends to visit.
3. Disable **Guest Pass SMS Gateway**.
4. Optional. Enter a **Web Portal Logo**.
5. Enter a **Web Portal Title**.
6. Leave the default values for the remaining fields, and **Apply** changes.

Configure Onboarding SSID

FIGURE 7 Onboarding SSID



Edit WLAN Config: [Anna40 Onboarding] of zone [KEVIN-HS2-ZONE]

⊟ General Options

Name: * Anna40 Onboarding
SSID: * Anna40 Onboarding
HESSID:
Description:

⊟ WLAN Usage

Access Network: □ Tunnel WLAN traffic through Ruckus GRE
Authentication Type: *
○ Standard usage *(For most regular wireless networks)*
○ Hotspot *(WISPr)*
● Guest Access + Hotspot 2.0 Onboarding
○ Web Authentication
○ Hotspot 2.0 Access
○ Hotspot 2.0 Secure Onboarding *(OSEN)*
○ WeChat

⊟ Authentication Options

Method: * ● Open ○ 802.1x EAP ○ MAC Address

⊟ Encryption Options

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

⊟ Guest Access Portal

Guest Portal Service: * Anna Guest Portal ▼
Bypass CNA: ☑ Enable
Guest Authentication: * Guest ▼
Guest Accounting: □ Use the controller as proxy Disable ▼

⊟ Online Signup/Onboarding Service

Hotspot 2.0 Online Signup: ☑ Hotspot 2.0 devices
Zero-IT Onboarding: □ Non-Hotspot 2.0 devices (i.e., legacy devices) and Hotspot Release 1 devices

Onboarding Portal: * No data available ▼ Create New
Authentication Services
Service * No data available ▼ Credential Store * Local ▼ Realm * [?] No data available Local Credential Expiration Day ▼ Add Create New Cancel

Service ▲	Protocol	Credential Store	Realm	Local Credential Expiration

⊟ Options

Wireless Client Isolation: *
○ Disable
● Enable *(Isolate wireless client traffic from all hosts on the same VLAN/subnet)*
Priority: * ● High ○ Low

⊞ RADIUS Options

⊞ Advanced Options

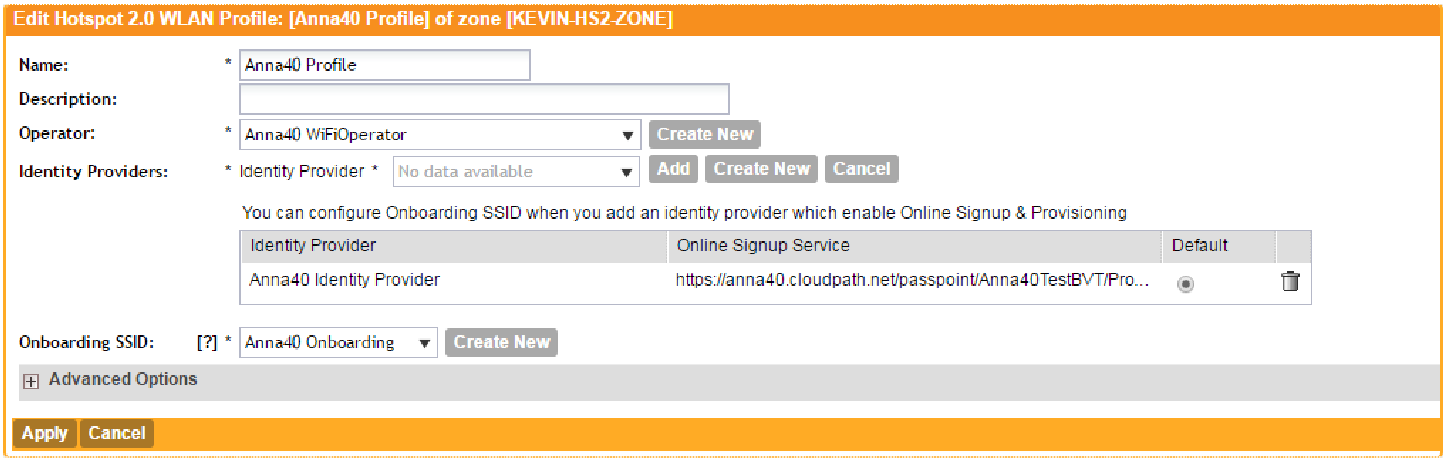
Apply Cancel

1. **Name** the onboarding **SSID**.
2. Authentication Type must be **Guest Access + Hotspot 2.0 Onboarding**.
3. Authentication Method must be **Open**.
4. Encryption Method must be **None**.
5. Select the **Guest Portal Service** previously configured.

6. Enable Bypass CNA.
7. Select Hotspot 2.0 devices.
8. Leave the default values for the remaining fields, and Apply changes

Configure Hotspot 2.0 Profile

FIGURE 8 Hotspot 2.0



Edit Hotspot 2.0 WLAN Profile: [Anna40 Profile] of zone [KEVIN-HS2-ZONE]

Name: * Anna40 Profile

Description:

Operator: * Anna40 WiFiOperator

Identity Providers: * Identity Provider * No data available

You can configure Onboarding SSID when you add an identity provider which enable Online Signup & Provisioning

Identity Provider	Online Signup Service	Default	
Anna40 Identity Provider	https://anna40.cloudpath.net/passpoint/Anna40TestBVT/Pro...	●	🗑

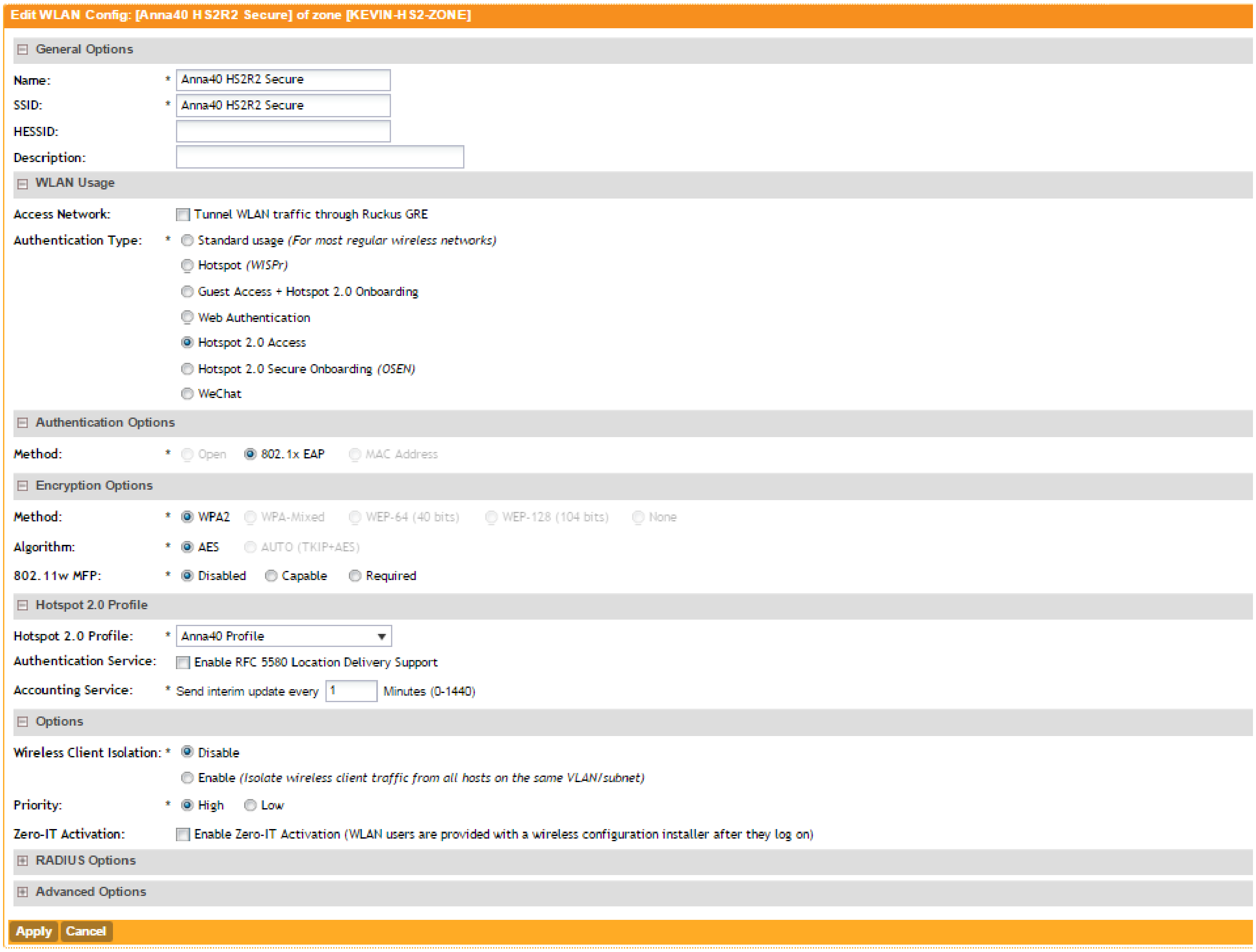
Onboarding SSID: [?] * Anna40 Onboarding

⊞ Advanced Options

1. Name the Hotspot 2.0 profile.
2. Select the previously configured Wi-Fi Operator.
3. Add the previously configured Identity Provider.
4. Select the previously configured Onboarding SSID.
5. Leave the default values for the remaining fields, and Apply changes.

Configure Secure SSID

FIGURE 9 Secure SSID



Edit WLAN Config: [Anna40 HS2R2 Secure] of zone [KEVIN-HS2-ZONE]

⊟ General Options

Name: * Anna40 HS2R2 Secure

SSID: * Anna40 HS2R2 Secure

HESSID:

Description:

⊟ WLAN Usage

Access Network: □ Tunnel WLAN traffic through Ruckus GRE

Authentication Type: *
○ Standard usage *(For most regular wireless networks)*
○ Hotspot *(WISPr)*
○ Guest Access + Hotspot 2.0 Onboarding
○ Web Authentication
● Hotspot 2.0 Access
○ Hotspot 2.0 Secure Onboarding *(OSEN)*
○ WeChat

⊟ Authentication Options

Method: * ○ Open ● 802.1x EAP ○ MAC Address

⊟ Encryption Options

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

Algorithm: * ● AES ○ AUTO (TKIP+AES)

802.11w MFP: * ● Disabled ○ Capable ○ Required

⊟ Hotspot 2.0 Profile

Hotspot 2.0 Profile: * Anna40 Profile ▼

Authentication Service: □ Enable RFC 5580 Location Delivery Support

Accounting Service: * Send interim update every 1 Minutes (0-1440)

⊟ Options

Wireless Client Isolation: *
● Disable
○ Enable *(Isolate wireless client traffic from all hosts on the same VLAN/subnet)*

Priority: * ● High ○ Low

Zero-IT Activation: □ Enable Zero-IT Activation (WLAN users are provided with a wireless configuration installer after they log on)

⊞ RADIUS Options

⊞ Advanced Options

1. Name the secure SSID.
2. Authentication Type must be Hotspot 2.0 Access.
3. Authentication Method must be 802.1x EAP.
4. Encryption Method must be WPA2.
5. Select the previously configured Hotspot 2.0 Profile.
6. Leave the default values for the remaining fields, and Apply changes.

Cloudpath Configuration

The Cloudpath configuration for passpoint consists of setting up the workflow, device configuration settings, certificate settings, and home service provider, subscriber, and policy settings.

Prerequisites

- The web server certificate must be signed by a Hotspot 2.0 Root CA and must contain the Common Language Icon. Icon size = 64 x 64 pixels. Icon file type = PNG.
- The RADIUS server certificate must also be signed by the Hotspot 2.0 Root CA.

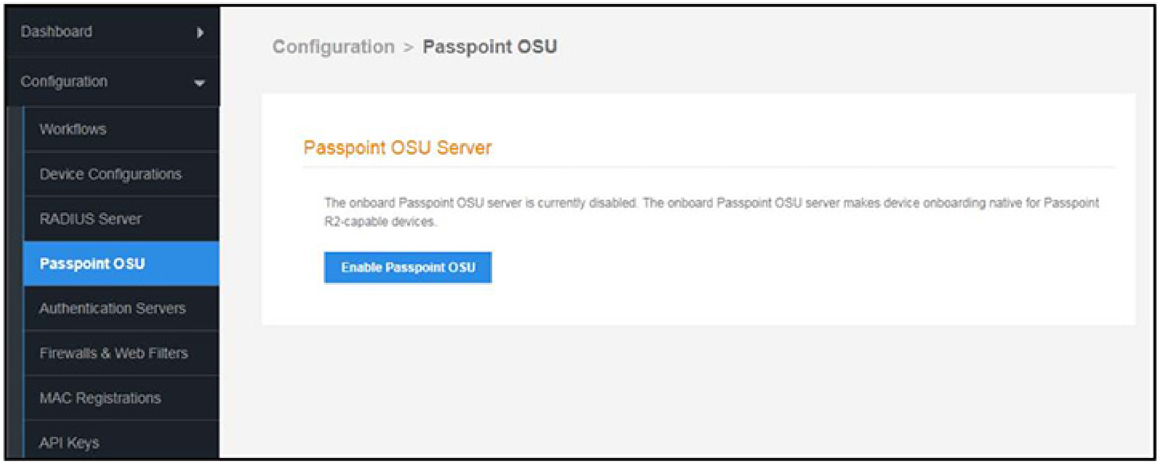
Cloudpath Configuration Summary

- Enable Passpoint on the Cloudpath System
- Workflow for Passpoint Configuration
- Device Configuration Passpoint Settings
- Additional Passpoint Settings

Enabling Passpoint on the Cloudpath System

Enable Passpoint from the left menu by selecting the **Configure** > **Passpoint OSU** tab.

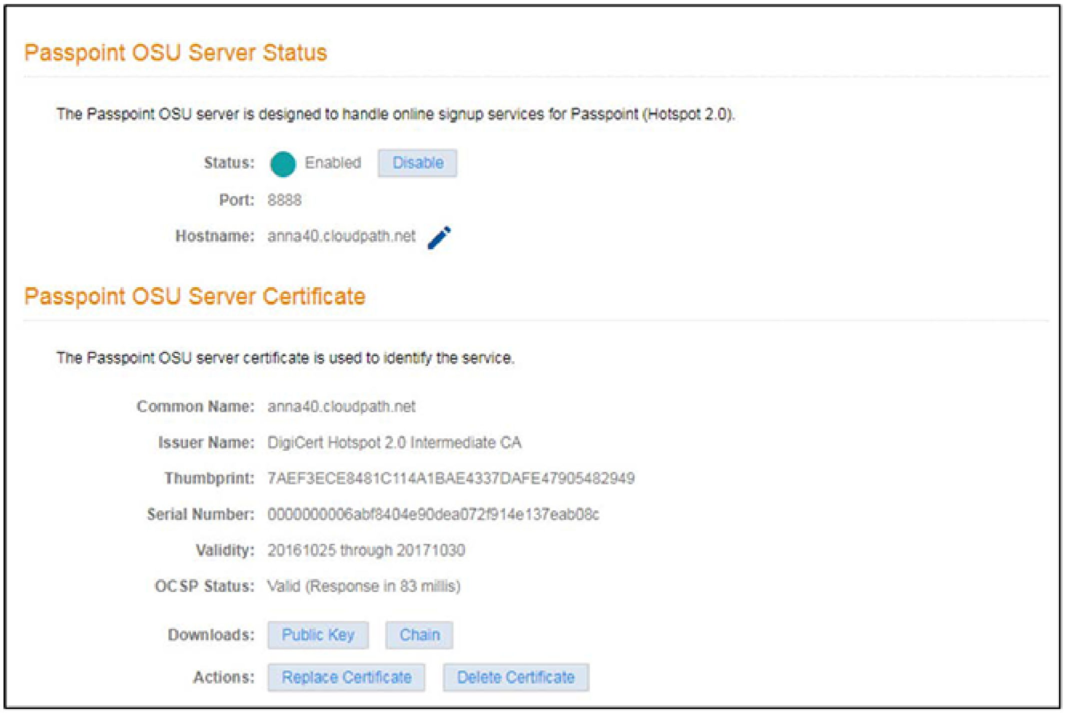
FIGURE 10 Enable Passpoint OSU



The onboard Passpoint OSU server is currently disabled. The onboard Passpoint OSU server makes device onboarding native for Passpoint R2-capable devices.

Enabling Passpoint restarts the web server and displays the Passpoint Configuration page, which allows you to upload the Hotspot 2.0 WWW certificate and configure the Passpoint hostname and port.

FIGURE 11 Configure Passpoint server and certificate



Passpoint OSU Server Status

The Passpoint OSU server is designed to handle online signup services for Passpoint (Hotspot 2.0).

Status: ● Enabled

Port: 8888

Hostname: anna40.cloudpath.net

Passpoint OSU Server Certificate

The Passpoint OSU server certificate is used to identify the service.

Common Name: anna40.cloudpath.net

Issuer Name: DigiCert Hotspot 2.0 Intermediate CA

Thumbprint: 7AEF3ECE8481C114A1BAE4337DAFE47905482949

Serial Number: 0000000006abf8404e90dea072f914e137eab08c

Validity: 20161025 through 20171030

OCSP Status: Valid (Response in 83 millis)

Downloads:

Actions:

The web server restarts after the Hotspot 2.0 WWW certificate has been uploaded.

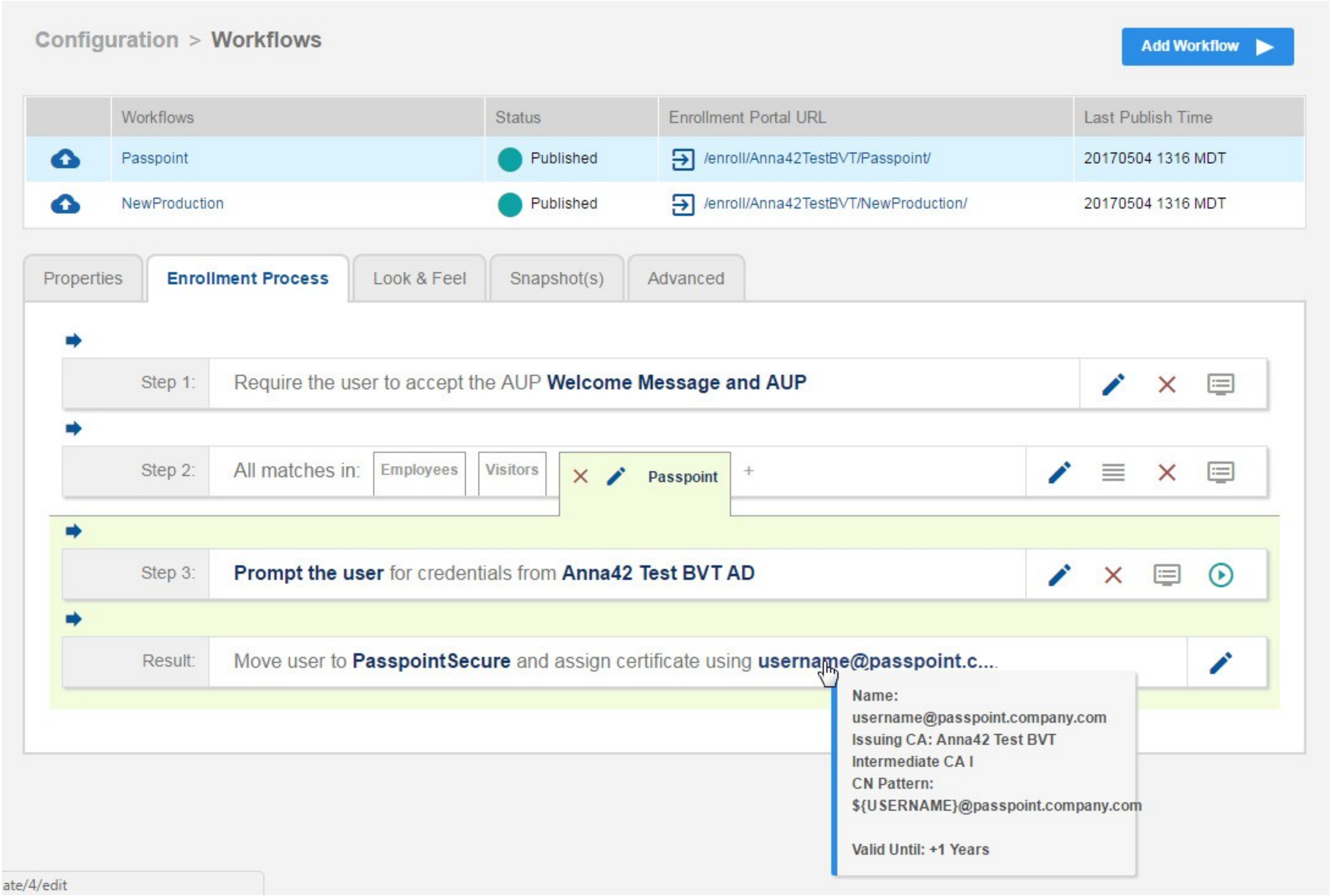
> NOTE
> Enabling Passpoint on the system allows you to configure the server and upload the Hotspot 2.0 WWW certificate. However, you must also enable Passpoint for any device configuration that supports Passpoint. See Device Configuration Passpoint Settings on page 16.

Workflow for Passpoint Configuration

Design a workflow for Passpoint.

The Result step must include a device configuration that includes the secure SSID configured on the controller, and the certificate template must include the Common Name Pattern with the same realm as configured in the controller.

FIGURE 12 Passpoint Workflow


Configuration > Workflows

	Workflows	Status	Enrollment Portal URL	Last Publish Time
	Passpoint	● Published	/enroll/Anna42TestBVT/Passpoint/	20170504 1316 MDT
	NewProduction	● Published	/enroll/Anna42TestBVT/NewProduction/	20170504 1316 MDT

Step 1: Require the user to accept the AUP **Welcome Message and AUP**

Step 2: All matches in: Employees Visitors Passpoint +

Step 3: **Prompt the user** for credentials from **Anna42 Test BVT AD**

Result: Move user to **PasspointSecure** and assign certificate using **username@passpoint.c...**

Name:
username@passpoint.company.com
Issuing CA: Anna42 Test BVT
Intermediate CA I
CN Pattern:
${USERNAME}@passpoint.company.com

Valid Until: +1 Years

Device Configuration Passpoint Settings

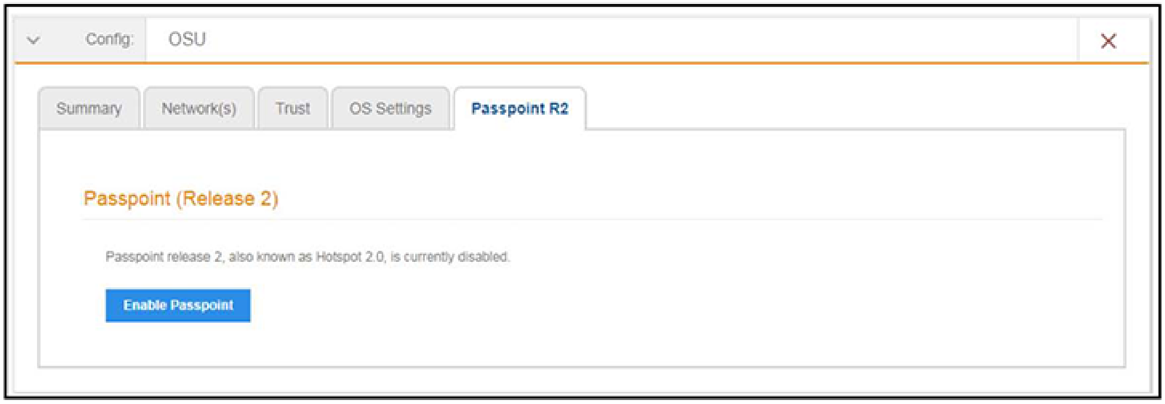
The passpoint settings include configuration for the Home Service Provider, the Subscription Server, and the Policy Server.

Enable Passpoint for the Device Configuration

When Passpoint is enabled on the system, a Passpoint R2 tab is added for each device configuration.

You can enable Passpoint for only the device configurations that will support Passpoint.

FIGURE 13 Enable Passpoint for the Device Configuration



Config: OSU

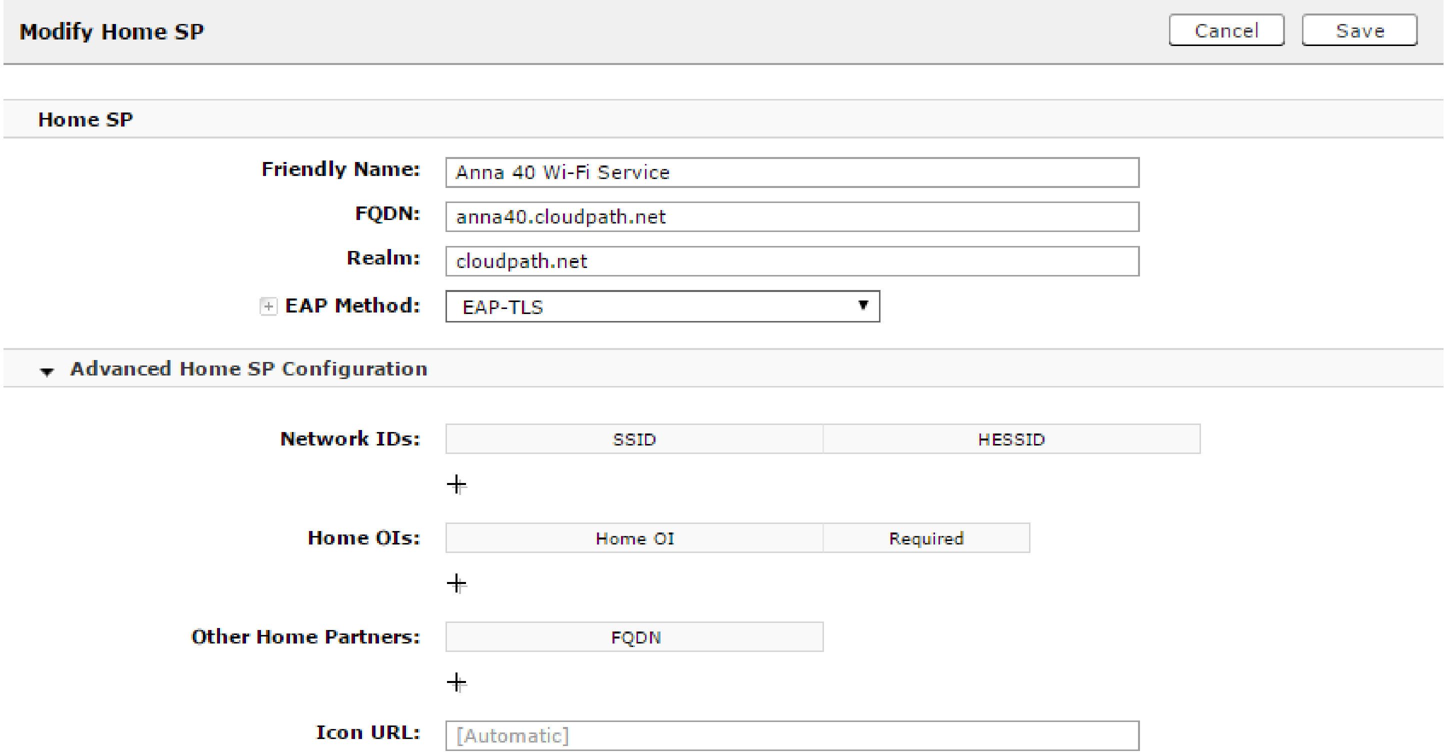
Passpoint (Release 2)

Passpoint release 2, also known as Hotspot 2.0, is currently disabled.

Enabling Passpoint for the device configuration allows you to configure Home Server Provider, Subscription, Policy, and Certificate settings.

Configure Home Service Provider

FIGURE 14 Home Service Provider Settings



Modify Home SP

Home SP

Friendly Name: Anna 40 Wi-Fi Service

FQDN: anna40.cloudpath.net

Realm: cloudpath.net

EAP Method: EAP-TLS

Advanced Home SP Configuration

Network IDs:

SSID	HESSID

Home OIs:

Home OI	Required

Other Home Partners:

FQDN

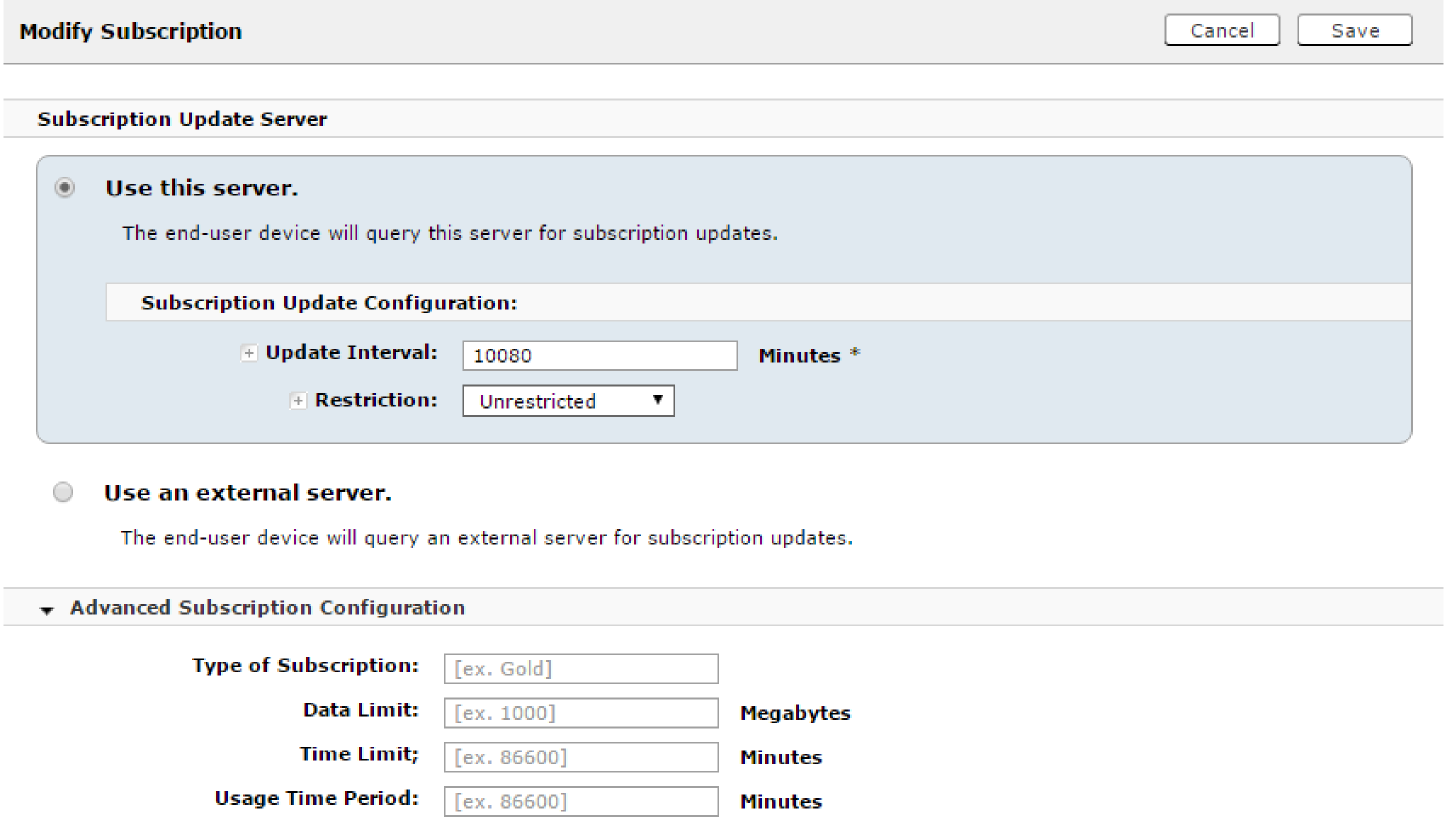
Icon URL: [Automatic]

1. The Friendly Name must match the Friendly Name in the Hotspot 2.0 WWW certificate.
2. The FQDN of the Cloudpath system.
3. The Realm must match the realm of the Cloudpath system.

4. The **EAP Method** for the Hotspot 2.0 configuration.

Configure Subscription Server

FIGURE 15 Subscription Server Settings



Subscription Update Server

● **Use this server.**

The end-user device will query this server for subscription updates.

Subscription Update Configuration:

Update Interval: 10080 **Minutes** *

Restriction: Unrestricted ▼

○ **Use an external server.**

The end-user device will query an external server for subscription updates.

▾ **Advanced Subscription Configuration**

Type of Subscription: [ex. Gold]

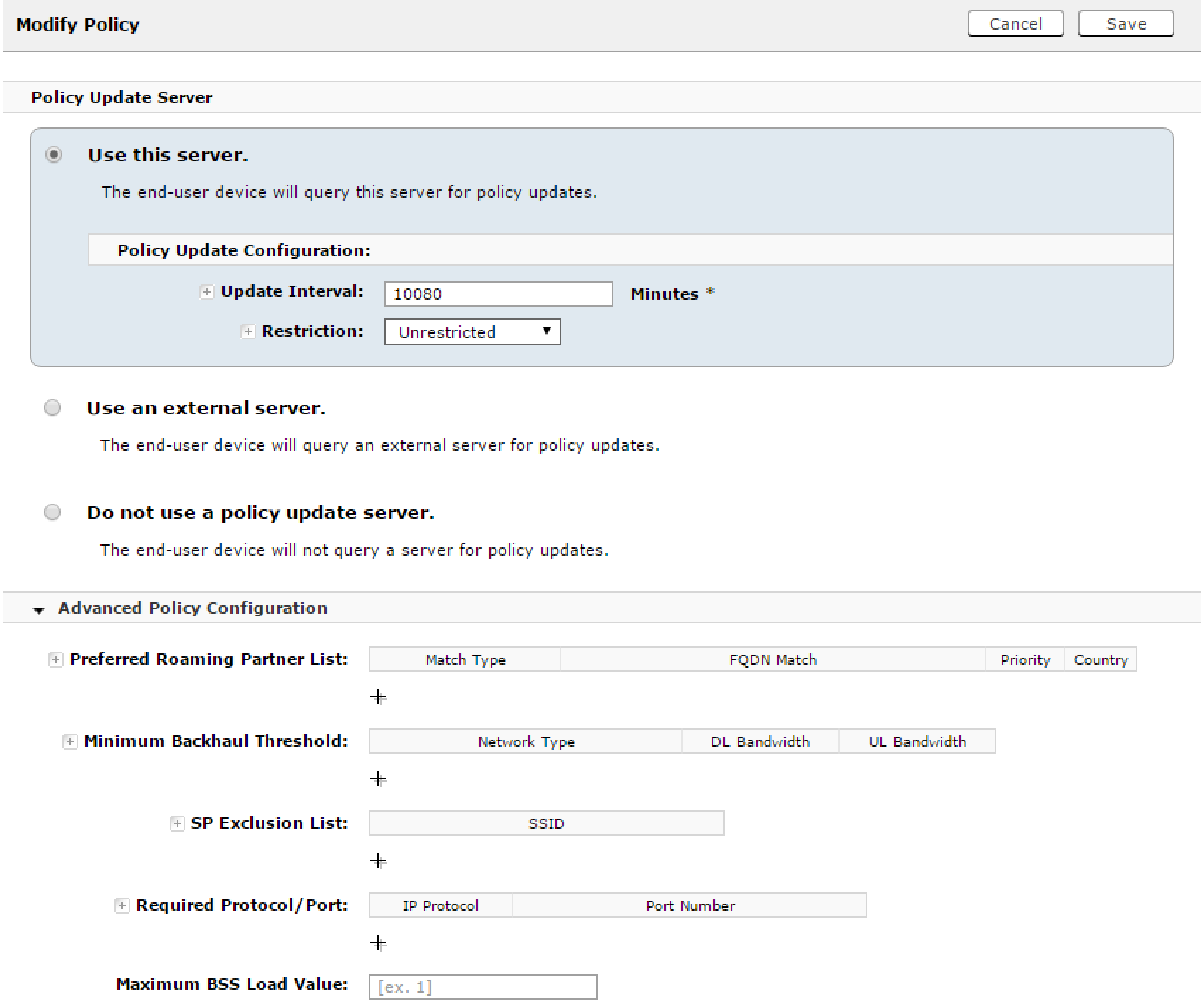
Data Limit: [ex. 1000] **Megabytes**

Time Limit; [ex. 86600] **Minutes**

Usage Time Period: [ex. 86600] **Minutes**

Configure Policy Server

FIGURE 16 Policy Server Settings



Modify Policy

Policy Update Server

● **Use this server.**

The end-user device will query this server for policy updates.

Policy Update Configuration:

Update Interval:	10080 **Minutes** *
Restriction:	Unrestricted ▼

○ **Use an external server.**

The end-user device will query an external server for policy updates.

○ **Do not use a policy update server.**

The end-user device will not query a server for policy updates.

Advanced Policy Configuration

Preferred Roaming Partner List:

Match Type	FQDN Match	Priority	Country

Minimum Backhaul Threshold:

Network Type	DL Bandwidth	UL Bandwidth

SP Exclusion List:

SSID

Required Protocol/Port:

IP Protocol	Port Number

Maximum BSS Load Value: [ex. 1]

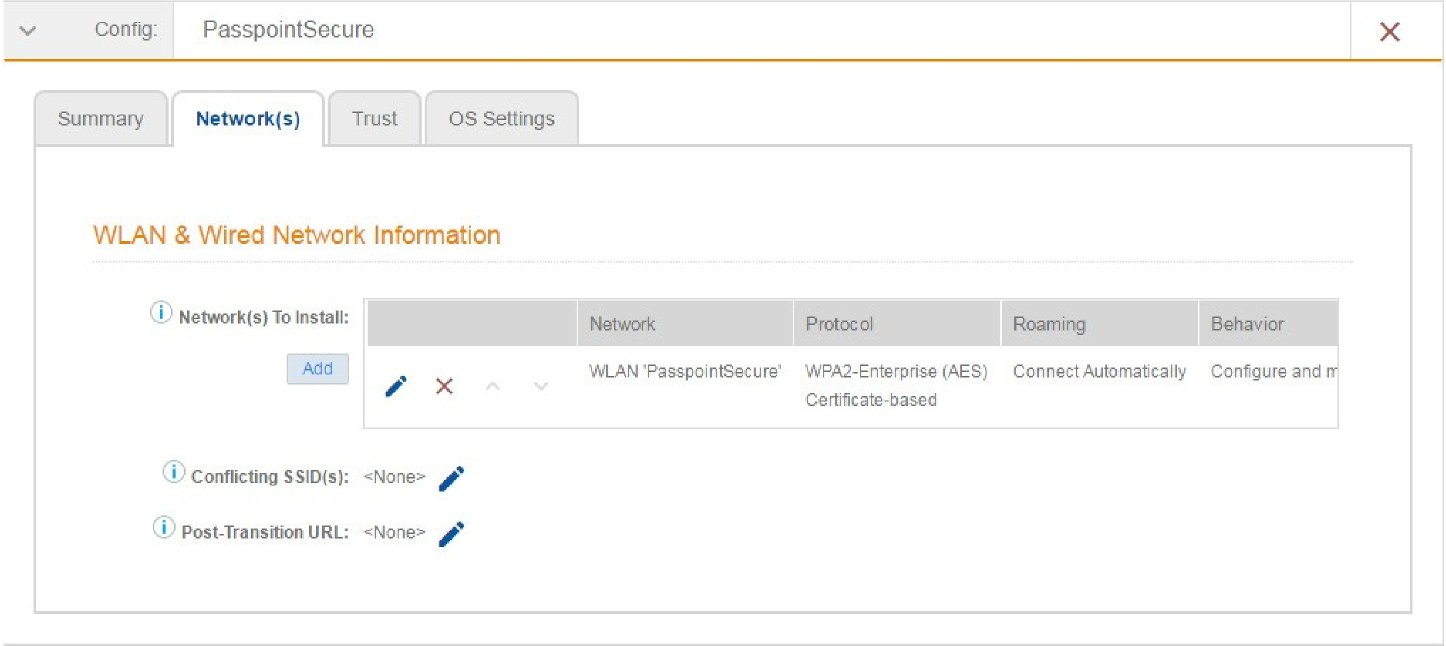
Additional Passpoint Settings

In addition to device configuration settings, you must specify the correct EAP Method in the WLAN settings, RADIUS server Trust settings, and Certificate Template settings.

WLAN Settings

The WLAN settings for the device configuration must match the EAP Method specified in the controller Identity Profile, and include a Traditional SSID Type.

FIGURE 17 Device Configuration WLAN Settings



Config: PasspointSecure

WLAN & Wired Network Information

Network(s) To Install:

	Network	Protocol	Roaming	Behavior
	WLAN 'PassointSecure'	WPA2-Enterprise (AES) Certificate-based	Connect Automatically	Configure and m

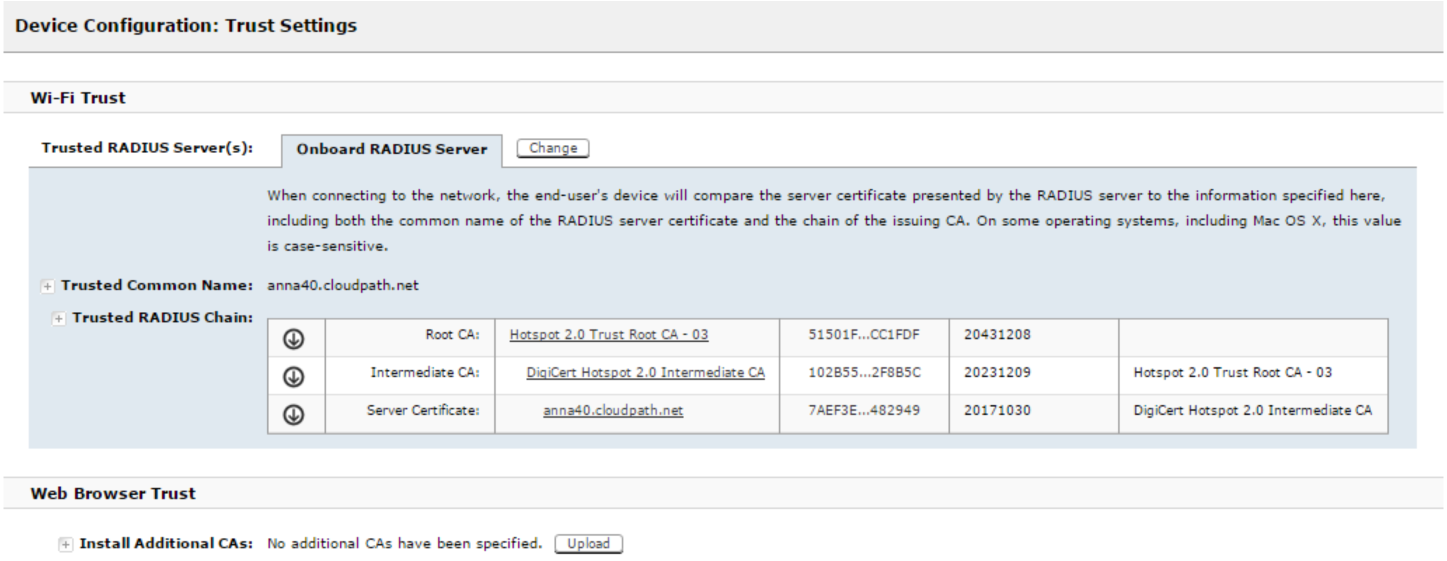
Conflicting SSID(s): <None>

Post-Transition URL: <None>

RADIUS Certificate Trust Settings

The RADIUS server certificate must be signed by the same Hotspot 2.0 Root CA that signs the web server certificate.

FIGURE 18 RADIUS Certificate Trust Settings



Device Configuration: Trust Settings

Wi-Fi Trust

Trusted RADIUS Server(s): **Onboard RADIUS Server**

When connecting to the network, the end-user's device will compare the server certificate presented by the RADIUS server to the information specified here, including both the common name of the RADIUS server certificate and the chain of the issuing CA. On some operating systems, including Mac OS X, this value is case-sensitive.

Trusted Common Name: anna40.cloudpath.net

Trusted RADIUS Chain:

⊕	Root CA:	Hotspot 2.0 Trust Root CA - 03	51501F...CC1FDF	20431208	
⊕	Intermediate CA:	DigiCert Hotspot 2.0 Intermediate CA	102B55...2F8B5C	20231209	Hotspot 2.0 Trust Root CA - 03
⊕	Server Certificate:	anna40.cloudpath.net	7AEF3E...482949	20171030	DigiCert Hotspot 2.0 Intermediate CA

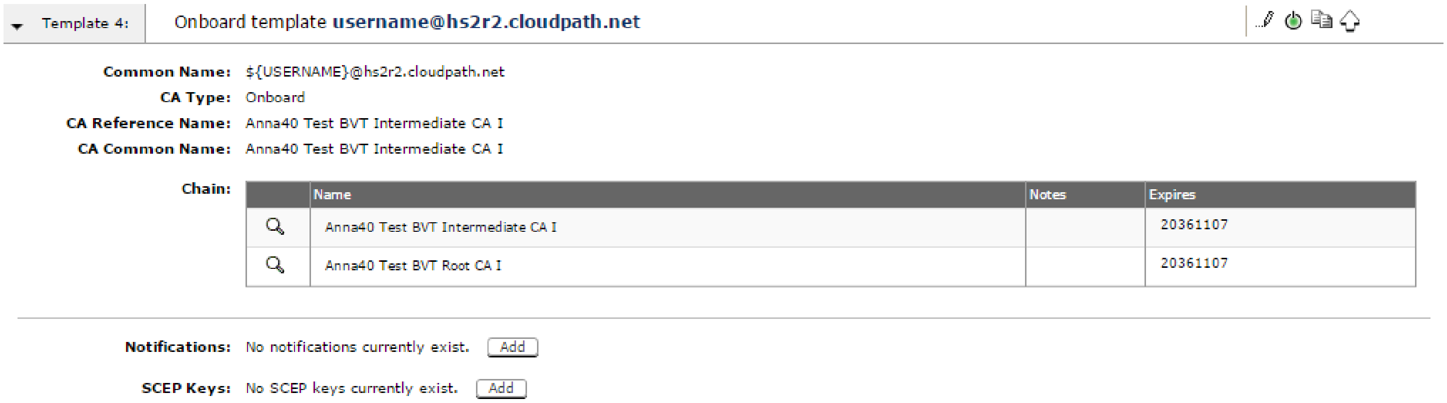
Web Browser Trust

Install Additional CAs: No additional CAs have been specified.

Certificate Template Settings

The certificate template Common Name must include the domain name that is specified in the Controller Realm setting.

FIGURE 19 Certificate Template Settings



Template 4: Onboard template **username@hs2r2.cloudpath.net**

Common Name: ${USERNAME}@hs2r2.cloudpath.net
CA Type: Onboard
CA Reference Name: Anna40 Test BVT Intermediate CA I
CA Common Name: Anna40 Test BVT Intermediate CA I

Chain:

	Name	Notes	Expires
🔍	Anna40 Test BVT Intermediate CA I		20361107
🔍	Anna40 Test BVT Root CA I		20361107

Notifications: No notifications currently exist.

SCEP Keys: No SCEP keys currently exist.

Testing the Passpoint Configuration

This Hotspot 2.0 R2 configuration was tested on a Samsung Galaxy S5, running OS 4.4.2, kernel version 3.4.0-2727827eng, built number kltexx-eng 4.4.2 KOT49H G900FXXUTAMK6 test-keys.

To test your configuration, use these example enrollment steps:

1. Enable Passpoint on the device.

   The device should display New Passpoint available. Click to subscribe

2. Tap to subscribe. You should see the Friendly Name of the Cloudpath system previously configured.
3. Tap the Cloudpath system Friendly Name.

   The device connects to the onboarding SSID, which redirects to the Cloudpath enrollment portal.
4. Run through the enrollment process, which includes, in this example, an AD login step.

   The configuration is installed on the device, and the device connects to the secure SSID.

Troubleshooting the Cloudpath Passpoint Configuration

This section describes issues to consider when testing or troubleshooting Cloudpath servers that have been configured for Passpoint.

Hotspot 2.0 Root CA

Your Hotspot 2.0 root CA must be issued by one of the CAs authorized by Wi-Fi Alliance.

> NOTE
> Refer to the Wi-Fi Alliance website, `http://www.wi-fi.org/certification/certificate-authority-vendors`.

Each OSU Server has a certificate signed by a Certificate Authority whose root certificate is trusted by the connection manager of the mobile device. Passpoint Release 2 mobile devices possess the Trust Root certificates from all of the authorized Trust Root CAs. As such, mobile devices can properly validate an OSU server certificate and its metadata (friendly name and icon). This insures the integrity and security of the OSU process

Icon Embedded in the Certificate

The web server certificate for your Cloudpath system must use a Hotspot 2.0 WWW certificate with an embedded Common Language icon.

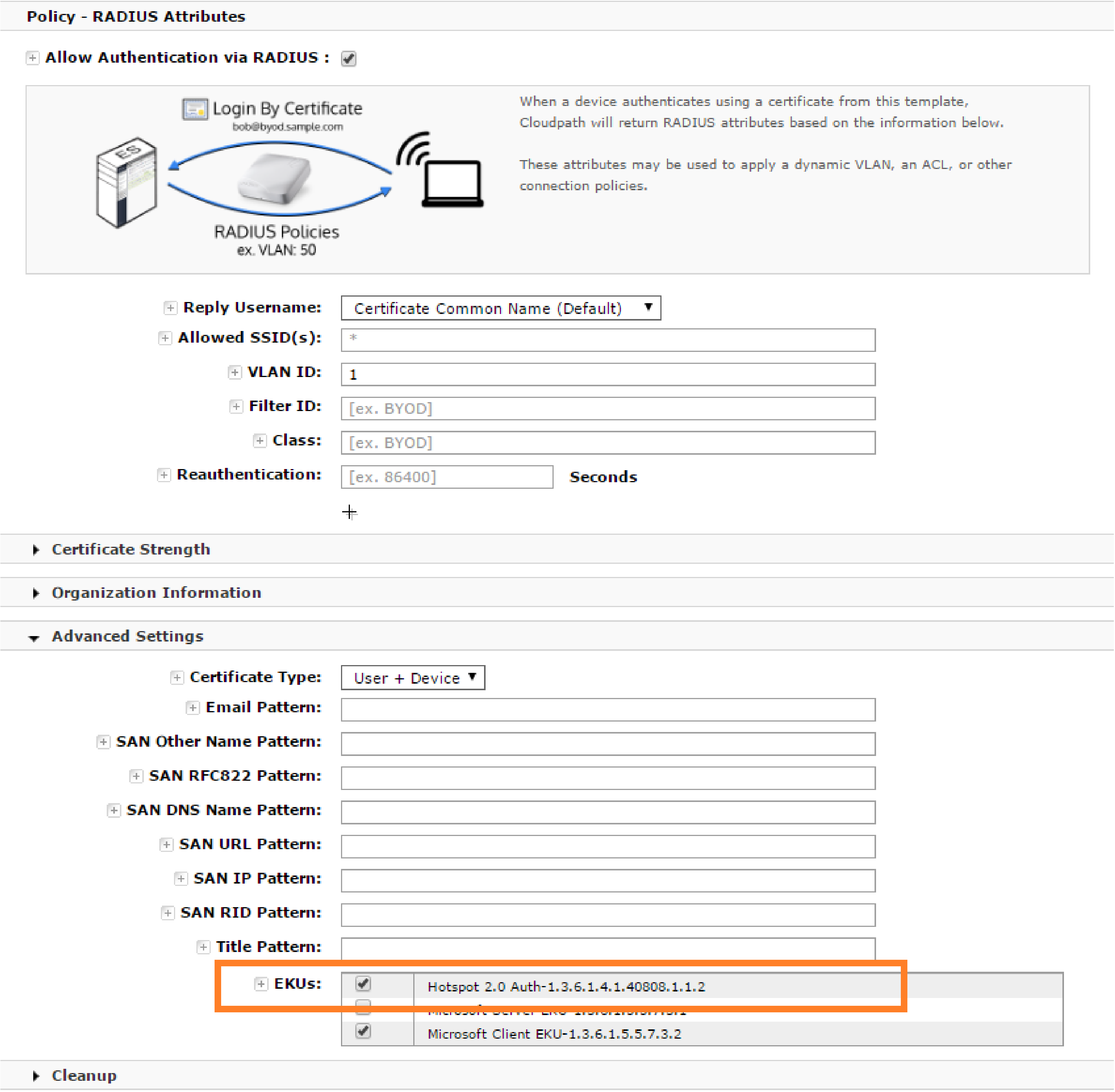
Use PNG-encoded icon images because the Hotspot 2.0 Release 2 specification mandates all mobile devices accept this format. Image sizes up to a maximum of 65,535 bytes are permitted, but we recommend using images having a small file size to conserve air time when delivering the image to a mobile device.

The exact same image file provided in the CSR is also provided to the Hotspot Operator. This is because the CA puts a hash of the icon file in the OSU server certificate and the mobile device computes the hash of the icon delivered by a Hotspot Operator's AP—if the hashes do not match exactly, the mobile device aborts the OSU process.

Certificate Template EKU

Be sure that the certificate template in your passpoint configuration has the Hotspot 2.0 Auth- 1.3.6.1.4.1.40808.1.1.2 EKU setting checked.

FIGURE 20 Modify Certificate Template



Policy - RADIUS Attributes

⊞ **Allow Authentication via RADIUS :** ☑

When a device authenticates using a certificate from this template, Cloudpath will return RADIUS attributes based on the information below.

These attributes may be used to apply a dynamic VLAN, an ACL, or other connection policies.

⊞ **Reply Username:** Certificate Common Name (Default) ▼

⊞ **Allowed SSID(s):** *

⊞ **VLAN ID:** 1

⊞ **Filter ID:** [ex. BYOD]

⊞ **Class:** [ex. BYOD]

⊞ **Reauthentication:** [ex. 86400] **Seconds**

+

▸ **Certificate Strength**

▸ **Organization Information**

▾ **Advanced Settings**

⊞ **Certificate Type:** User + Device ▼

⊞ **Email Pattern:**

⊞ **SAN Other Name Pattern:**

⊞ **SAN RFC822 Pattern:**

⊞ **SAN DNS Name Pattern:**

⊞ **SAN URL Pattern:**

⊞ **SAN IP Pattern:**

⊞ **SAN RID Pattern:**

⊞ **Title Pattern:**

⊞ **EKUs:**

☑	Hotspot 2.0 Auth-1.3.6.1.4.1.40808.1.1.2
□	Microsoft Server EKU-1.3.6.1.5.5.7.3.1
☑	Microsoft Client EKU-1.3.6.1.5.5.7.3.2

▸ **Cleanup**

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