Total Network Configuration: RV345P and Cisco Business Wireless using the Mobile Application

Objective

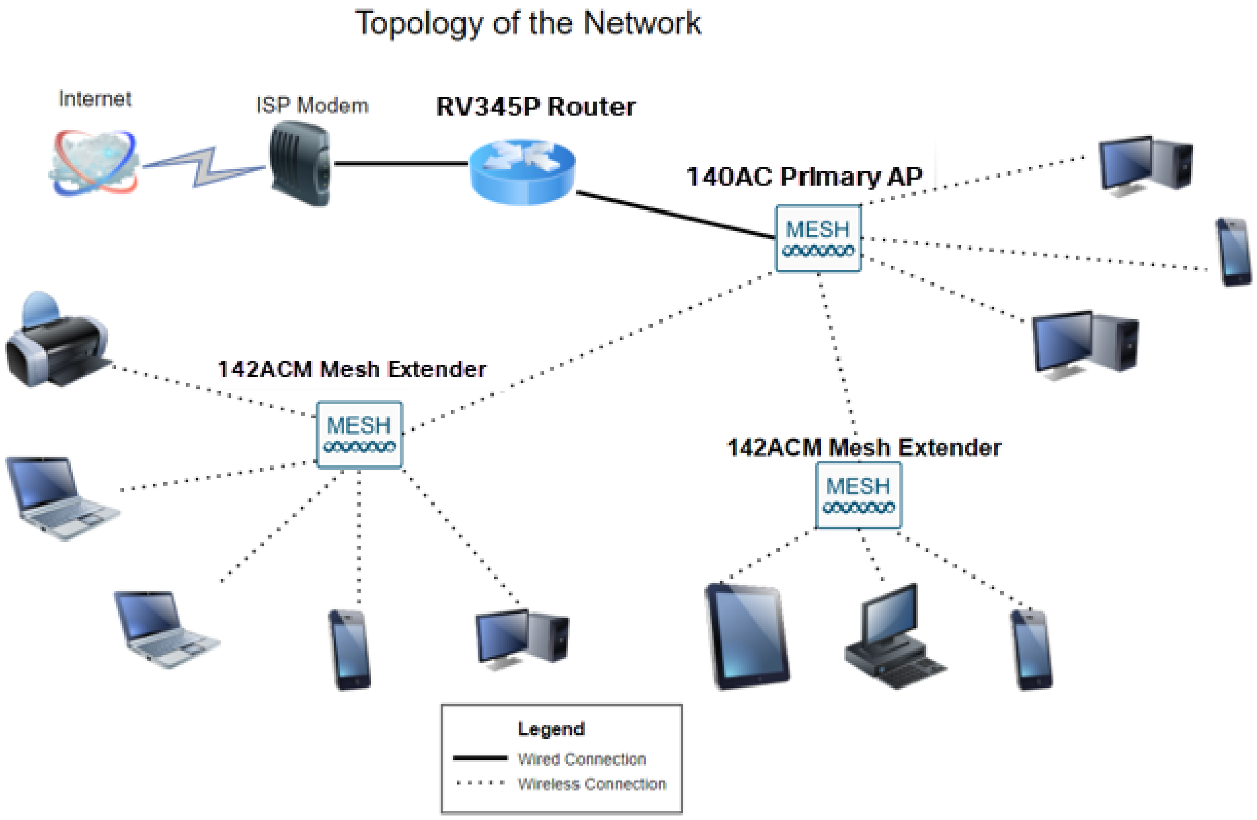
This guide will show you how to configure a wireless mesh network using an RV345P router, a CBW140AC access point, and two CBW142ACM mesh extenders.

This article uses the mobile application, which is recommended for simple set up on the mesh wireless network. If you prefer to use the Web User Interface (UI) for all configurations, click to jump to the article that uses the Web UI.

Table of Contents

- Check and Update Software Using the Mobile Application
- Create WLANs on the Mobile Application
- Create a Guest WLAN using the Mobile Application (Optional)

Topology



Introduction

All of your research has come together and you have purchased your Cisco equipment, how exciting! In this scenario, we are using an RV345P router. This router provides Power over Ethernet (PoE) which allows you to plug the CBW140AC into the router instead of a switch. The CBW140AC and the CBW142ACM mesh extenders will be used to create a wireless mesh network.

This advanced router also gives the option for additional features.

1. Application control allows you to control traffic. This feature can be configured to allow traffic but to log it, block traffic and log it, or simply to block traffic.
2. Web Filtering is used to prevent web traffic to insecure or inappropriate web sites. There is no logging with this feature.
3. AnyConnect is a Secure Sockets Layer (SSL) Virtual Private Network (VPN) that is available from Cisco. VPNs allow remote users and sites to connect to your company office or datacenters by making a secure tunnel through the Internet.

If you want to use these features, you will need to purchase a license. Routers and licenses are registered online, which will be covered in this guide.

If you are unfamiliar with some of the terms used in this document or want more details about Mesh Networking, check out the following articles:

- Cisco Business: Glossary of New Terms
- Welcome to Cisco Business Wireless Mesh Networking
- Frequently Asked Questions (FAQ) for a Cisco Business Wireless Network

Applicable Devices | Software Version

- RV345P | 1.0.03.21
- CBW140AC | 10.4.1.0
- CBW142ACM | 10.4.1.0 (at least one mesh extender is needed for the mesh network)

Prerequisites

Prepare the Router

1. Make sure you have a current Internet connection for setup.
2. Contact your Internet Service Provider (ISP) to find out any special instructions they have when using your RV345P router. Some ISPs offer gateways with built-in routers. If you have a gateway with an integrated router, you may have to disable the router and pass the Wide Area Network (WAN) IP address (the unique Internet protocol address that the Internet provider assigns to your account) and all network traffic through to your new router.
3. Decide where to place the router. You will want an open area if possible. This may not be easy because you must connect the router to the broadband gateway (modem) from your Internet Service Provider (ISP).

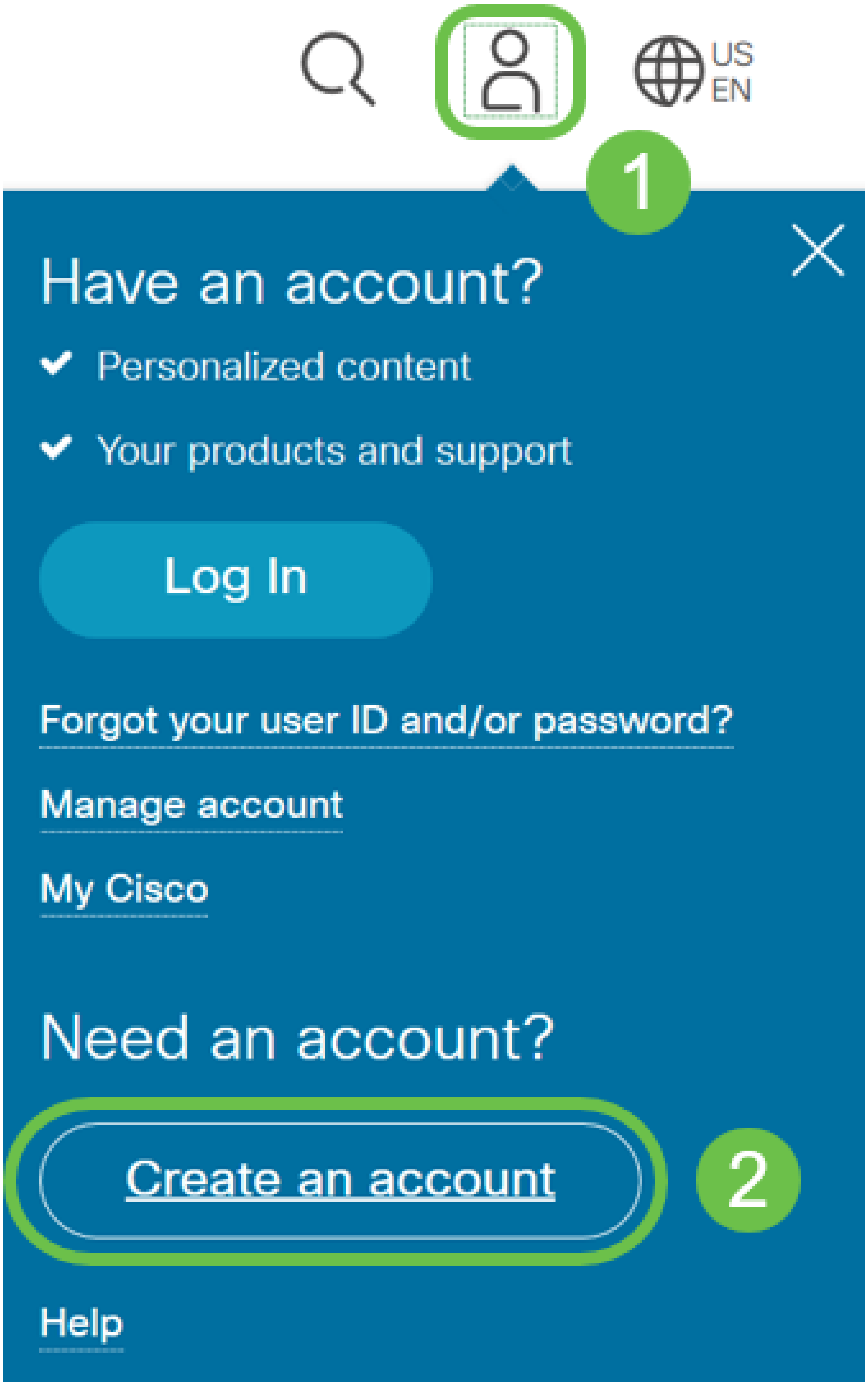
Obtain a Cisco.com Account

Now that you own Cisco equipment, you need to get a Cisco.com Account, sometimes referred to as a Cisco Connection Online Identification (CCO ID). There is no charge for an account.

If you already have an account, you can jump to the next section of this article.

Step 1

Go to **Cisco.com**. Click the **person icon** and then **Create an account**.



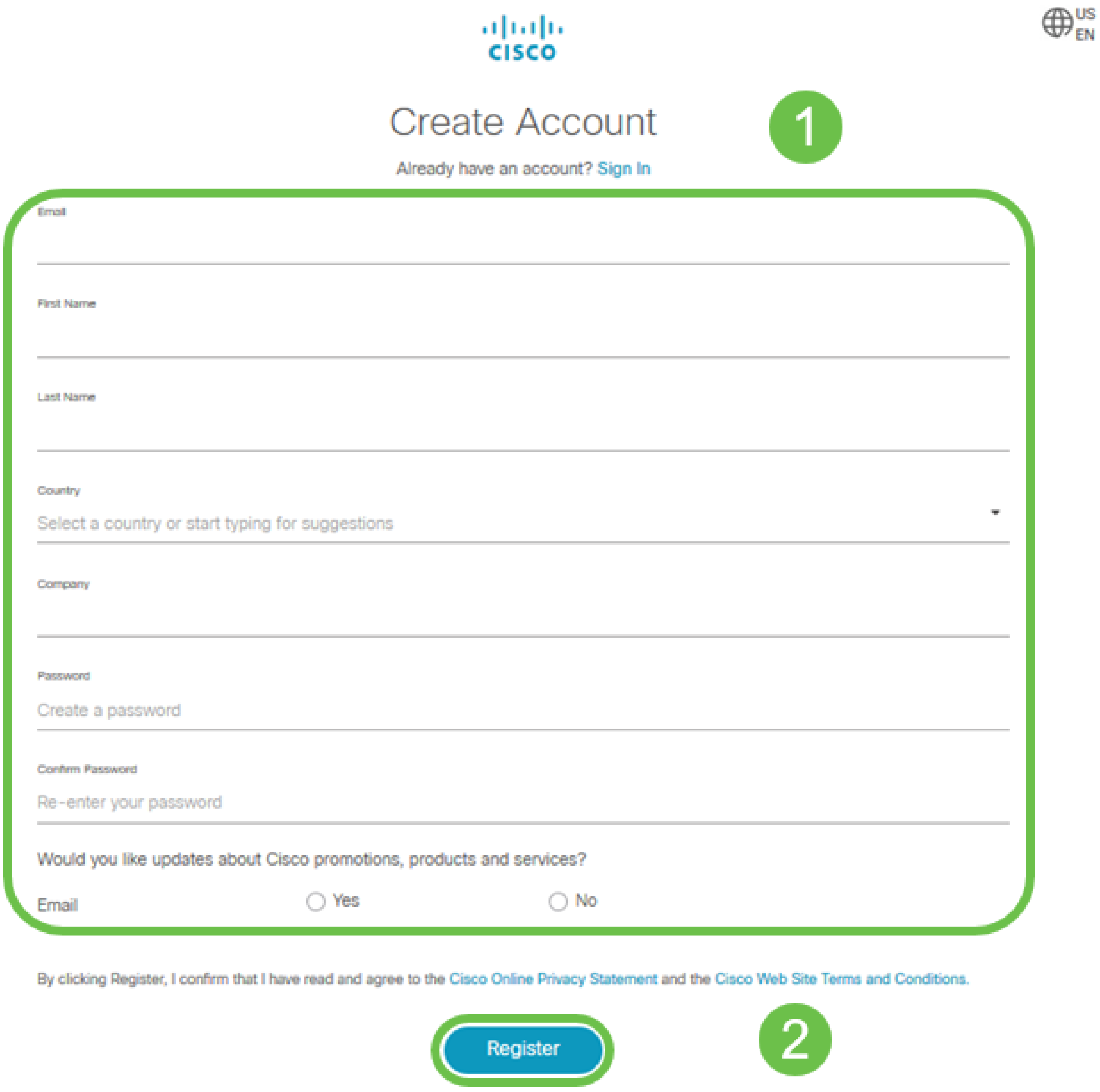
Have an account?

- ✓ Personalized content
- ✓ Your products and support

Need an account?

Step 2

Enter the required details to create the account and click **Register**. Follow the instructions to complete the registration process.



Create Account

Already have an account? Sign In

Email

First Name

Last Name

Country
Select a country or start typing for suggestions

Company

Password
Create a password

Confirm Password
Re-enter your password

Would you like updates about Cisco promotions, products and services?

Email ○ Yes ○ No

By clicking Register, I confirm that I have read and agree to the Cisco Online Privacy Statement and the Cisco Web Site Terms and Conditions.

Register

If you have any issues, click to jump to the Cisco.com Account Registration Help Page.

Configure the RV345P Router

A router is essential in a network because it routes packets. It enables a computer to communicate with other computers that are not on the same network or subnet. A router accesses a routing table to determine where packets should be sent. The routing table lists destination addresses. Static and dynamic configurations can both be listed on the routing table in order to get packets to their specific destination.

Your RV345P comes with default settings that are optimized for many small businesses. However, your network demands, or Internet Service Provider (ISP) might require you to modify a few of these settings. After you contact your ISP for the requirements, you can make changes using the Web User Interface (UI).

Are you ready? Let’s get to it!

RV345P Out of the Box

Step 1

Connect the Ethernet cable from one of the RV345P LAN (Ethernet) ports to the Ethernet port on the computer. You will need an adapter if your computer doesn’t have an Ethernet port. The terminal must be in the same wired subnetwork as the RV345P to perform the initial configuration.

Step 2

Be sure to use the power adapter that is supplied with the RV345P. Using a different power adapter could damage the RV345P or cause USB dongles to fail. The power switch is on by default.

Connect the power adapter to the 12VDC port of the RV345P, but don’t plug it into power yet.

Step 3

Make sure the modem is turned off.

Step 4

Use an Ethernet cable to connect your cable or DSL modem to the WAN port on the RV345P.

Step 5

Plug the other end of the RV345P adapter into an electrical outlet. This will power on the RV345P. Plug the modem back in so it can power up as well. The power light on the front panel is solid green when the power adapter is connected properly, and the RV345P is finished booting.

Set Up the Router

The prep work is done, now it’s time to get to some configurations! To launch the Web UI, follow these steps.

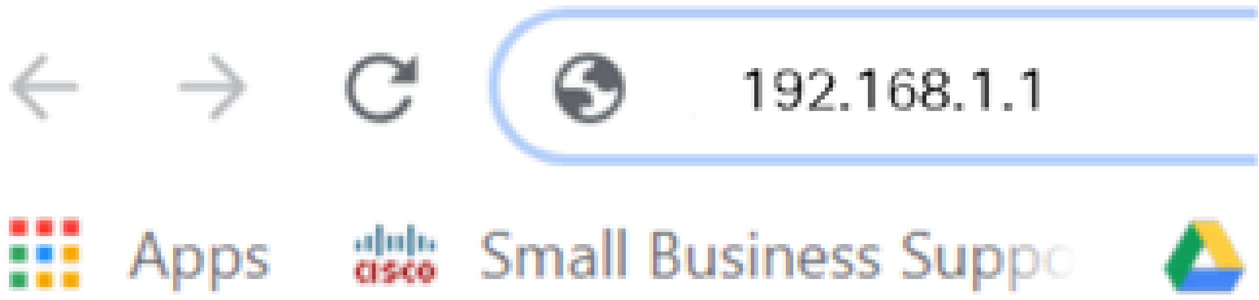
Step 1

If your computer is configured to become a Dynamic Host Configuration Protocol (DHCP) client, an IP address in the 192.168.1.x range is assigned to the PC. DHCP automates the process of assigning IP addresses, subnet masks, default gateways, and other settings to computers. Computers must be set to participate in the DHCP process to obtain an address. This is done by selecting to obtain an IP address automatically in the properties of TCP/IP on the computer.

Step 2

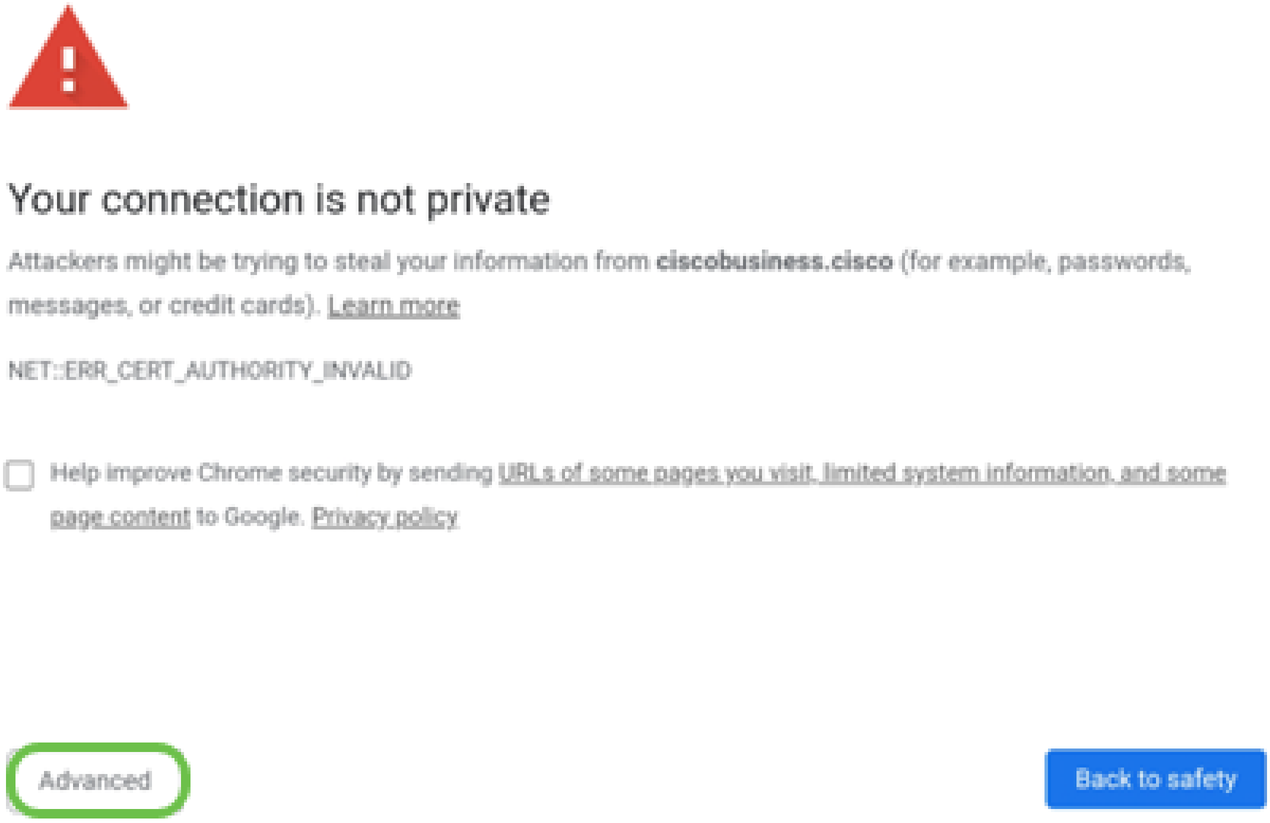
Open a web browser such as Safari, Internet Explorer, or Firefox. In the address bar, enter the default

IP address of the RV345P, 192.168.1.1.



Step 3

The browser might issue a warning that the website is untrusted. Continue to the website. If you are not connected, jump down to [Troubleshooting the Internet Connection].



Your connection is not private

Attackers might be trying to steal your information from **ciscobusiness.cisco** (for example, passwords, messages, or credit cards). Learn more

NET::ERR_CERT_AUTHORITY_INVALID

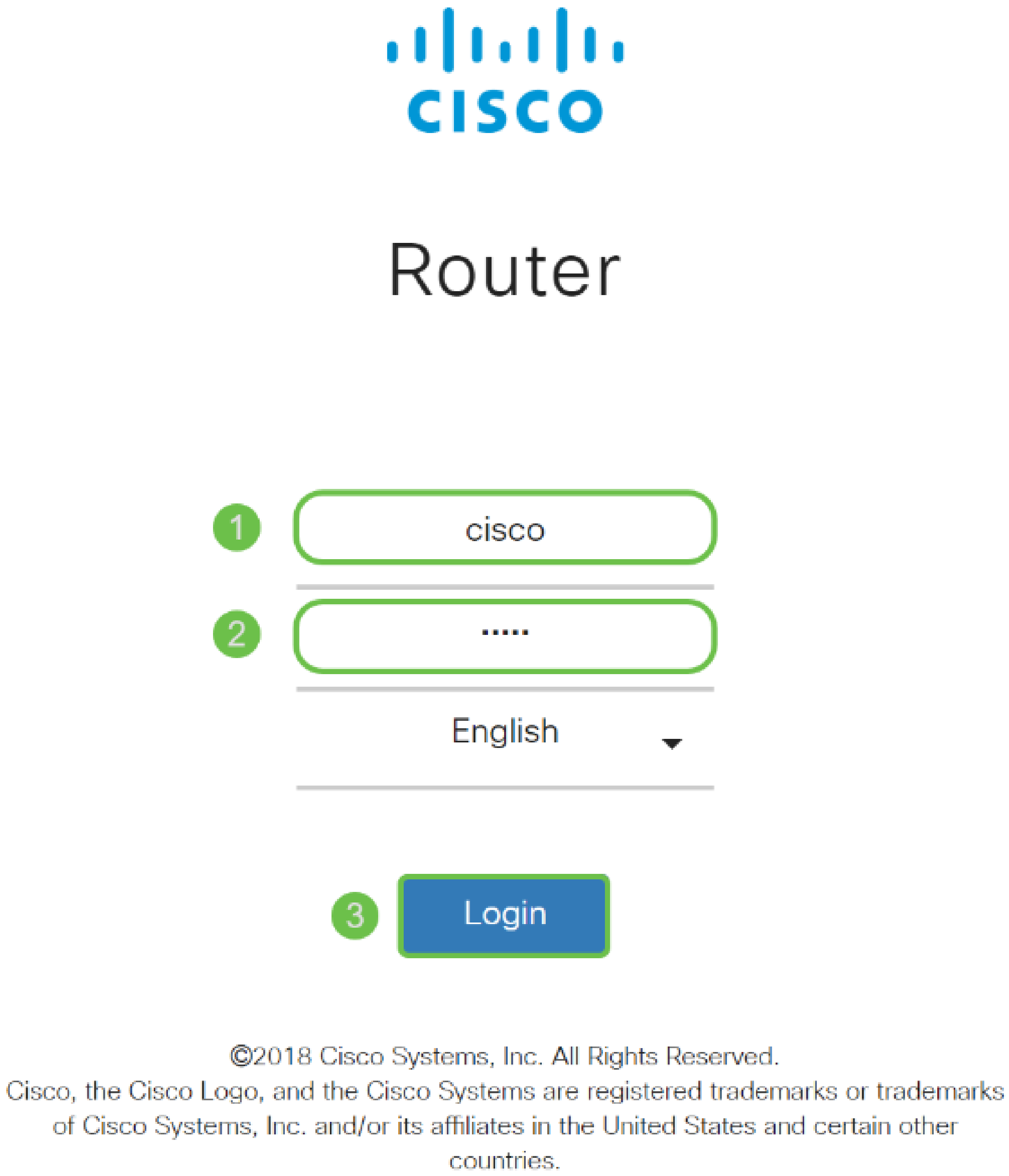
□ Help improve Chrome security by sending URLs of some pages you visit, limited system information, and some page content to Google. Privacy policy

Step 4

When the sign-in page appears, enter the default username *cisco* and the default password *cisco*.

Click **Login**.

For detailed information, click **How to access the web-based setup page of Cisco RV340 series VPN routers**.



Router

cisco

······

English

Login

Step 5

Click **Login**. The *Getting Started* page appears. If the navigation pane isn't open, you can open it by clicking on the **menu icon**.

Now that you have confirmed the connection and logged in to the router, jump to the Initial Configuration section of this article.

Troubleshooting the Internet Connection

Dang it, if you are reading this you are probably having trouble connecting to the Internet or the Web UI. One of these solutions should help.

On your connected Windows OS, you can test your network connection by opening the command prompt. Enter **ping 192.168.1.1** (the default IP address of the router). If the request times out, you are not able to communicate with the router.

If connectivity is not happening, you can check out this Troubleshooting article.

Some other things to try:

1. Verify that your web browser is not set to Work Offline.

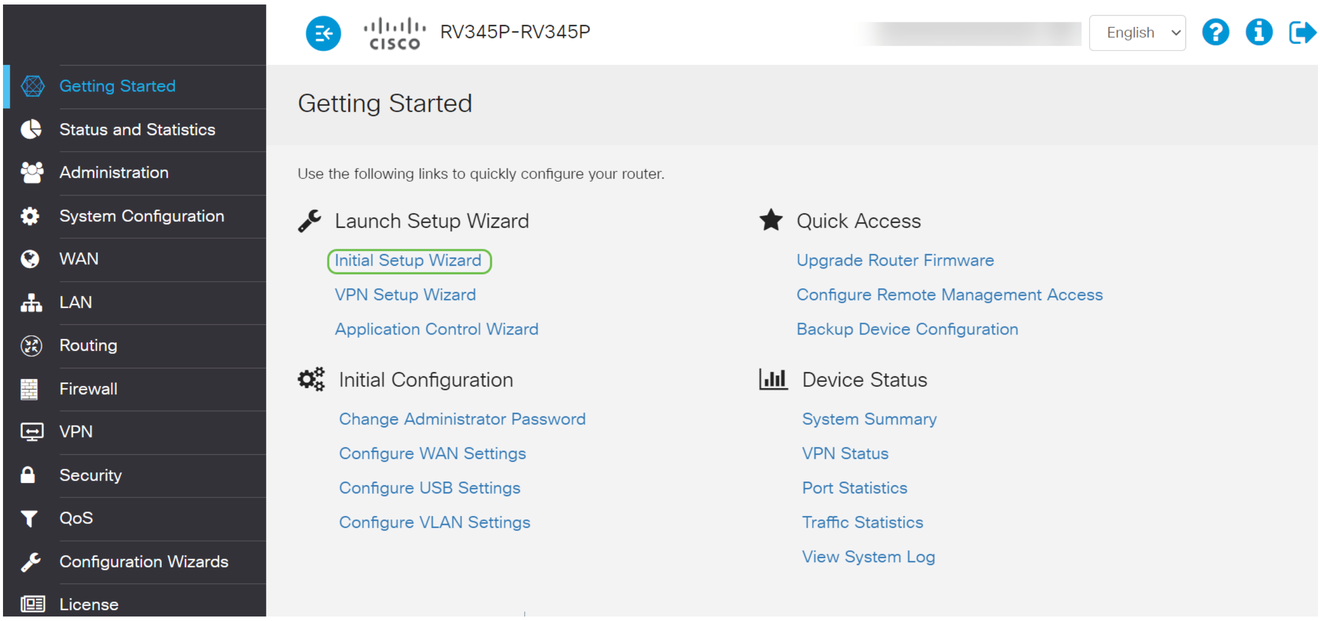
2. Check the local area network connection settings for your Ethernet adapter. The PC should obtain an IP address through DHCP. Alternatively, the PC can have a static IP address in the 192.168.1.x range with the default gateway set to 192.168.1.1 (the default IP address of the RV345P). To connect, you may need to modify the network settings of the RV345P. If you are using Windows 10, check out **Windows 10 directions to modify the network settings**.
3. If you have existing equipment occupying the 192.168.1.1 IP address, you'll need to resolve this conflict for the network to operate. More on this at the end of this section, or click here to be taken there directly.
4. Reset the modem and the RV345P by powering off both devices. Next, power on the modem and let it sit idle for about 2 minutes. Then power on the RV345P. You should now receive a WAN IP address.
5. If you have a DSL modem, ask your ISP to put the DSL modem into bridge mode.

Initial Configuration

We recommend that you go through the *Initial Setup Wizard* steps listed in this section. You can change these settings at any time.

Step 1

Click **Initial Setup Wizard** from the *Getting Started* Page.



Getting Started

Use the following links to quickly configure your router.

Launch Setup Wizard
- Initial Setup Wizard
- VPN Setup Wizard
- Application Control Wizard

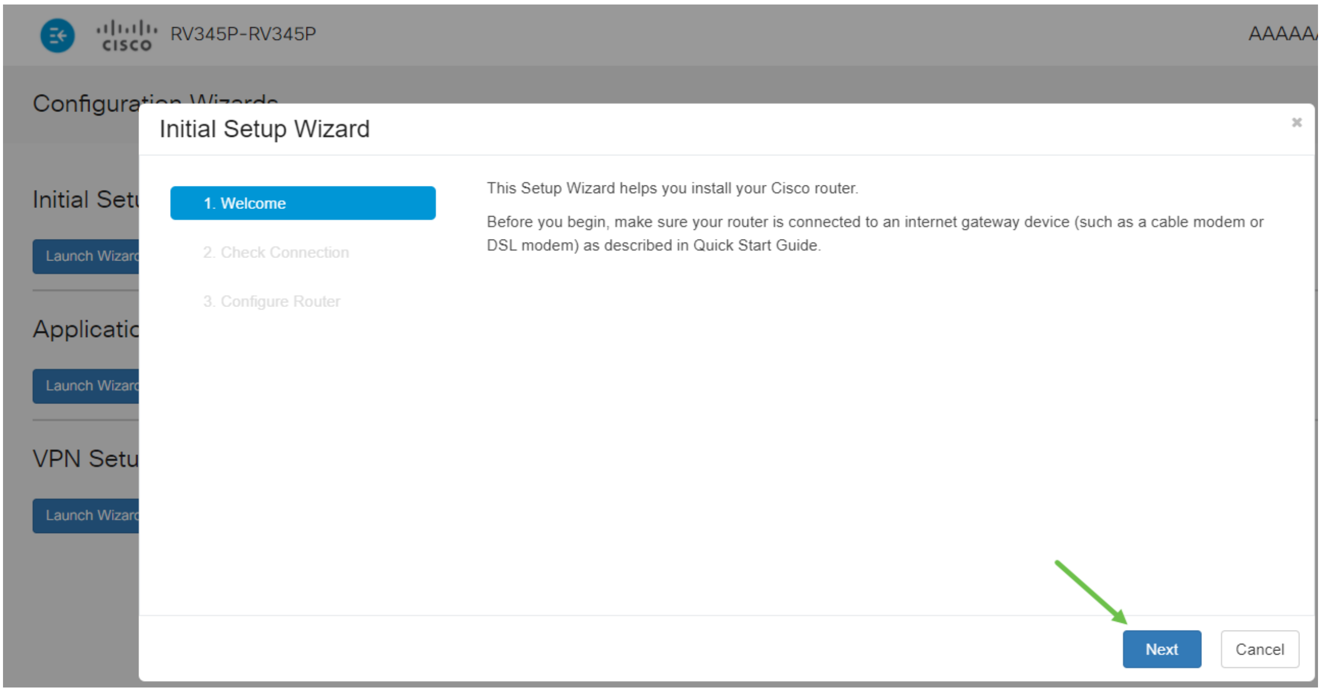
Quick Access
- Upgrade Router Firmware
- Configure Remote Management Access
- Backup Device Configuration

Initial Configuration
- Change Administrator Password
- Configure WAN Settings
- Configure USB Settings
- Configure VLAN Settings

Device Status
- System Summary
- VPN Status
- Port Statistics
- Traffic Statistics
- View System Log

Step 2

This step confirms the cables are connected. Since you confirmed this already, click **Next**.

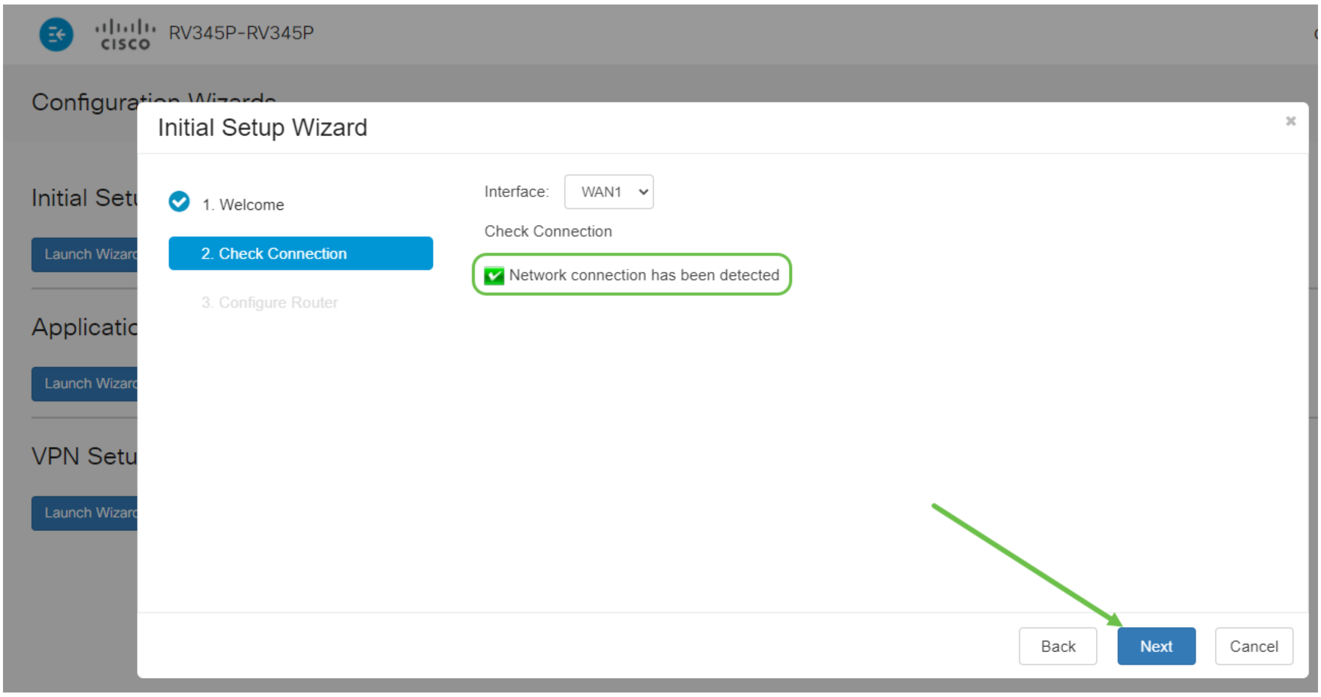


This Setup Wizard helps you install your Cisco router.

Before you begin, make sure your router is connected to an internet gateway device (such as a cable modem or DSL modem) as described in Quick Start Guide.

Step 3

This step covers basic steps to make sure your router is connected. Since you have already confirmed this, click **Next**.



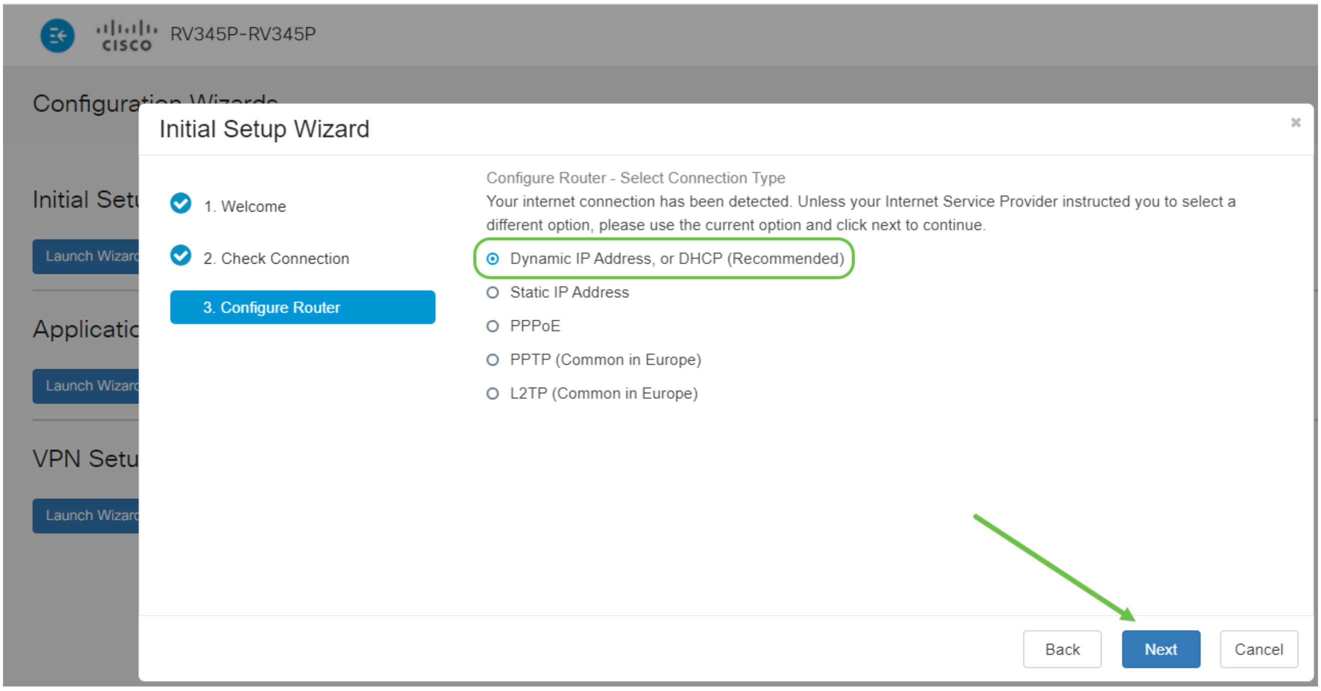
Interface: WAN1

Check Connection

✓ Network connection has been detected

Step 4

The next screen displays your options for assigning IP addresses to your router. You need to select DHCP in this scenario. Click **Next**.



RV345P-RV345P

Configuration Wizards

Initial Setup Wizard

✓ 1. Welcome

✓ 2. Check Connection

3. Configure Router

Configure Router - Select Connection Type

Your internet connection has been detected. Unless your Internet Service Provider instructed you to select a different option, please use the current option and click next to continue.

● Dynamic IP Address, or DHCP (Recommended)

○ Static IP Address

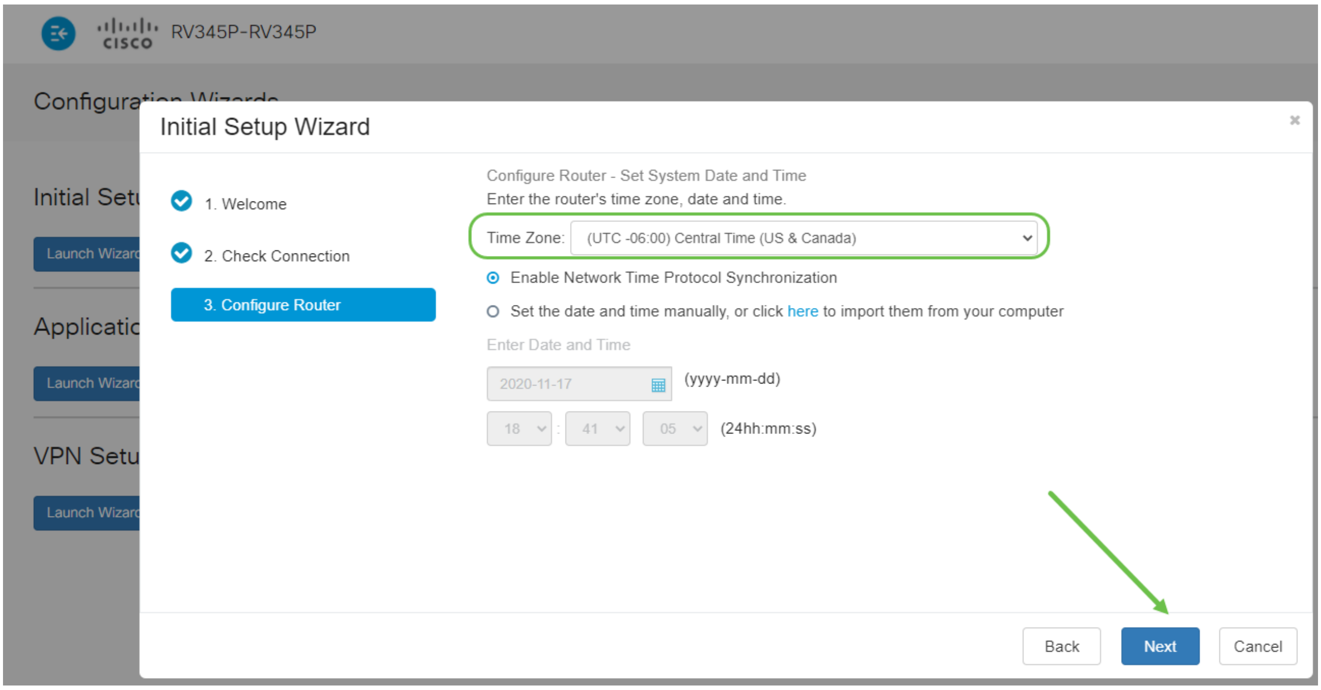
○ PPPoE

○ PPTP (Common in Europe)

○ L2TP (Common in Europe)

Step 5

You will be prompted to set your router time settings. This is important because it enables precision when reviewing logs or troubleshooting events. Select your **Time Zone** and then click **Next**.



RV345P-RV345P

Configuration Wizards

Initial Setup Wizard

✓ 1. Welcome

✓ 2. Check Connection

3. Configure Router

Configure Router - Set System Date and Time

Enter the router's time zone, date and time.

Time Zone: (UTC -06:00) Central Time (US & Canada)

● Enable Network Time Protocol Synchronization

○ Set the date and time manually, or click here to import them from your computer

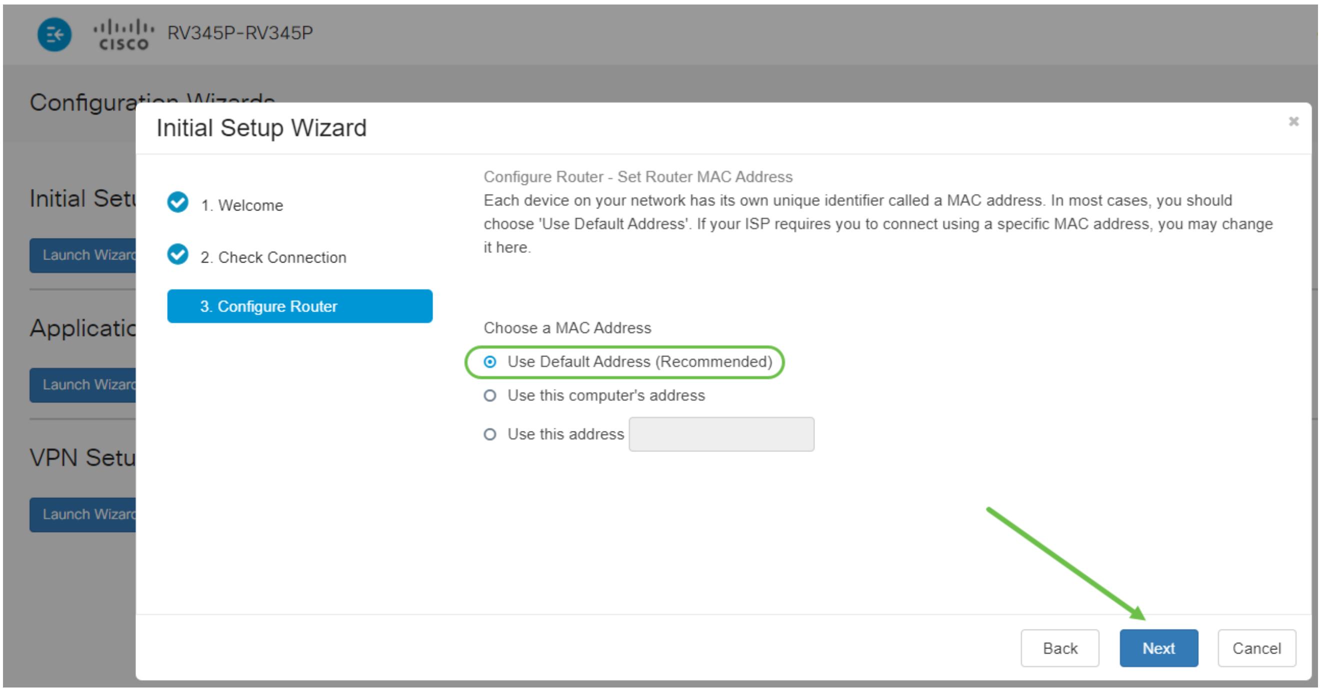
Enter Date and Time

2020-11-17 (yyyy-mm-dd)

18 : 41 : 05 (24hh:mm:ss)

Step 6

You will select what MAC addresses to assign to devices. Most often, you will use the default address. Click **Next**.



Configure Router - Set Router MAC Address

Each device on your network has its own unique identifier called a MAC address. In most cases, you should choose 'Use Default Address'. If your ISP requires you to connect using a specific MAC address, you may change it here.

Choose a MAC Address

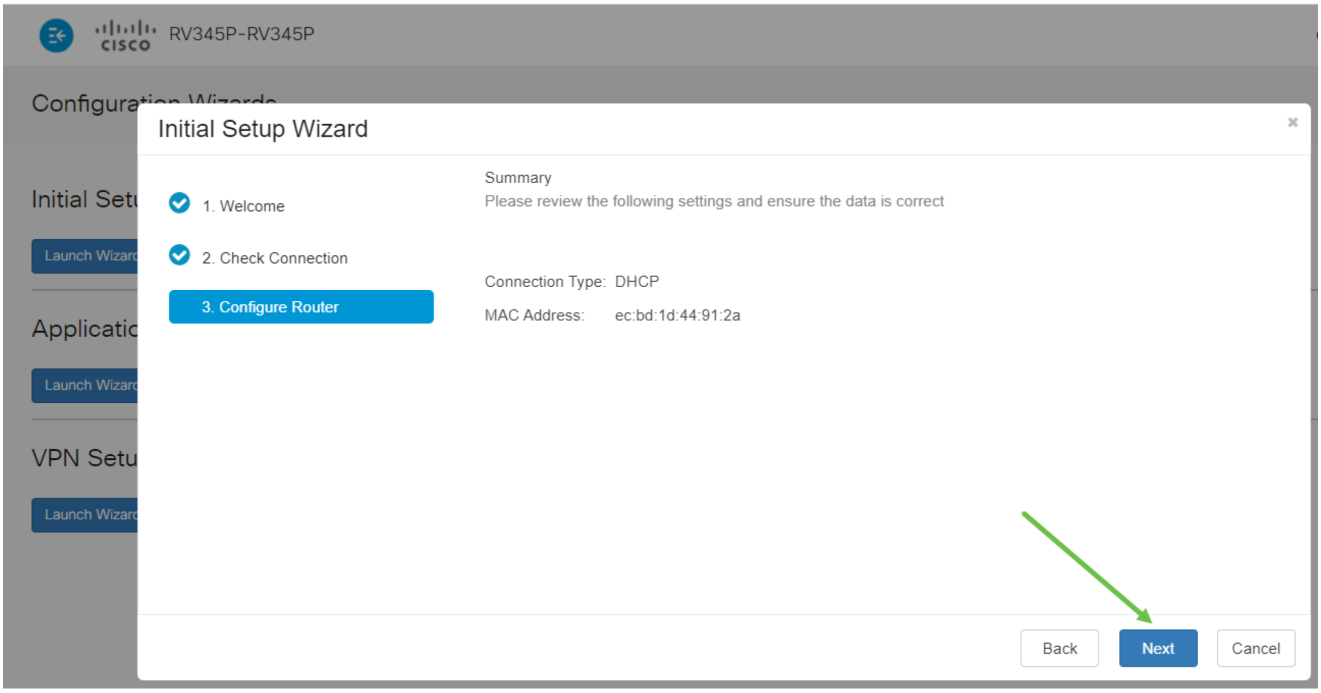
● Use Default Address (Recommended)

○ Use this computer's address

○ Use this address

Step 7

The following page is a summary of the selected options. Review and click **Next** if satisfied.



Summary

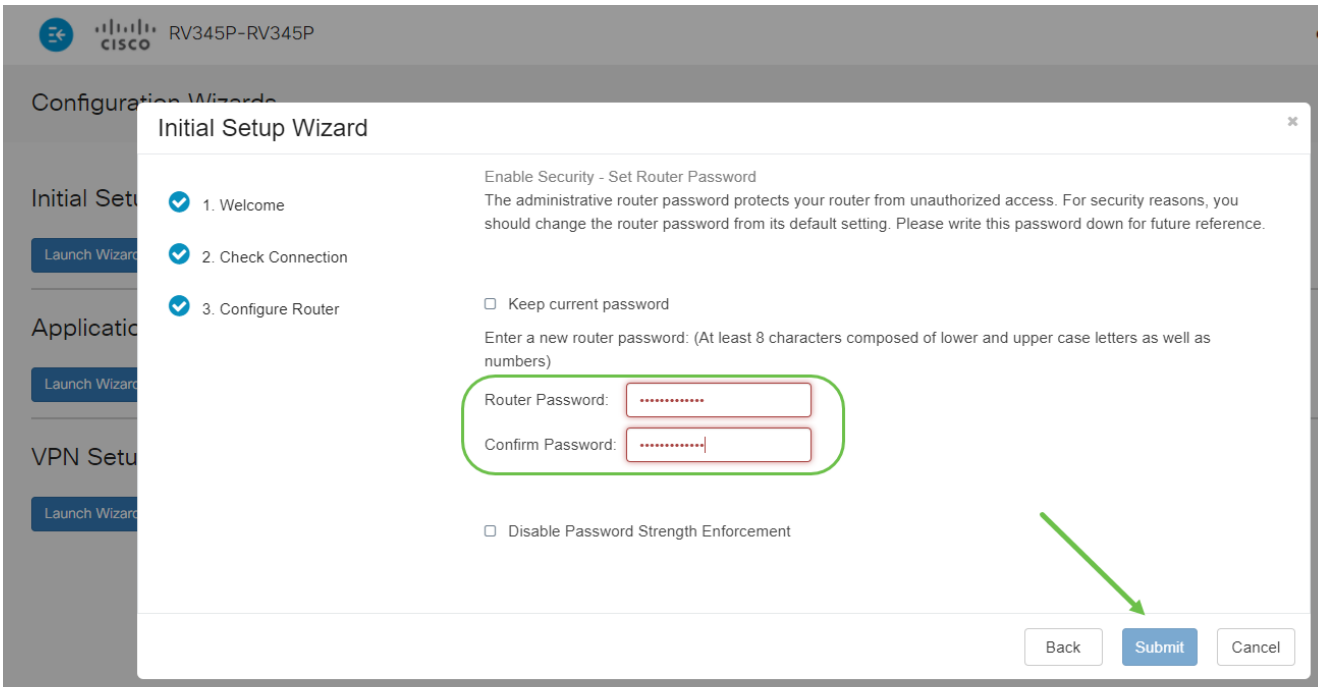
Please review the following settings and ensure the data is correct

Connection Type: DHCP

MAC Address: ec:bd:1d:44:91:2a

Step 8

For the next step, you will select a password to use when logging into the router. The standard for passwords is to contain at least 8 characters (both upper and lower case) and include numbers. **Enter a password** that conforms with the strength requirements. Click **Next**. Take note of your password for future logins.



Initial Setup Wizard

1. Welcome
2. Check Connection
3. Configure Router

Enable Security - Set Router Password

The administrative router password protects your router from unauthorized access. For security reasons, you should change the router password from its default setting. Please write this password down for future reference.

□ Keep current password

Enter a new router password: (At least 8 characters composed of lower and upper case letters as well as numbers)

Router Password: ••••••••••••••

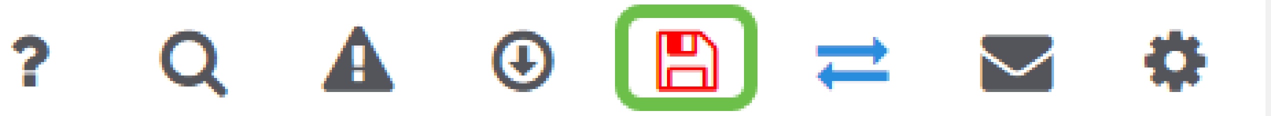
Confirm Password: ••••••••••••••

□ Disable Password Strength Enforcement

It is *not* recommended that you select Disable *Password Strength Enforcement*. This option would let you select a password as simple as 123, which would be as easy as 1-2-3 for malicious actors to crack.

Step 9

Click the **save icon**.



If you want more information on these settings, you can read Configure DHCP WAN Settings on the RV34x Router.

Your RV345P has Power over Ethernet (PoE) enabled by default, but you have the ability to make some adjustments to them. If you need to customize the settings, check out Configure Power over Ethernet (PoE) Settings on the RV345P Router.

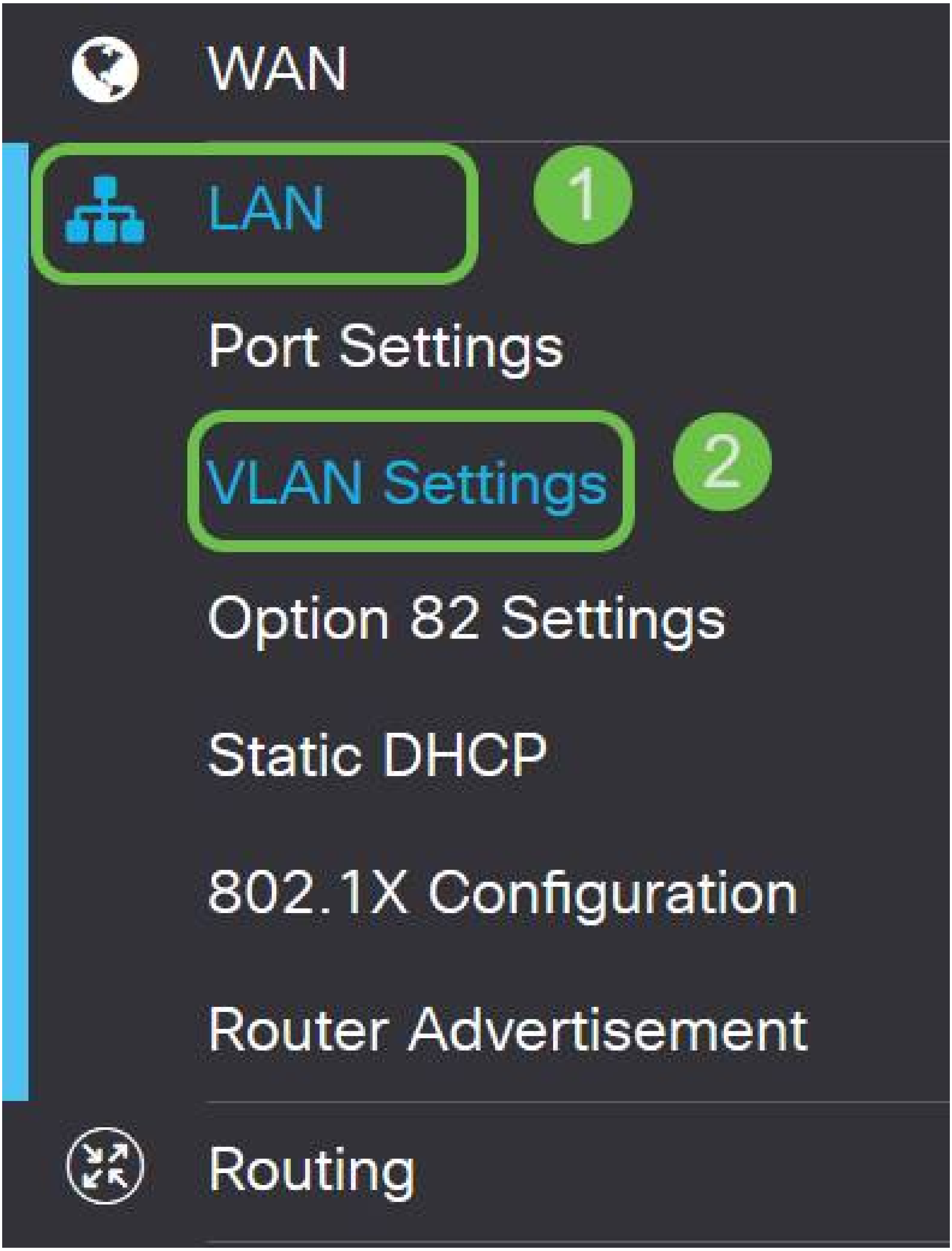
Edit an IP address If Necessary (Optional)

After completing the *Initial Setup Wizard*, you can set a static IP address on the router by editing the VLAN settings.

This process is only needed if your router IP address needs to be assigned a specific address in your existing network. If you don't need to edit an IP address, you can move to the next section of this article.

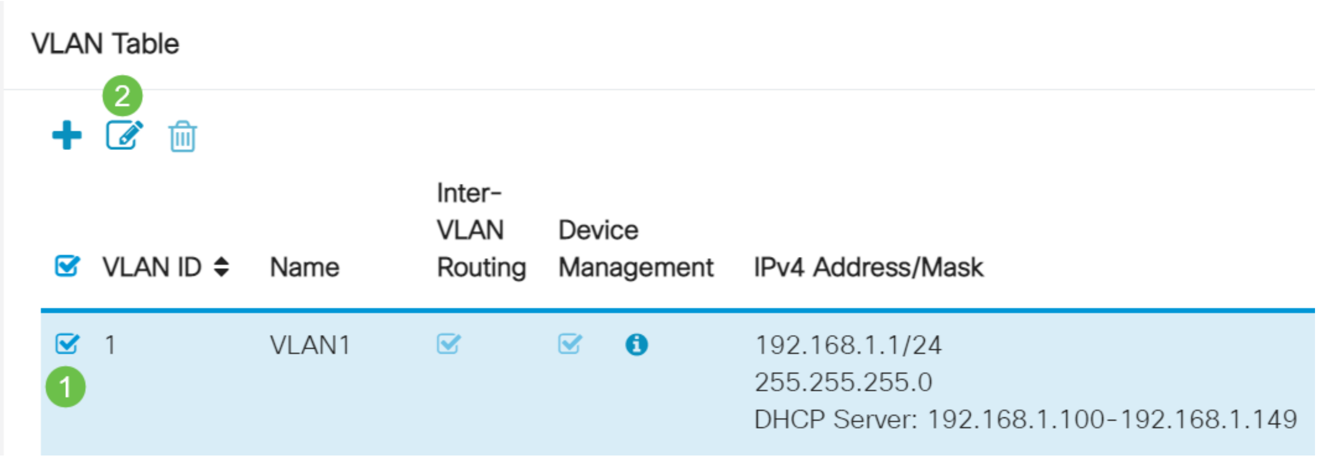
Step 1

On the left-hand menu, click **LAN** > **VLAN Settings**.



Step 2

Select the **VLAN** that contains your routing device, then click the **edit icon**.

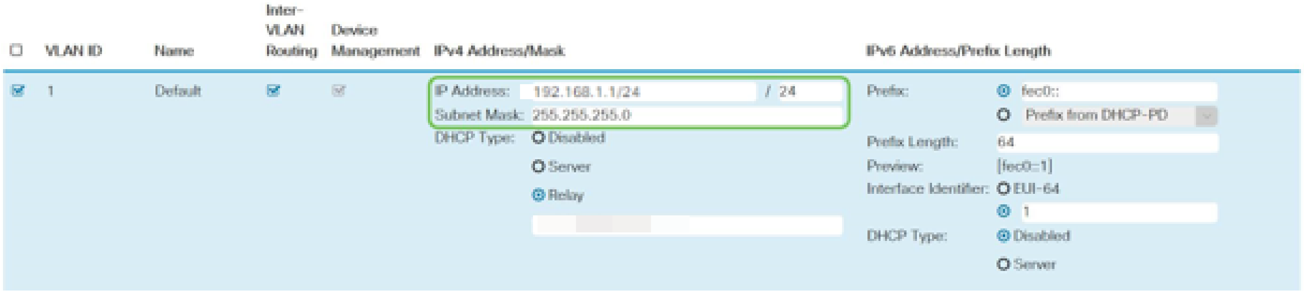


VLAN Table

☑	VLAN ID	Name	Inter-VLAN Routing	Device Management		IPv4 Address/Mask
☑	1	VLAN1	☑	☑	ℹ	192.168.1.1/24 255.255.255.0 DHCP Server: 192.168.1.100-192.168.1.149

Step 3

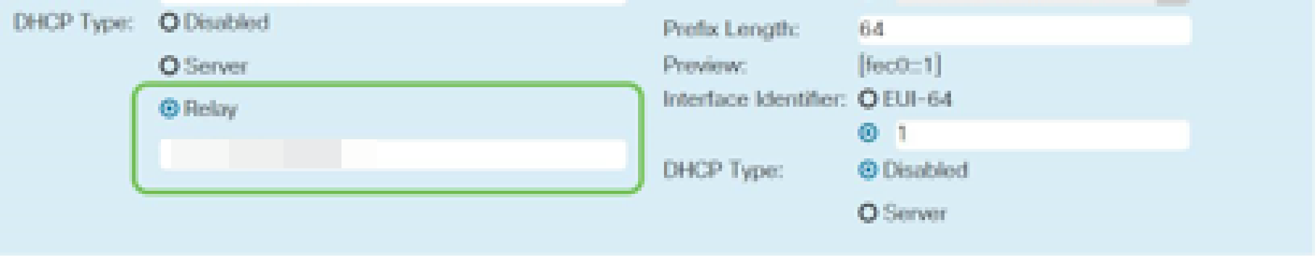
Enter your desired **static IP address** and click **Apply** in the upper-right hand corner.



□	VLAN ID	Name	Inter-VLAN Routing	Device Management	IPv4 Address/Mask	IPv6 Address/Prefix Length
☑	1	Default	☑	☑	IP Address: 192.168.1.1/24 / 24 Subnet Mask: 255.255.255.0 DHCP Type: ○ Disabled ○ Server ● Relay	Prefix: ● fec0:: ○ Prefix from DHCP-PD Prefix Length: 64 Preview: [fec0::1] Interface Identifier: ○ EUI-64 ● 1 DHCP Type: ● Disabled ○ Server

Step 4 (Optional)

If your router is not the DHCP server/device assigning IP addresses, you can use the DHCP Relay feature to direct DHCP requests to a specific IP address. The IP address is likely to be the router connected to the WAN/Internet.



DHCP Type: ○ Disabled
○ Server
● Relay

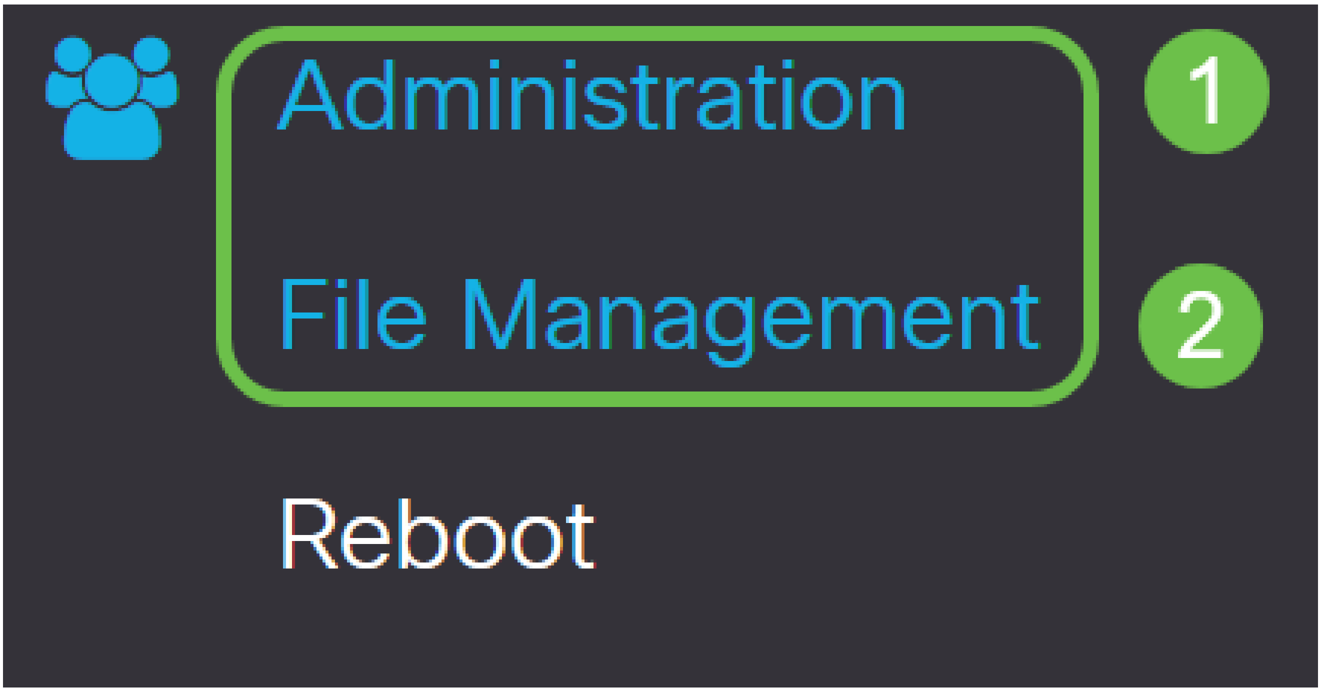
Prefix Length: 64
Preview: [fec0::1]
Interface Identifier: ○ EUI-64
● 1
DHCP Type: ● Disabled
○ Server

Upgrade Firmware if Needed

This is an important step, don’t skip it!

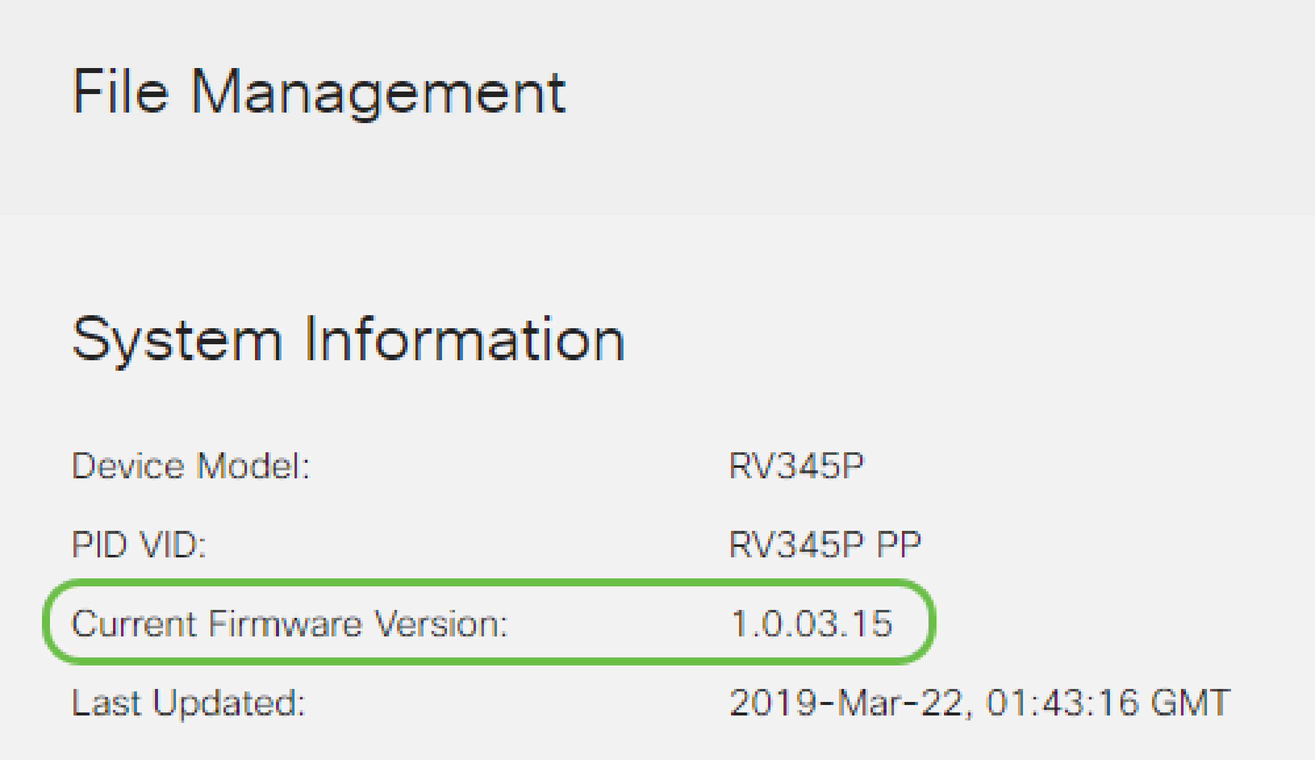
Step 1

Choose **Administration** > **File Management**.



In the *System Information* area, the following sub-areas describe the following:

- Device Model - Displays the model of your device.
- PID VID - Product ID and Vendor ID of the router.
- Current Firmware Version - Firmware that is currently running on the device.
- Latest Version Available on Cisco.com - Latest version of the software available on the Cisco website.
- Firmware last updated - Date and time of the last firmware update made on the router.


File Management

System Information

Device Model: RV345P

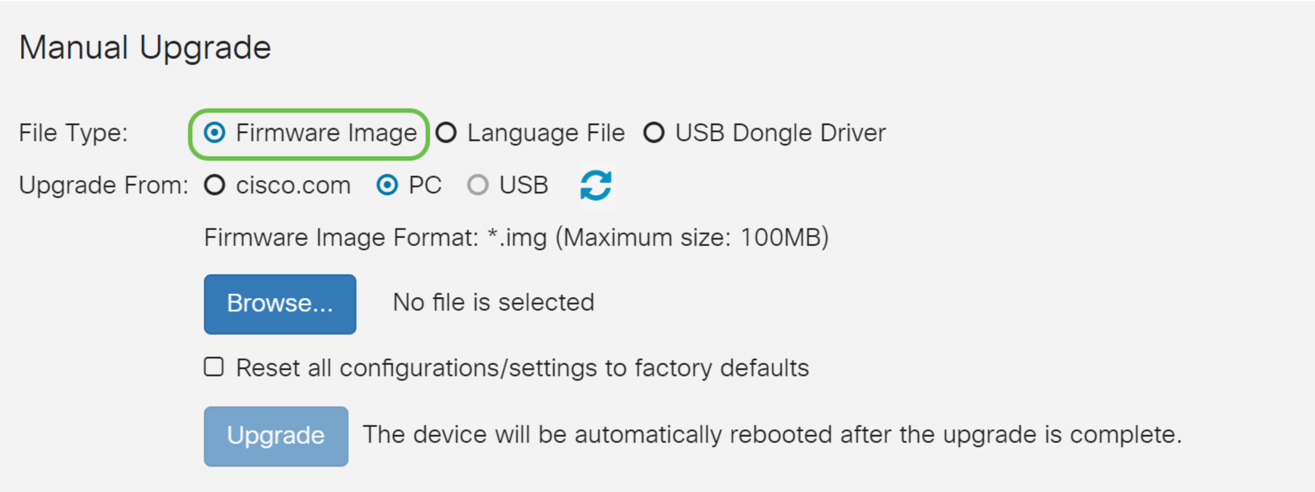
PID VID: RV345P PP

Current Firmware Version: 1.0.03.15

Last Updated: 2019-Mar-22, 01:43:16 GMT

Step 2

Under the *Manual Upgrade* section, click on the **Firmware Image** radio button for *File Type*.



Manual Upgrade

File Type: ● Firmware Image ○ Language File ○ USB Dongle Driver

Upgrade From: ○ cisco.com ● PC ○ USB

Firmware Image Format: *.img (Maximum size: 100MB)

Browse... No file is selected

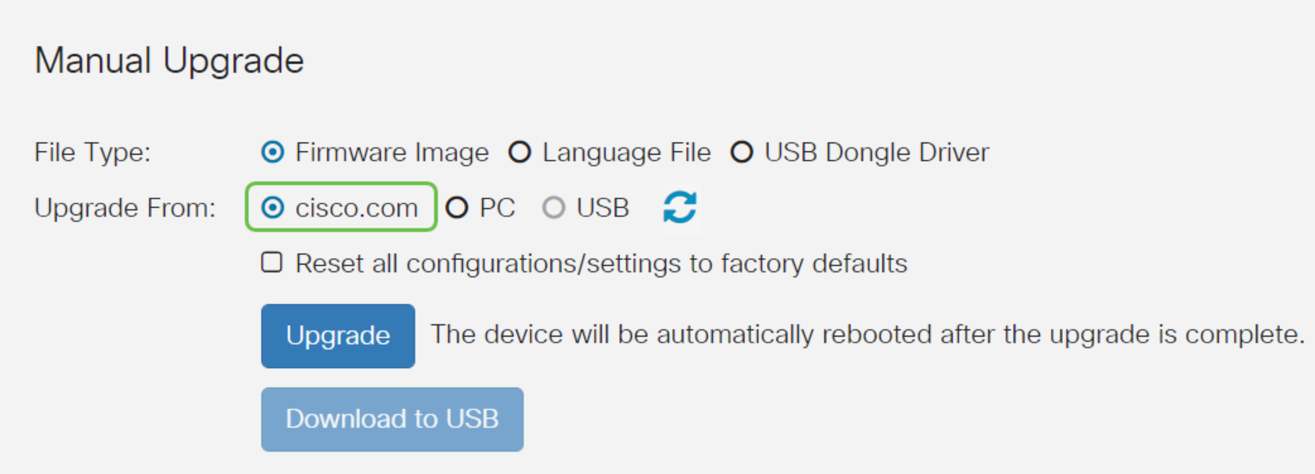
□ Reset all configurations/settings to factory defaults

Upgrade The device will be automatically rebooted after the upgrade is complete.

Step 3

On the *Manual Upgrade* page, click on the radio button to select *cisco.com*. There are a few other options for this, but this is the easiest way to do an upgrade. This process installs the latest upgrade file directly from the Cisco Software Downloads webpage.

If your device is not connected to the Internet or is suffering from Internet disconnections you will not be able to upgrade from cisco.com. If this pertains to you, alternative options can be found here.



Manual Upgrade

File Type: ● Firmware Image ○ Language File ○ USB Dongle Driver

Upgrade From: ● cisco.com ○ PC ○ USB

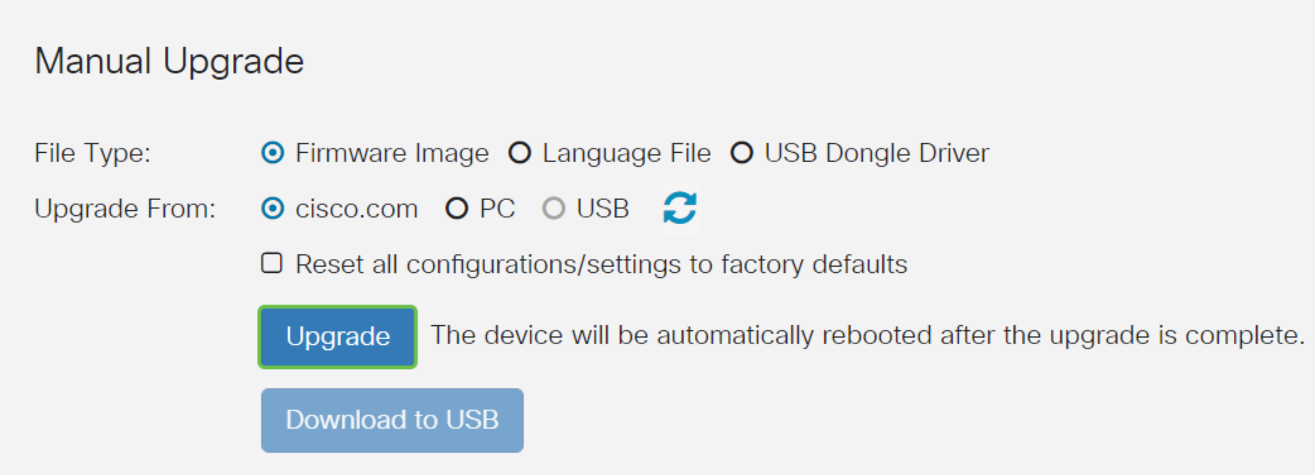
□ Reset all configurations/settings to factory defaults

Upgrade The device will be automatically rebooted after the upgrade is complete.

Download to USB

Step 4

Click **Upgrade**.



Manual Upgrade

File Type: ● Firmware Image ○ Language File ○ USB Dongle Driver

Upgrade From: ● cisco.com ○ PC ○ USB

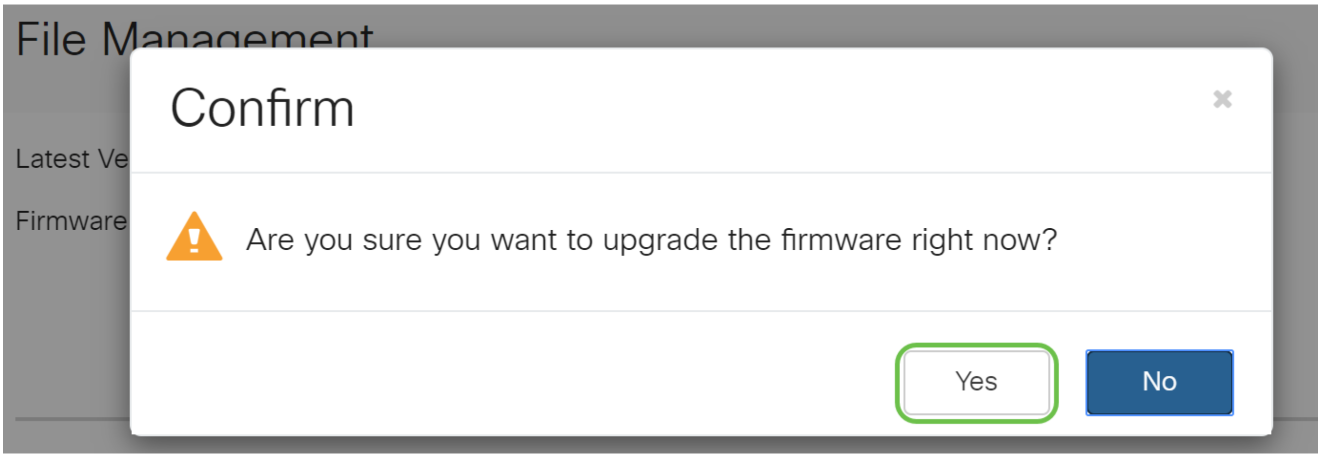
□ Reset all configurations/settings to factory defaults

Upgrade The device will be automatically rebooted after the upgrade is complete.

Download to USB

Step 5

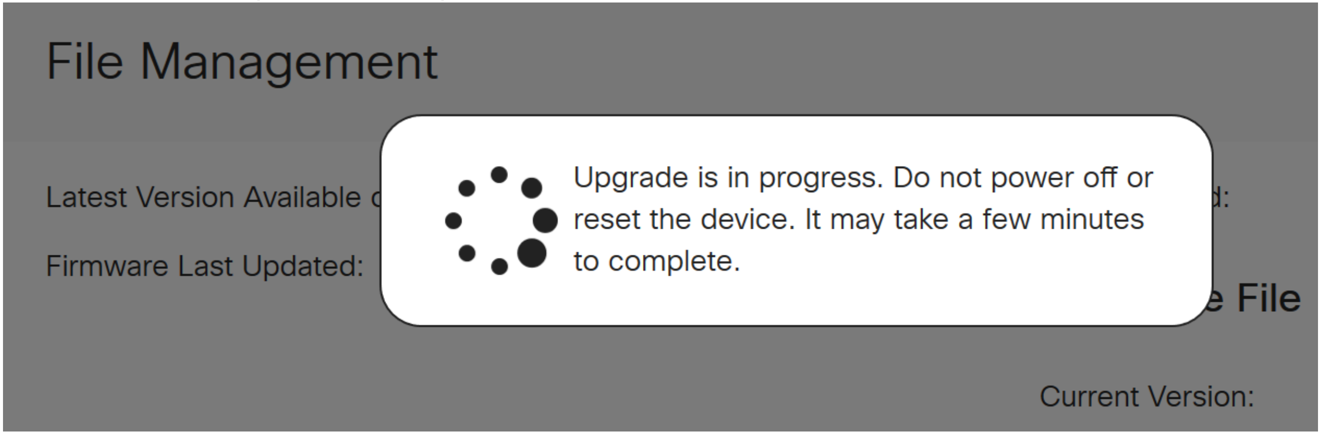
Click **Yes** in the confirmation window to continue.



Confirm

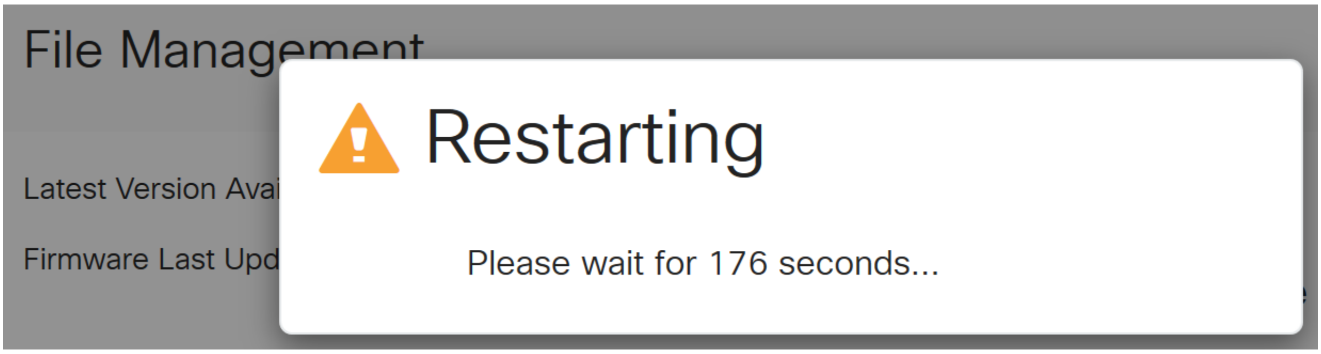
Are you sure you want to upgrade the firmware right now?

The update process needs to run without interruption. You will get the following message on the screen while the upgrade is in progress.



Upgrade is in progress. Do not power off or reset the device. It may take a few minutes to complete.

Once the upgrade has been completed, a notification window will pop-up to inform you that the router will be *Restarting* with a countdown of the estimated time for the process to finish. Following this, you will be logged out.

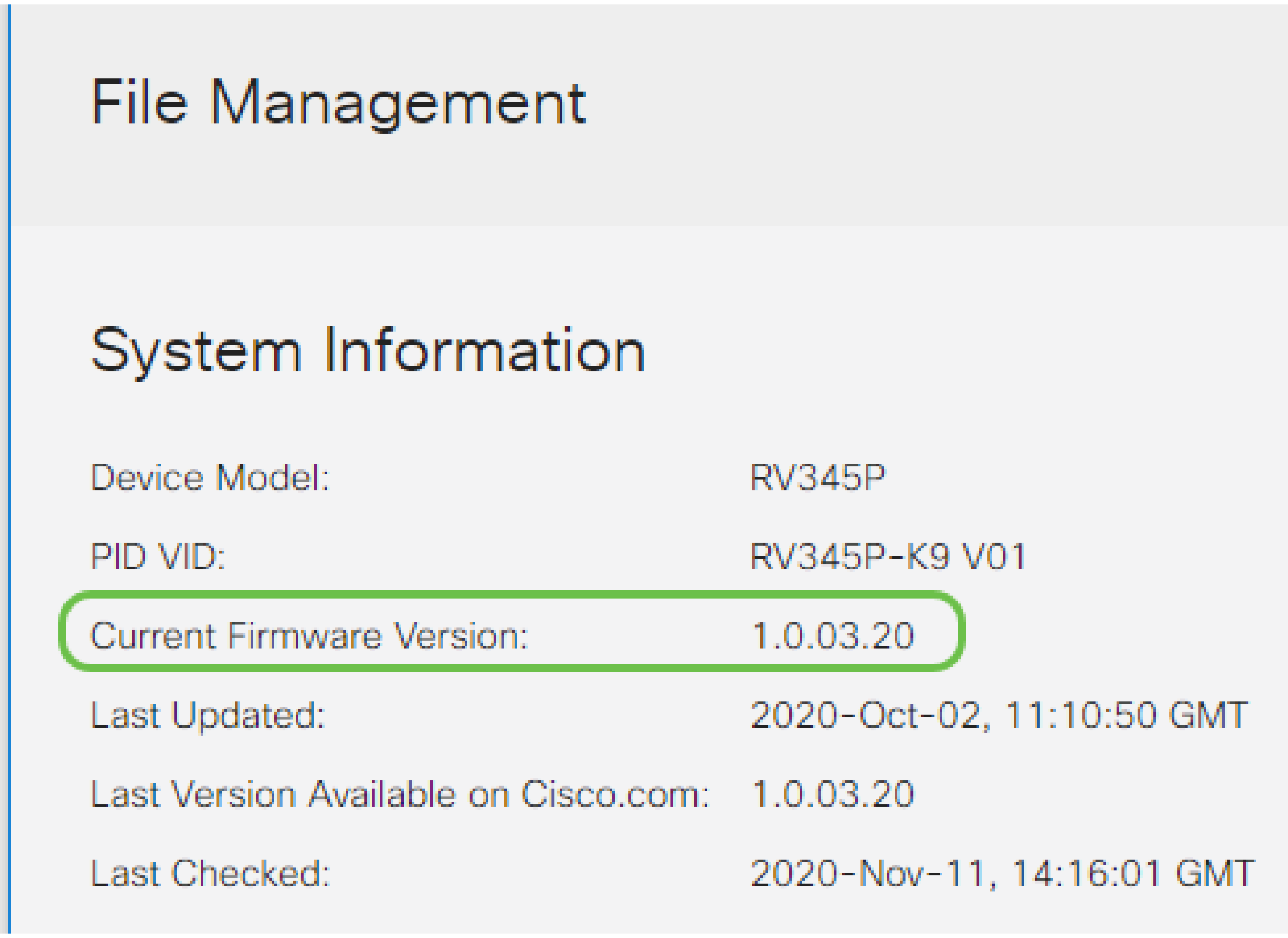


Restarting

Please wait for 176 seconds...

Step 6

Log back into the web-based utility to verify that the router firmware has been upgraded, scroll to *System Information*. The *Current Firmware Version* area should now display the upgraded firmware version.



File Management

System Information

Device Model: RV345P

PID VID: RV345P-K9 V01

Current Firmware Version: 1.0.03.20

Last Updated: 2020-Oct-02, 11:10:50 GMT

Last Version Available on Cisco.com: 1.0.03.20

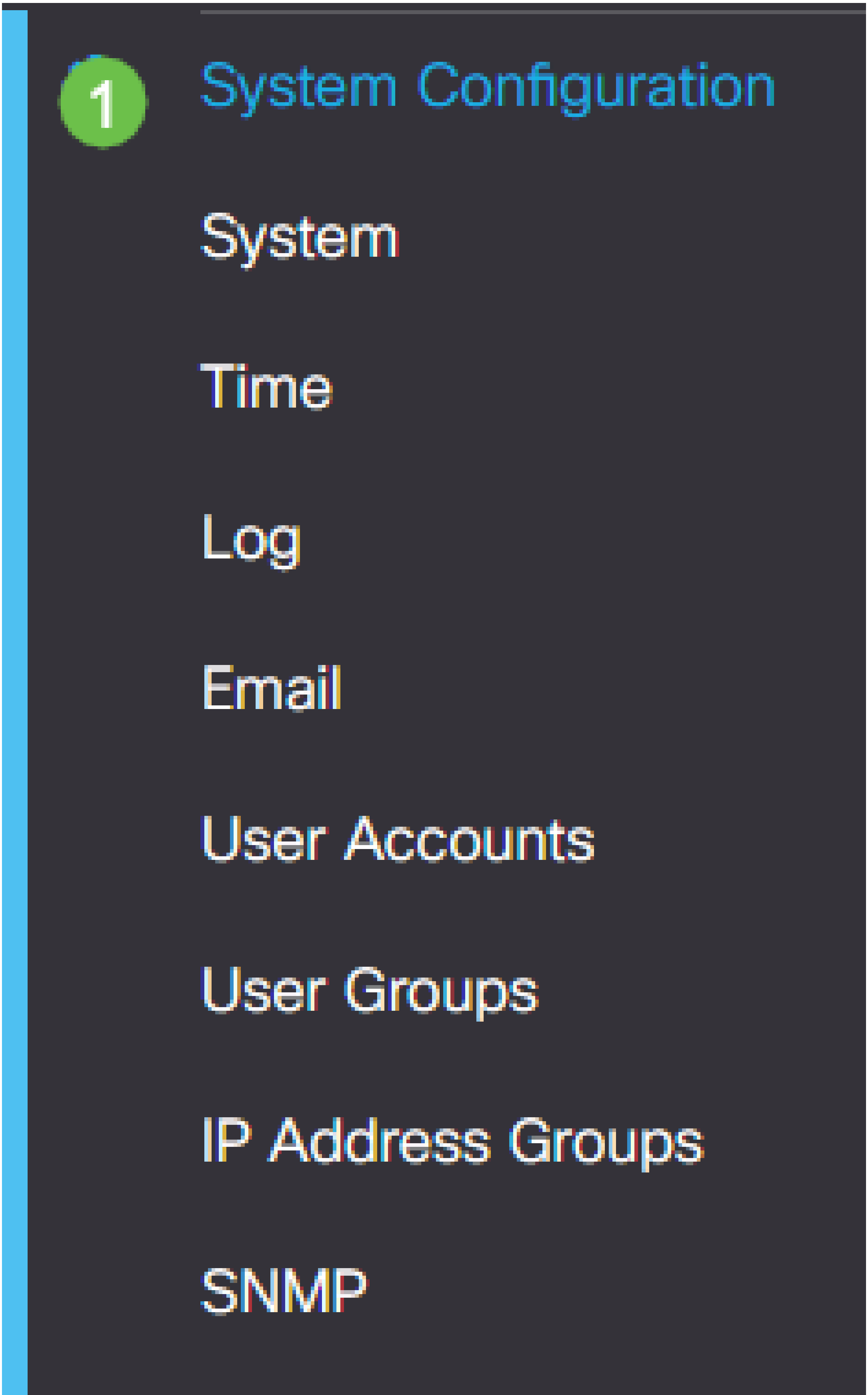
Last Checked: 2020-Nov-11, 14:16:01 GMT

Configure Automatic Updates on the RV345P Series Router

Since updates are so important and you are a busy person, it makes sense to configure automatic updates from here on out!

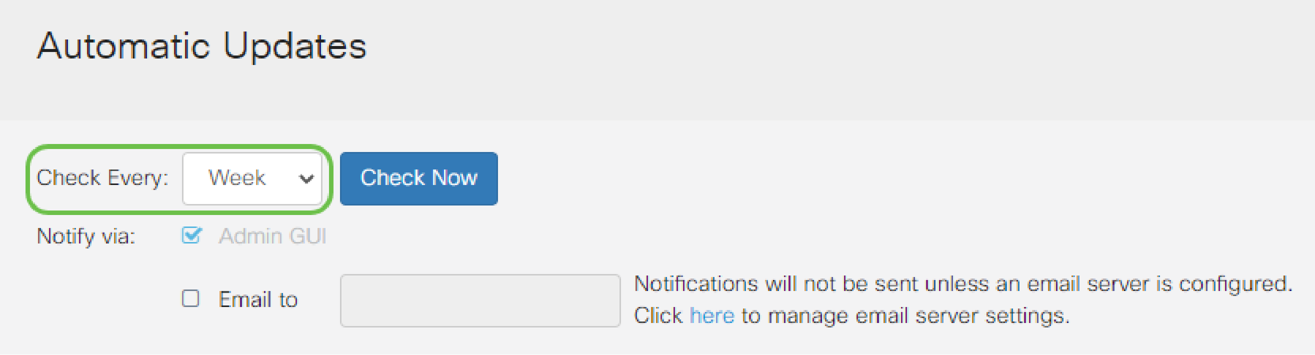
Step 1

Log into the web-based utility and choose **System Configuration** > **Automatic Updates**.


1
System Configuration
System
Time
Log
Email
User Accounts
User Groups
IP Address Groups
SNMP

Step 2

From the *Check Every* drop-down list, choose how often the router should check for updates.



Automatic Updates

Check Every: Week

Notify via: ☑ Admin GUI

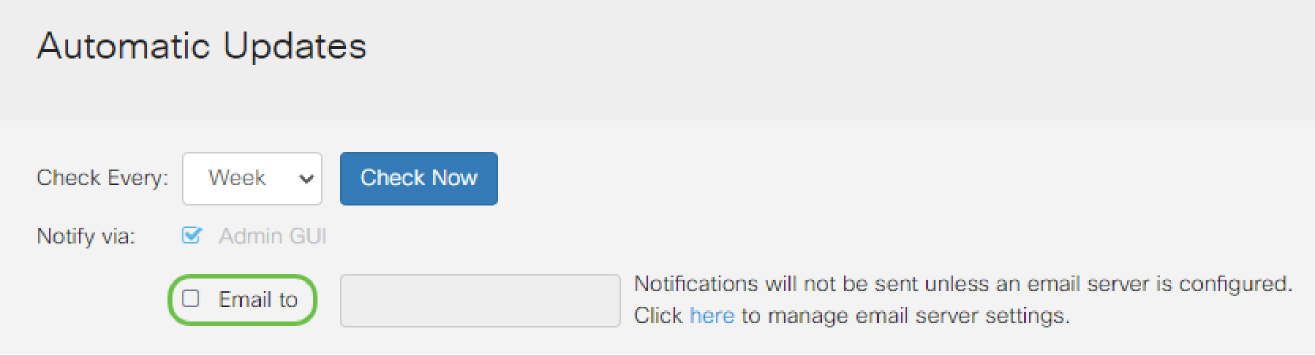
□ Email to

Notifications will not be sent unless an email server is configured.
Click here to manage email server settings.

Step 3

In the *Notify via* area, check the **Email to** checkbox to receive updates through email. The *Admin GUI* checkbox is enabled by default and cannot be disabled. A notification will appear in the web-based configuration once an update is available.

If you want to set up email server settings, click **here** to learn how.



Automatic Updates

Check Every: Week

Notify via: ☑ Admin GUI

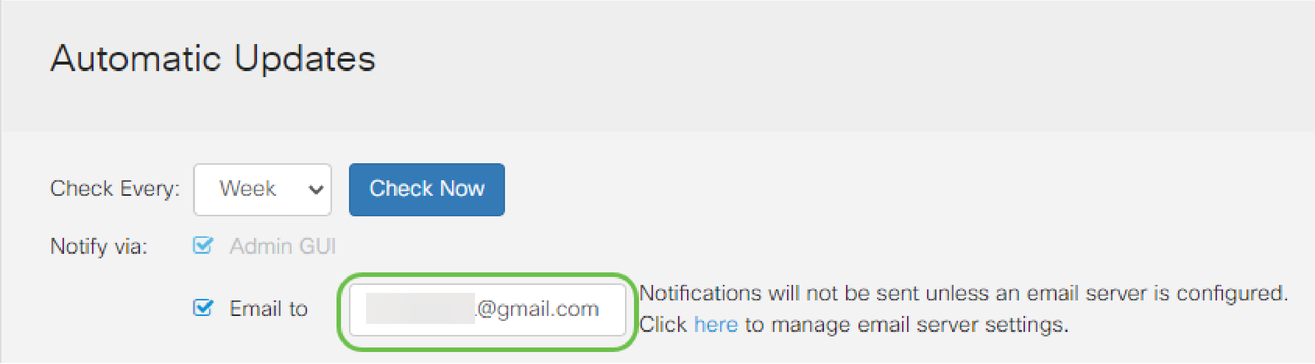
□ Email to

Notifications will not be sent unless an email server is configured.
Click here to manage email server settings.

Step 4

Enter an email address in the *Email to* address field.

It is highly recommended to use a separate email account instead of using your personal email to maintain privacy.



Automatic Updates

Check Every: Week

Notify via: ☑ Admin GUI

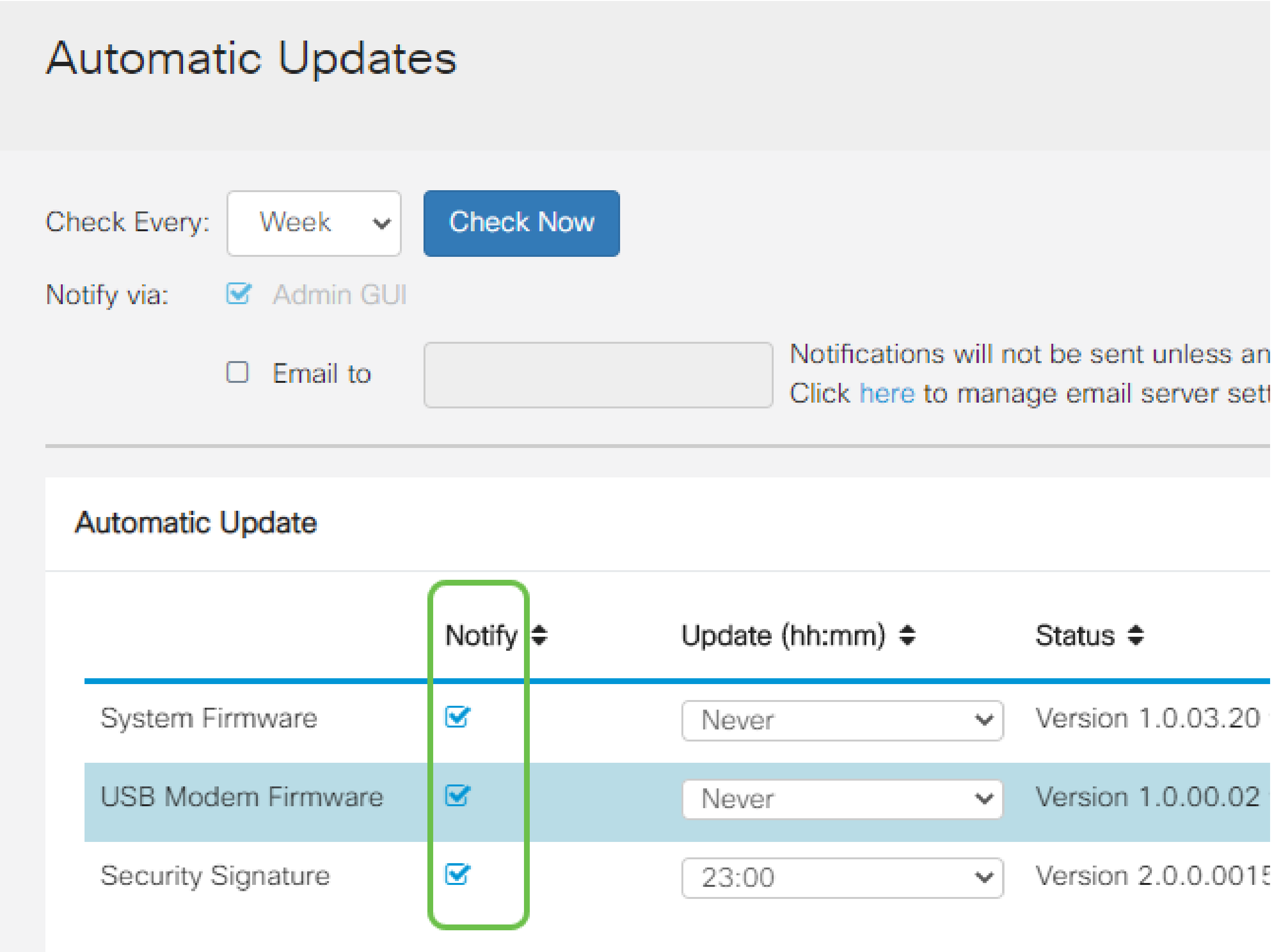
☑ Email to [redacted]@gmail.com

Notifications will not be sent unless an email server is configured.
Click here to manage email server settings.

Step 5

Under the *Automatically Update* area, check the **Notify** checkboxes of the kind of updates you want to be notified about. The options are:

- System Firmware — The main control program for the device.
- USB Modem Firmware — The control program or driver for the USB port.
- Security Signature — This will contain signatures for Application Control to identify applications, device types, operating systems, and so on.



Automatic Updates

Check Every: Week ⌄ [Check Now]

Notify via: ☑ Admin GUI

□ Email to

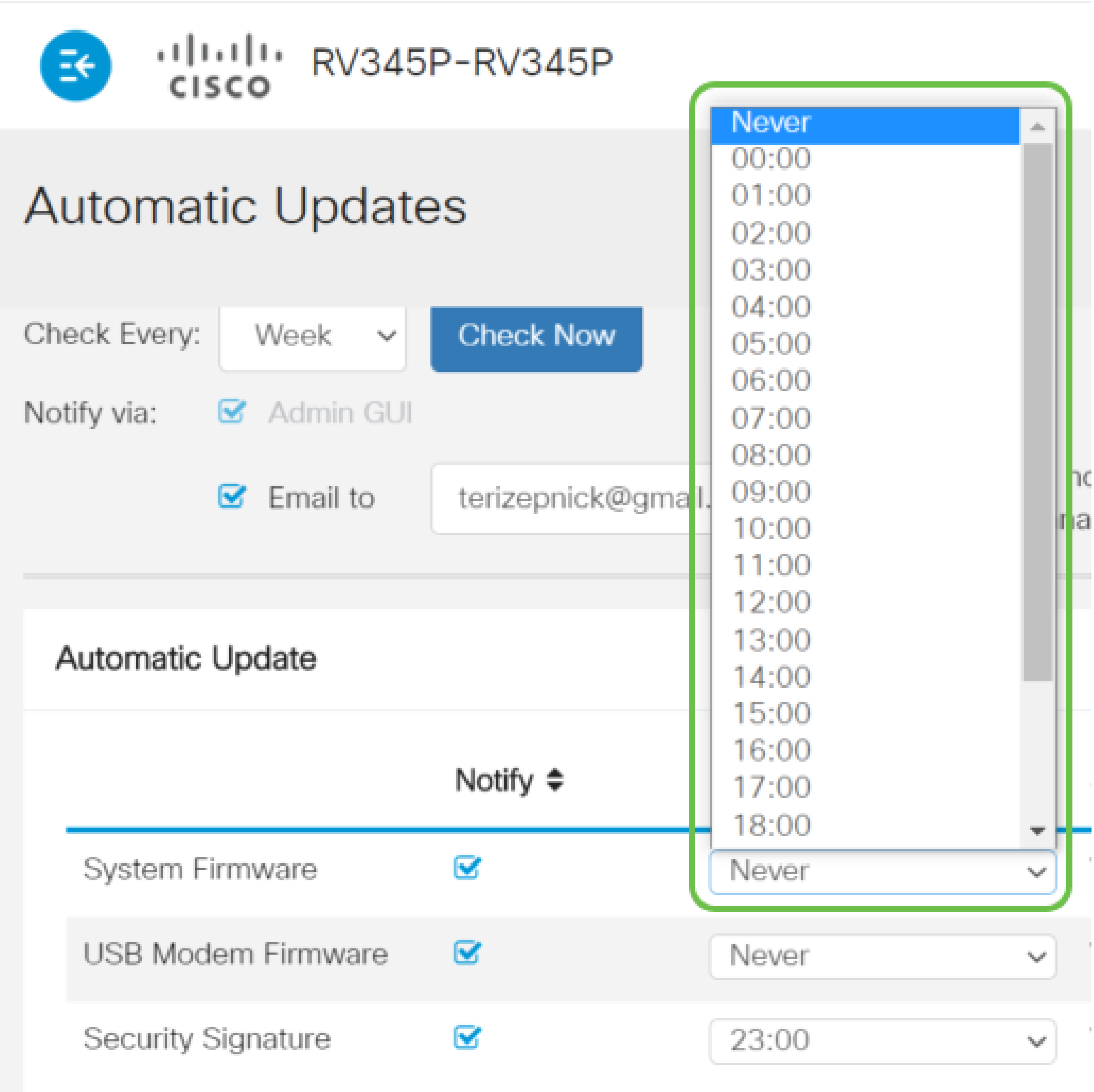
Notifications will not be sent unless an
Click here to manage email server sett

Automatic Update

	Notify	Update (hh:mm)	Status
System Firmware	☑	Never	Version 1.0.03.20
USB Modem Firmware	☑	Never	Version 1.0.00.02
Security Signature	☑	23:00	Version 2.0.0.0015

Step 6

From the *Automatic Update* drop-down list, choose a time of the day you want the automatic update to be done. Some options may vary according to the type of update you have chosen. Security Signature is the only option to have an immediate update. It is recommended that you set a time when your office is closed so service isn’t interrupted at an inconvenient time.



Automatic Updates

Check Every: Week

Notify via: ☑ Admin GUI

☑ Email to terizepnick@gmai

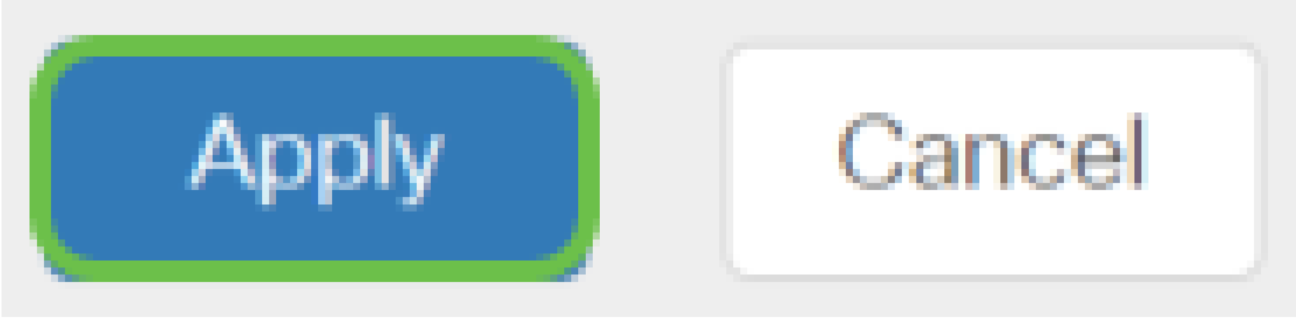
Automatic Update

	Notify	
System Firmware	☑	Never
USB Modem Firmware	☑	Never
Security Signature	☑	23:00

The status displays the currently running version of the firmware or security signature.

Step 7

Click **Apply**.



Step 8

To save the configuration permanently, go to the Copy/Save Configuration page or click the **save icon** at the upper portion of the page.

Awesome, your basic settings on your router are complete! Now you have some configuration options to explore.

Security Options

Of course, you want your network to be safe. There are some simple options, such as having a complex password, but if you want to take steps for an even more secure network check out this section on security.

RV Security License (Optional)

This RV Security License features protect your network from attacks from the Internet:

- Intrusion Prevention System (IPS): Inspects network packets, logs, and/or blocks a wide range of network attacks. It delivers increased network availability, faster remediation, and comprehensive threat protection.

- Antivirus: Protection from viruses by scanning the applications for various protocols like HTTP, FTP, SMTP Email attachments, POP3 Email attachments, and IMAP Email attachments going through the router.
- Web Security: Enables business efficiency and security while connecting to the Internet, allows Internet access policies for end devices and Internet applications to help ensure performance and security. It is cloud-based and contains more than 80 categories with more than 450 million domains classified.
- Application Identification: Identify and assign policies to Internet applications. 500 unique applications are automatically identified.
- Client Identification: Identify and categorizes clients dynamically. The ability to assign policies based on end-device category and operating system.

The RV Security License provides Web Filtering. Web Filtering is a feature that allows you to manage access to inappropriate websites. It can screen a client's web access requests to determine whether to allow or deny that website.

The licensed security features can be trialed at no cost for 90 days. Should you wish to continue using the advanced security features on your router after the evaluation period, then you must acquire and activate a license.

Another Security option is Cisco Umbrella. Click here if you would like to jump to the Umbrella section instead.

If you don't want either security license, click to jump to the VPN section of this document.

Introduction to Smart Accounts

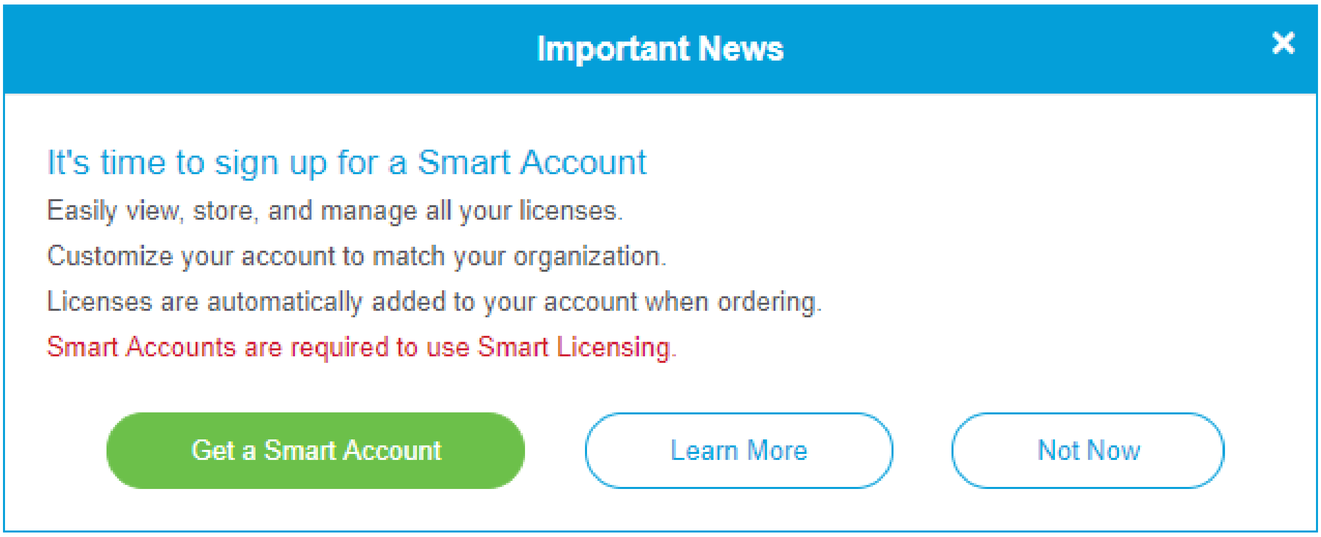
To purchase the RV Security License, you need a Smart Account.

By authorizing the activation of this Smart Account, you agree that you are authorized to create accounts and manage product and service entitlements, license agreements, and user access to accounts on behalf of your organization. Cisco Partners may not authorize account creation on behalf of customers.

The creation of a new Smart Account is a one-time event and management from that point forward is provided through the tool.

Create a Smart Account

When you access your general Cisco account using your Cisco.com Account, or CCO ID (the one you created at the beginning of this document), you may be greeted by a message to create a Smart Account.



Important News

It's time to sign up for a Smart Account

Easily view, store, and manage all your licenses.

Customize your account to match your organization.

Licenses are automatically added to your account when ordering.

Smart Accounts are required to use Smart Licensing.

If you haven't seen this pop-up, you can click to be taken to the [Smart Account creation page](). You may need to log in with your Cisco.com Account credentials.

For additional detail on the steps involved in requesting your Smart Account, click **here**.

Be sure to take note of your account name along with other registration details.

Quick Tip: If you are required to enter a domain and you do not have one, you can enter your email address in the form of *name@domain.com*. Common domains are gmail, yahoo, etc. depending on your company or provider.

It is very important that you have a Cisco.com (CCO ID) Account and a Cisco Smart Account before purchasing the RV Security License.

Purchase RV Security License

You must purchase a license from your Cisco distributor or your Cisco partner. To locate a Cisco partner, click **here**.

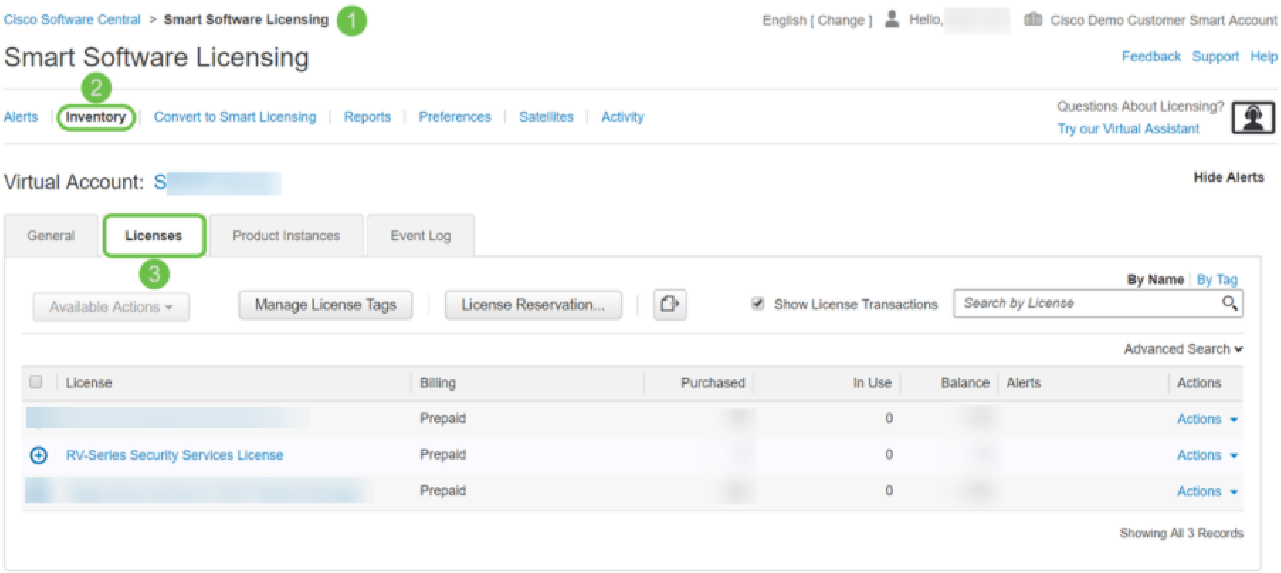
The table below displays the part number for the license.

Type	Product ID	Description
RV Security License	LS-RV34X-SEC-1YR=	RV Security: 1 year: Dynamic Web Filter, Application Visibility, Client Identification and Statistics, Gateway Antivirus, and Intrusion Prevention System IPS.

The license key is not entered into your router directly but will be assigned to your Cisco Smart Account after you order the license. The amount of time it takes for the license to show up on your account depends on when the partner accepts the order and when the reseller links the licenses to your account, which is usually 24-48 hours.

Confirm License is in Smart Account

Navigate to your Smart License account page, then click **Smart Software License page > Inventory > Licenses**.



Cisco Software Central > **Smart Software Licensing**

English [Change] Hello, [redacted] Cisco Demo Customer Smart Account

Smart Software Licensing

Feedback Support Help

Alerts | **Inventory** | Convert to Smart Licensing | Reports | Preferences | Satellites | Activity

Questions About Licensing? Try our Virtual Assistant

Virtual Account: S[redacted]

Hide Alerts

General | **Licenses** | Product Instances | Event Log

Available Actions ▾ | Manage License Tags | License Reservation... | ☑ Show License Transactions | Search by License | **By Name** | By Tag

Advanced Search ▾

☐	License	Billing	Purchased	In Use	Balance	Alerts	Actions
	[redacted]	Prepaid	[redacted]	0	[redacted]		Actions ▾
⊕	RV-Series Security Services License	Prepaid	[redacted]	0	[redacted]		Actions ▾
	[redacted]	Prepaid	[redacted]	0	[redacted]		Actions ▾

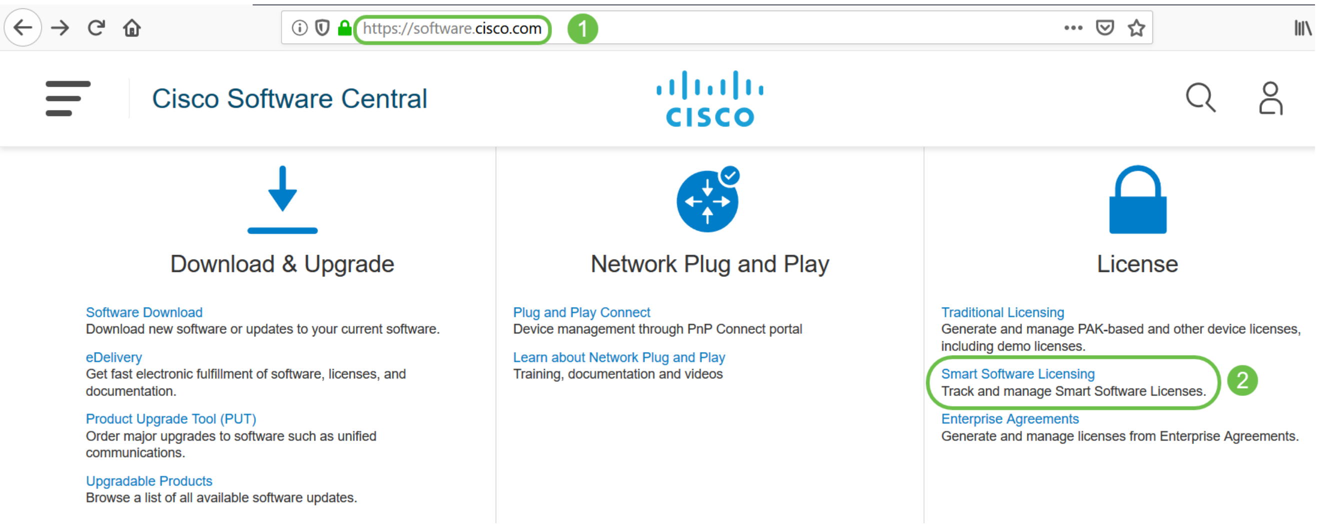
Showing All 3 Records

If you do not see your license in your Smart Account, contact your Cisco partner.

Configure the RV Security License on the RV345P Series Router

Step 1

Access [**Cisco Software**](https://software.cisco.com)and navigate to **Smart Software Licensing**.



Download & Upgrade

Software Download
Download new software or updates to your current software.

eDelivery
Get fast electronic fulfillment of software, licenses, and documentation.

Product Upgrade Tool (PUT)
Order major upgrades to software such as unified communications.

Upgradable Products
Browse a list of all available software updates.

Network Plug and Play

Plug and Play Connect
Device management through PnP Connect portal

Learn about Network Plug and Play
Training, documentation and videos

License

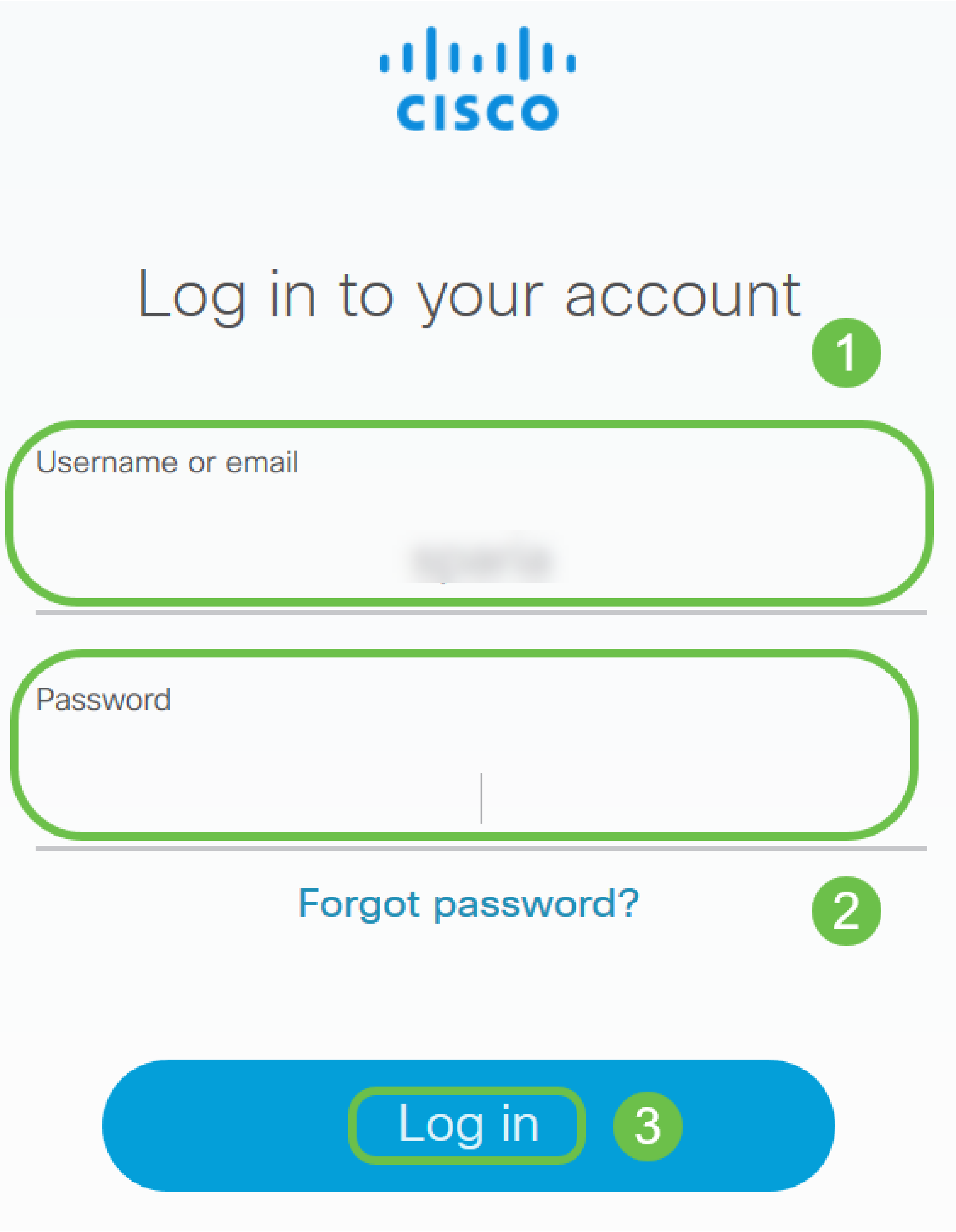
Traditional Licensing
Generate and manage PAK-based and other device licenses, including demo licenses.

Smart Software Licensing
Track and manage Smart Software Licenses.

Enterprise Agreements
Generate and manage licenses from Enterprise Agreements.

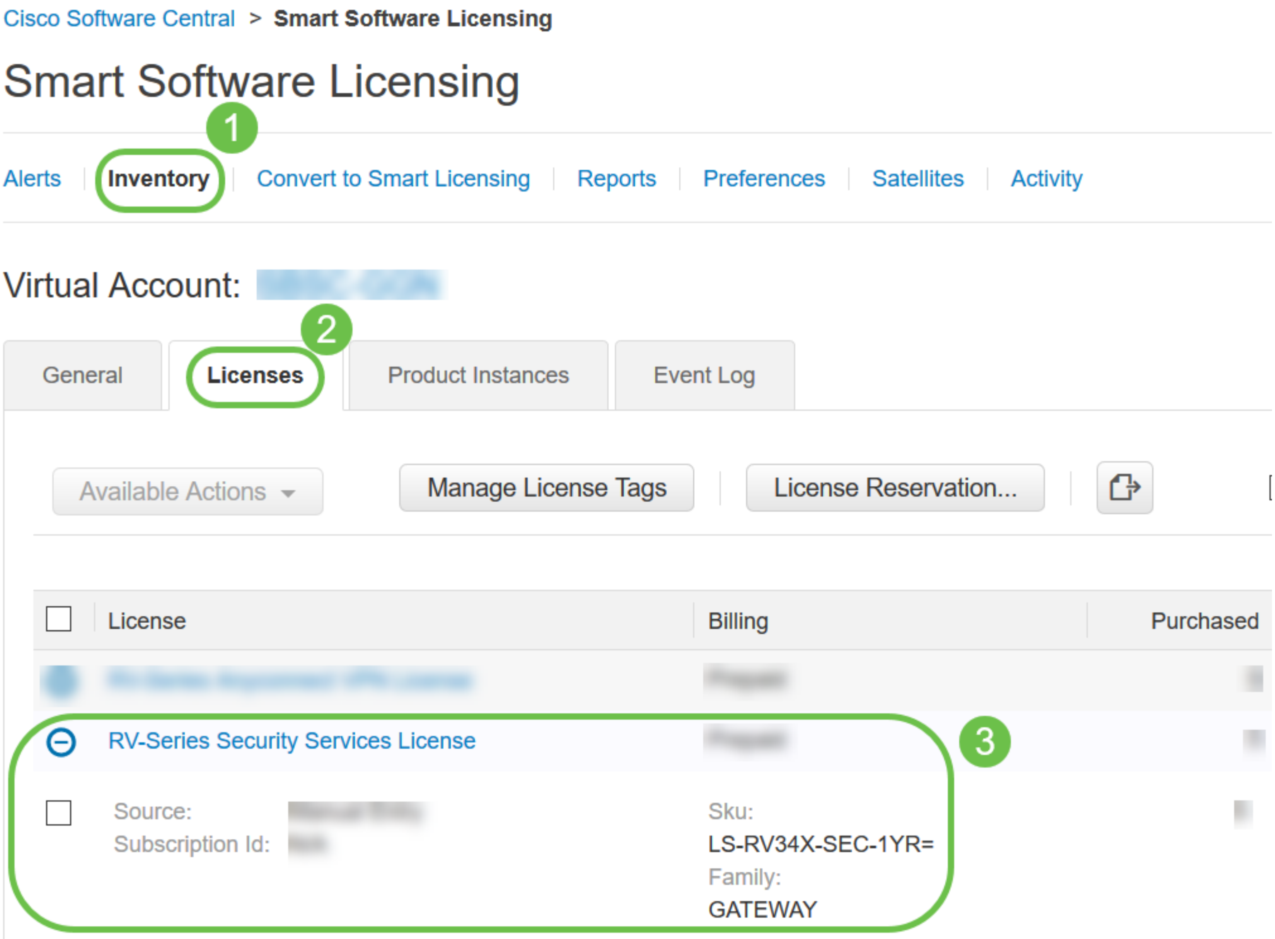
Step 2

Enter your *Username or email* and *Password* to log into your Smart Account. Click **Log in**.



Step 3

Navigate to **Inventory** > **Licenses** and verify that the *RV-Series Security Services License* is listed on your Smart Account. If you do not see the license listed, contact your Cisco partner.



Cisco Software Central > **Smart Software Licensing**

Smart Software Licensing

Alerts | **Inventory** | Convert to Smart Licensing | Reports | Preferences | Satellites | Activity

Virtual Account: [redacted]

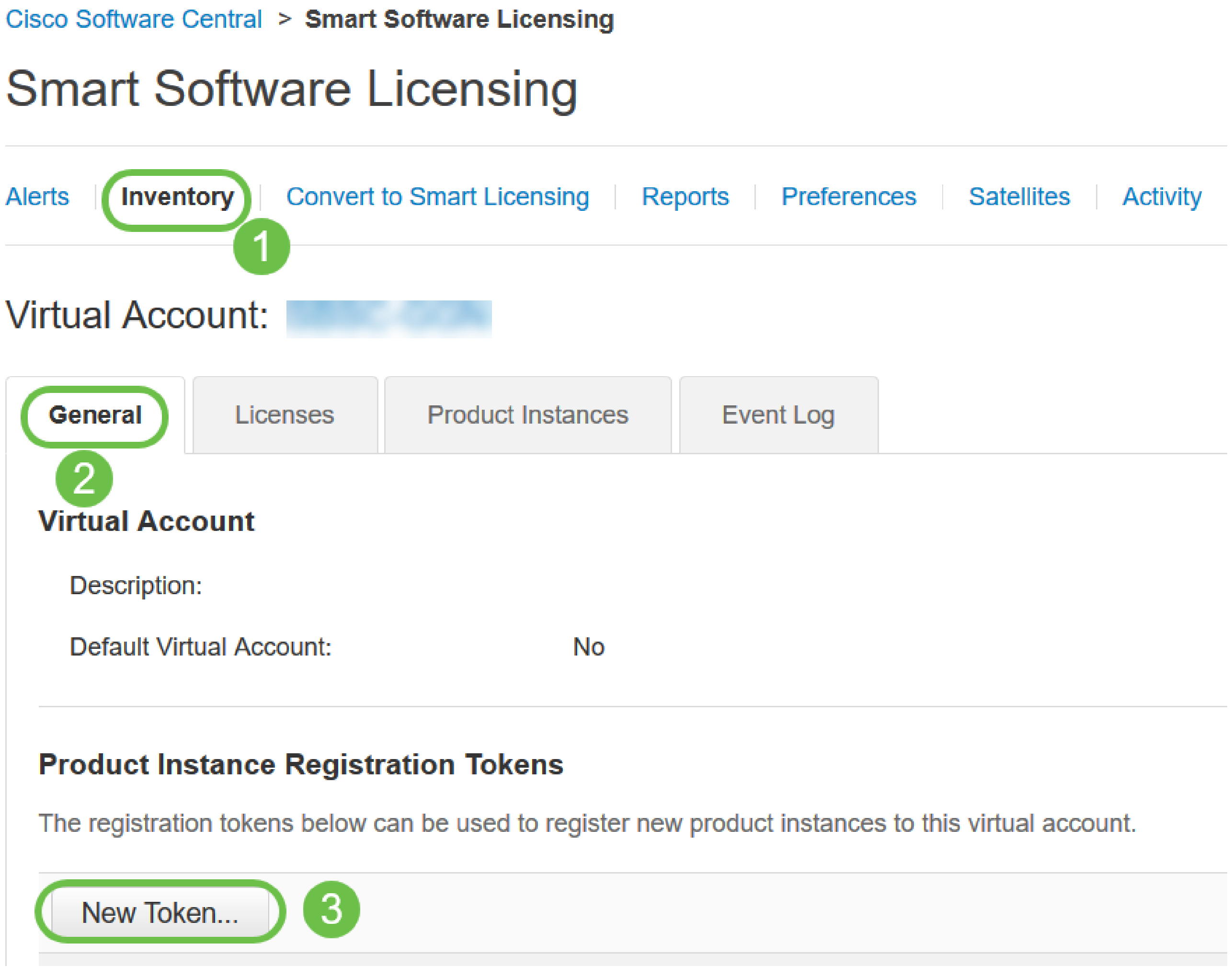
General | **Licenses** | Product Instances | Event Log

Available Actions ▾ | Manage License Tags | License Reservation...

□	License	Billing	Purchased
[redacted]	[redacted]	[redacted]	[redacted]
⊖	RV-Series Security Services License	[redacted]	[redacted]
□	Source: [redacted] Subscription Id: [redacted]	Sku: LS-RV34X-SEC-1YR= Family: GATEWAY	[redacted]

Step 4

Navigate to **Inventory** > **General**. Under *Product Instance Registration Tokens* click on **New Token**.



Smart Software Licensing

Virtual Account: [redacted]

Virtual Account

Description:

Default Virtual Account: No

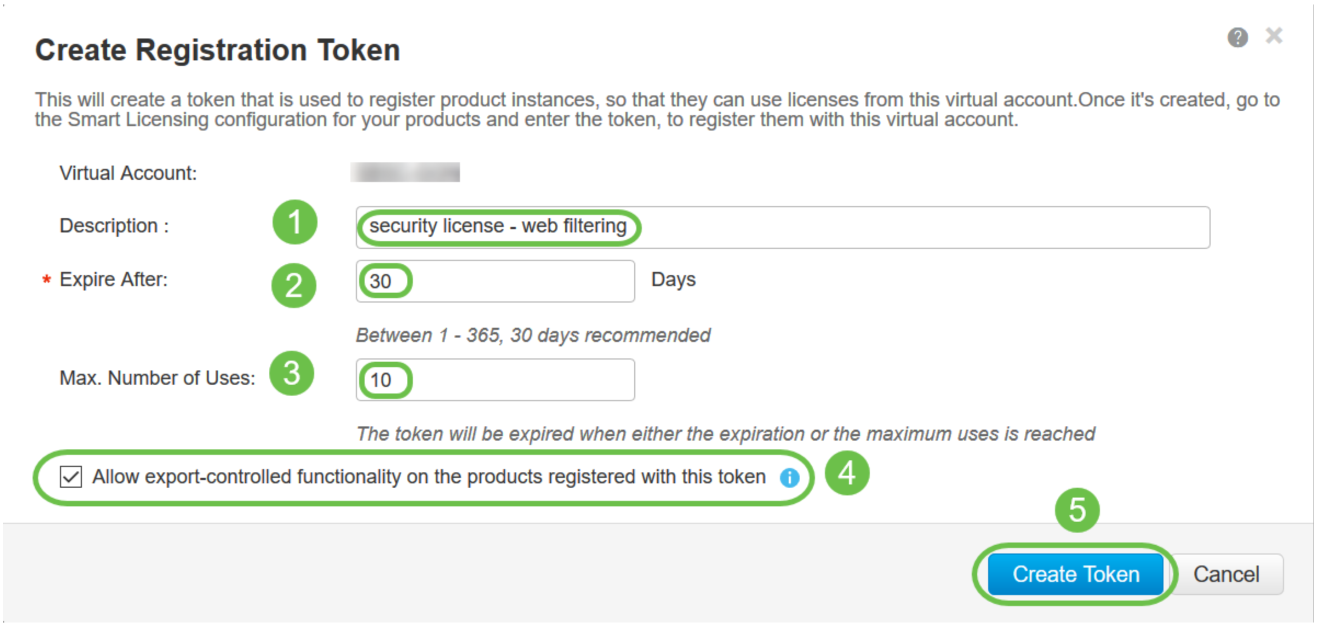
Product Instance Registration Tokens

The registration tokens below can be used to register new product instances to this virtual account.

Step 5

A Create Registration Token window will appear. The *Virtual Account* area displays the virtual account under which the registration token will be created. On the *Create Registration Token* page, complete the following:

- In the Description field, enter a unique description for the token. In this example, security license – web filtering is entered.
- In the Expire After field enter a value between 1 to 365 days. Cisco recommends the value 30 days for this field; however, you may edit the value to fit your needs.
- In the Max. Number of Uses field enter a value to define the number of times you want to use that token. The token will expire when either the amount of days or the maximum number of uses is reached.
- Check the Allow export-controlled functionality on the products registered with this token checkbox to enable the export-controlled functionality for tokens of a product instance in your virtual account. Uncheck the checkbox if you do not want to allow the export-controlled functionality to be made available for use with this token. Use this option only if you are compliant with the export-controlled functionality. Some export-controlled features are restricted by the United States Department of Commerce. These features are restricted for products registered using this token when you uncheck the checkbox. Any violations are subjected to penalties and administrative charges.
- Click **Create Token** to generate the token.



Create Registration Token

This will create a token that is used to register product instances, so that they can use licenses from this virtual account.Once it's created, go to the Smart Licensing configuration for your products and enter the token, to register them with this virtual account.

Virtual Account: [redacted]

Description : security license - web filtering

* Expire After: 30 Days

Between 1 - 365, 30 days recommended

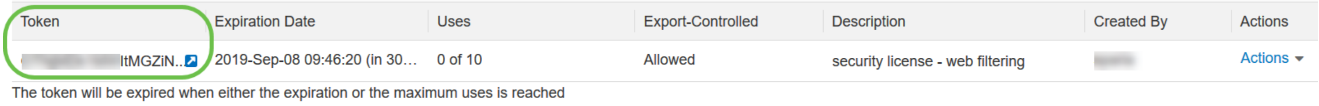
Max. Number of Uses: 10

The token will be expired when either the expiration or the maximum uses is reached

☑ Allow export-controlled functionality on the products registered with this token

Create Token | Cancel

You have now successfully generated a product instance registration token.

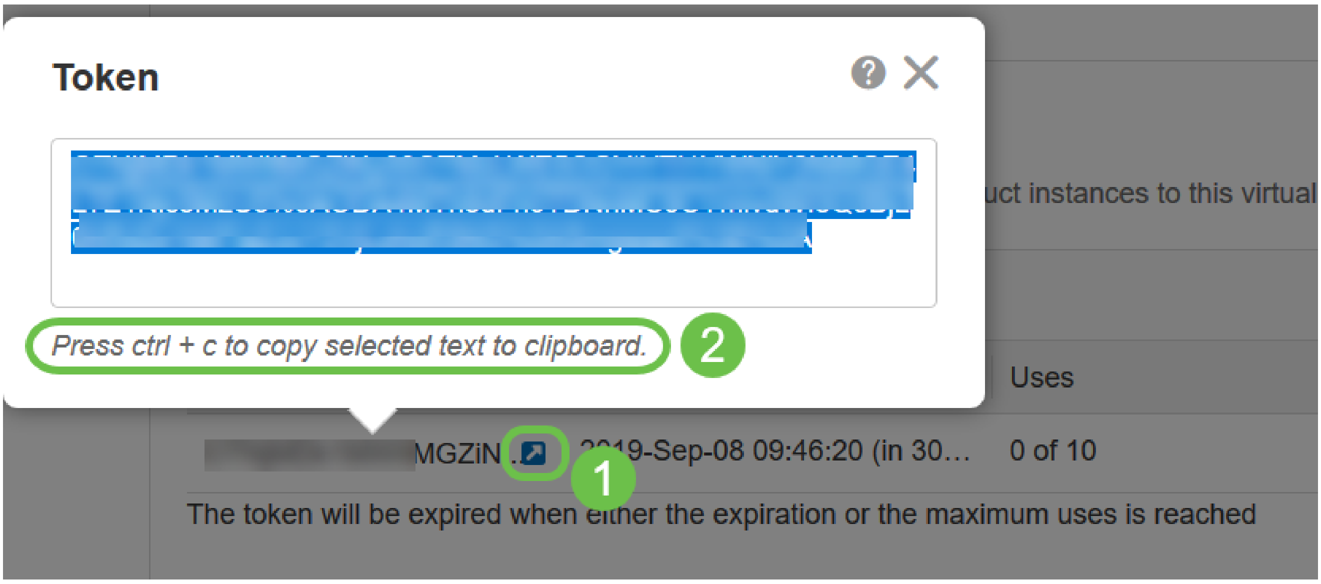


Token	Expiration Date	Uses	Export-Controlled	Description	Created By	Actions
[redacted]ltMGZiN..	2019-Sep-08 09:46:20 (in 30…	0 of 10	Allowed	security license - web filtering	[redacted]	Actions ▾

The token will be expired when either the expiration or the maximum uses is reached

Step 6

Click the **arrow icon** in the *Token* column, to copy the token to the clipboard press **ctrl + c** on your keyboard.



Token

[redacted]

Press ctrl + c to copy selected text to clipboard.

uct instances to this virtual

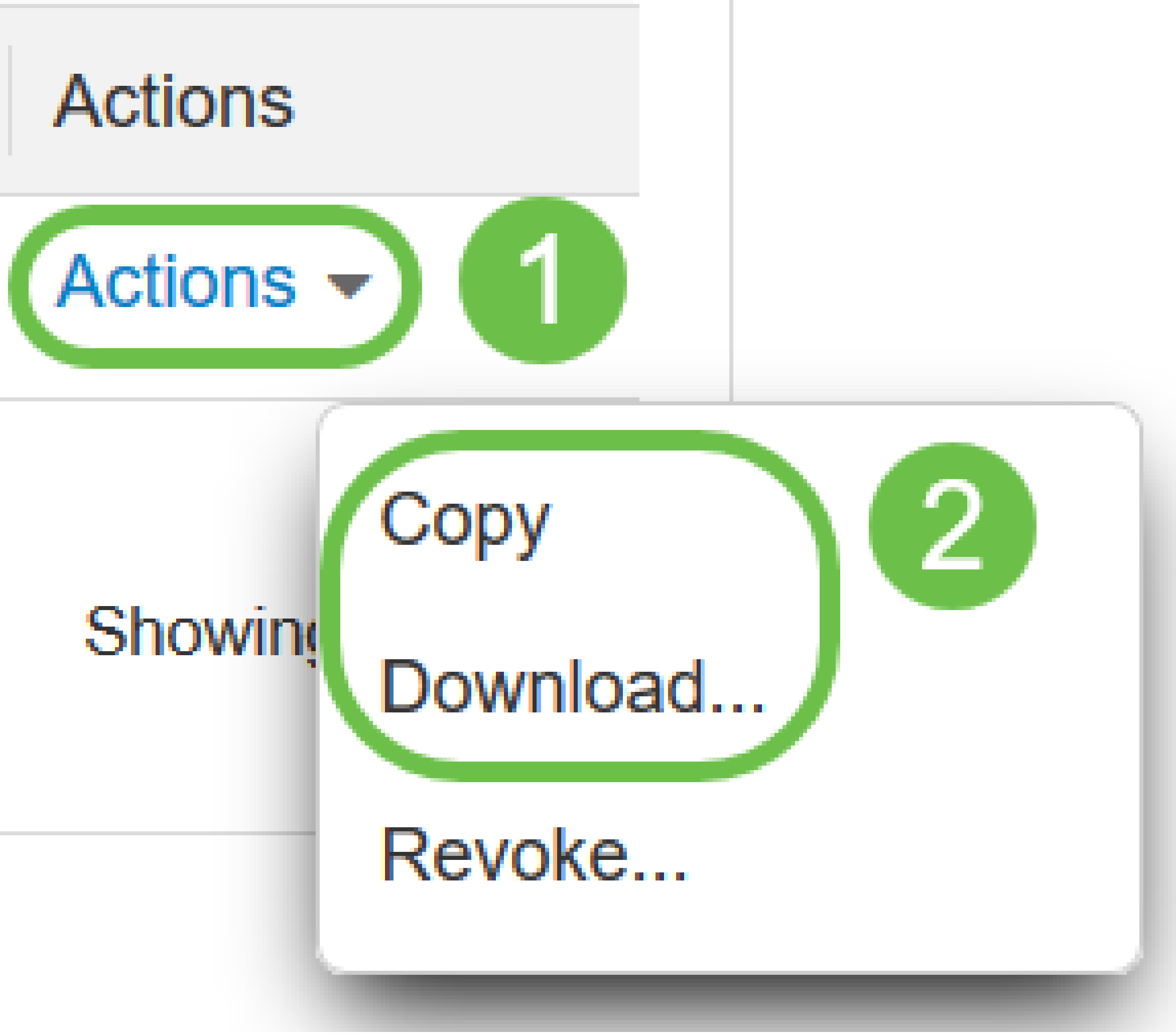
Uses

[redacted]MGZiN.. 2019-Sep-08 09:46:20 (in 30… 0 of 10

The token will be expired when either the expiration or the maximum uses is reached

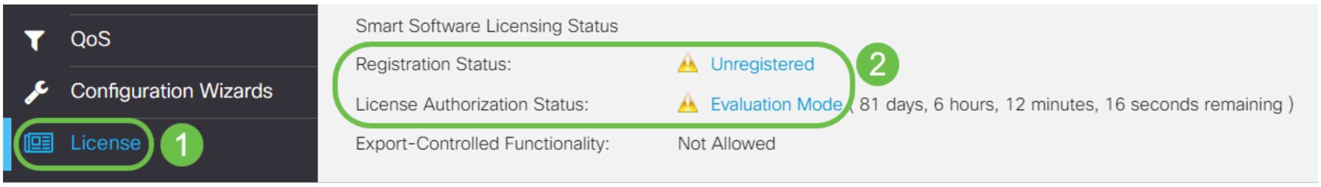
Step 7 (Optional)

Click the **Actions** drop-down menu, choose **Copy** to copy the token to the clipboard or **Download…** to download a text file copy of the token from which you may copy.



Step 8

Navigate to **License** and verify the *Registration Status* is showing as *Unregistered* and *License Authorization Status* is showing as *Evaluation Mode*.



Smart Software Licensing Status

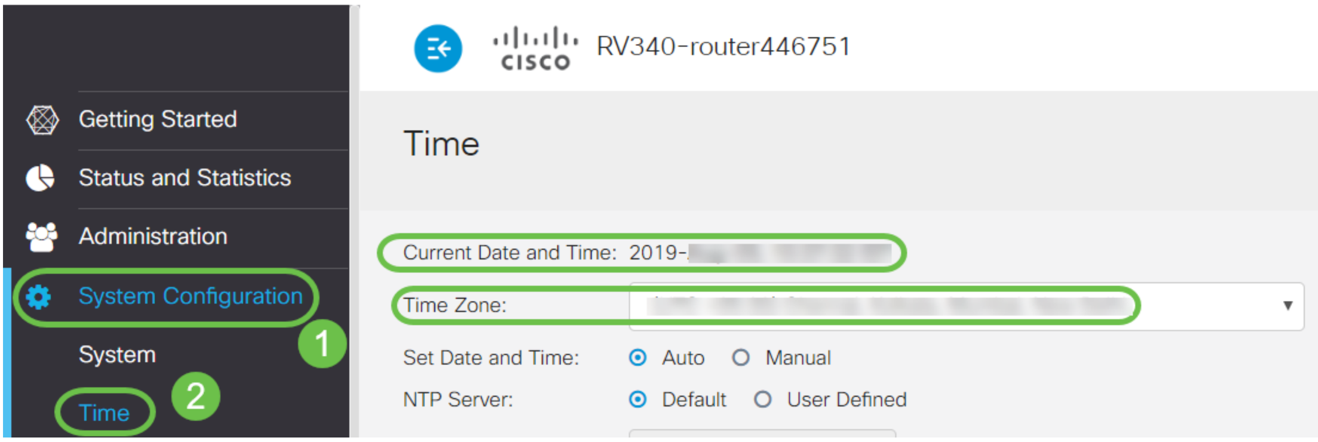
Registration Status: Unregistered

License Authorization Status: Evaluation Mode (81 days, 6 hours, 12 minutes, 16 seconds remaining)

Export-Controlled Functionality: Not Allowed

Step 9

Navigate to **System Configuration** > **Time** and verify the *Current Date and Time* and *Time Zone* are reflecting correctly as per your time zone.



Current Date and Time: 2019-[redacted]

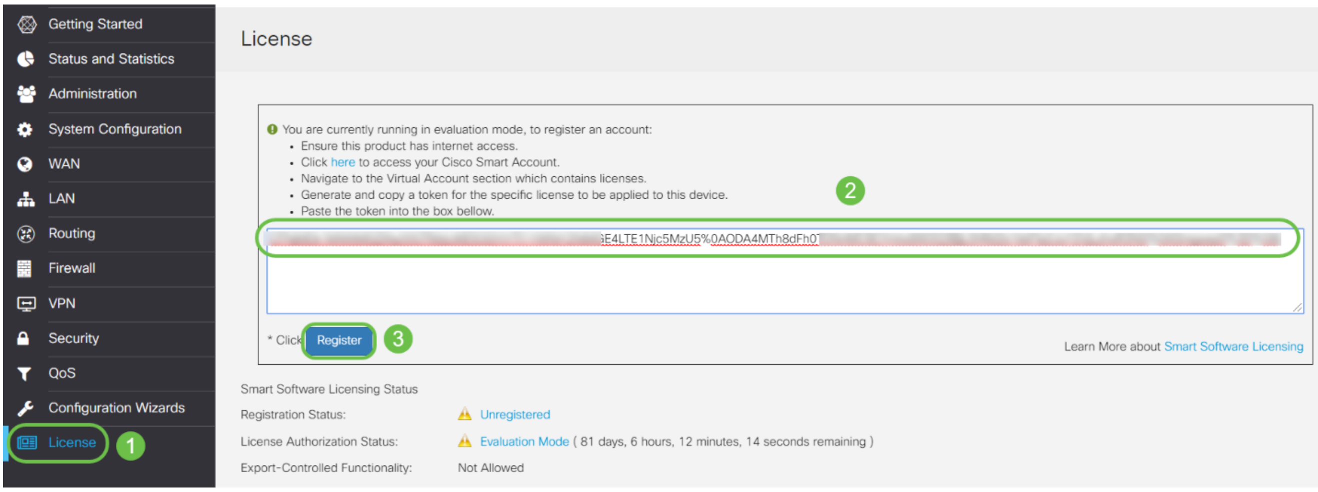
Time Zone: [redacted]

Set Date and Time: ● Auto ○ Manual

NTP Server: ● Default ○ User Defined

Step 10

Navigate to **License**. Paste the copied token in step 6 on the text box under the *License* tab by selecting **ctrl + v** on your keyboard. Click **Register**.



You are currently running in evaluation mode, to register an account:

- Ensure this product has internet access.
- Click here to access your Cisco Smart Account.
- Navigate to the Virtual Account section which contains licenses.
- Generate and copy a token for the specific license to be applied to this device.
- Paste the token into the box bellow.

[redacted]E4LTE1Njc5MzU5%0AODA4MTh8dFh0[redacted]

* Click Register

Learn More about Smart Software Licensing

Smart Software Licensing Status

Registration Status: ⚠ Unregistered

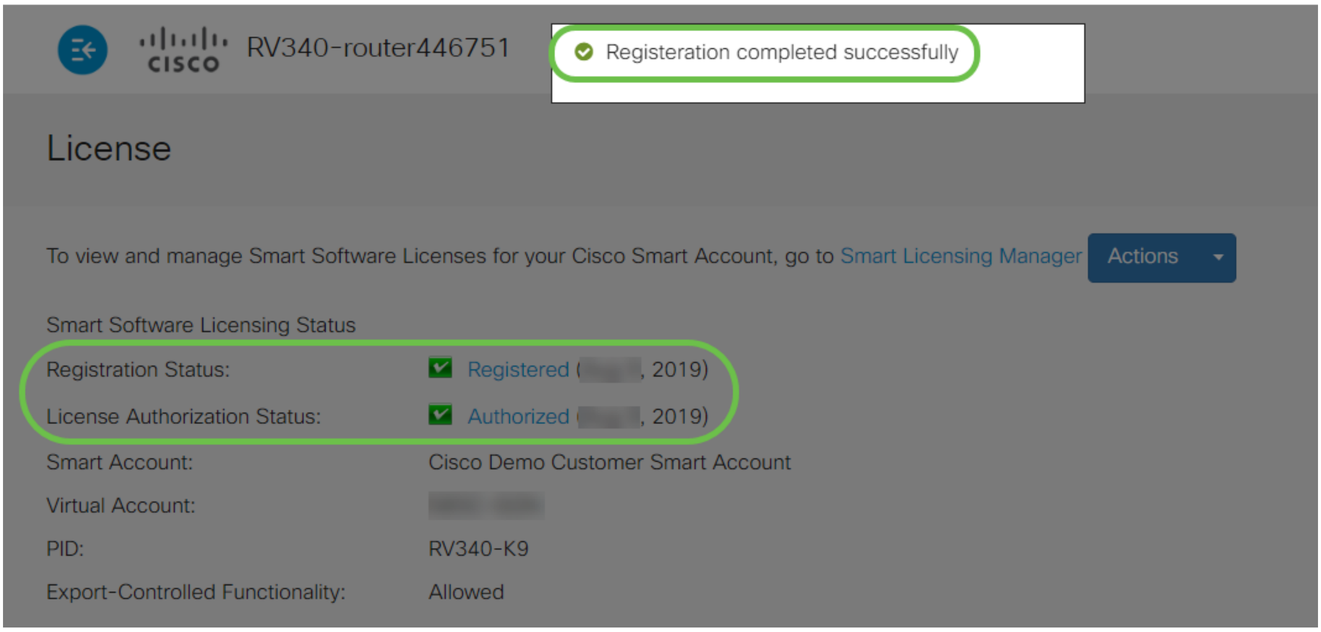
License Authorization Status: ⚠ Evaluation Mode (81 days, 6 hours, 12 minutes, 14 seconds remaining)

Export-Controlled Functionality: Not Allowed

The registration may take a few minutes. Do not leave the page as the router attempts to contact the license server.

Step 11

You should now have successfully registered and authorized your RV345P Series router with a Smart License. You will get a notification on the screen *Registration completed successfully*. Also, you will be able to see that the *Registration Status* is showing as *Registered* and *License Authorization Status* is showing as *Authorized*.



RV340-router446751

Registeration completed successfully

License

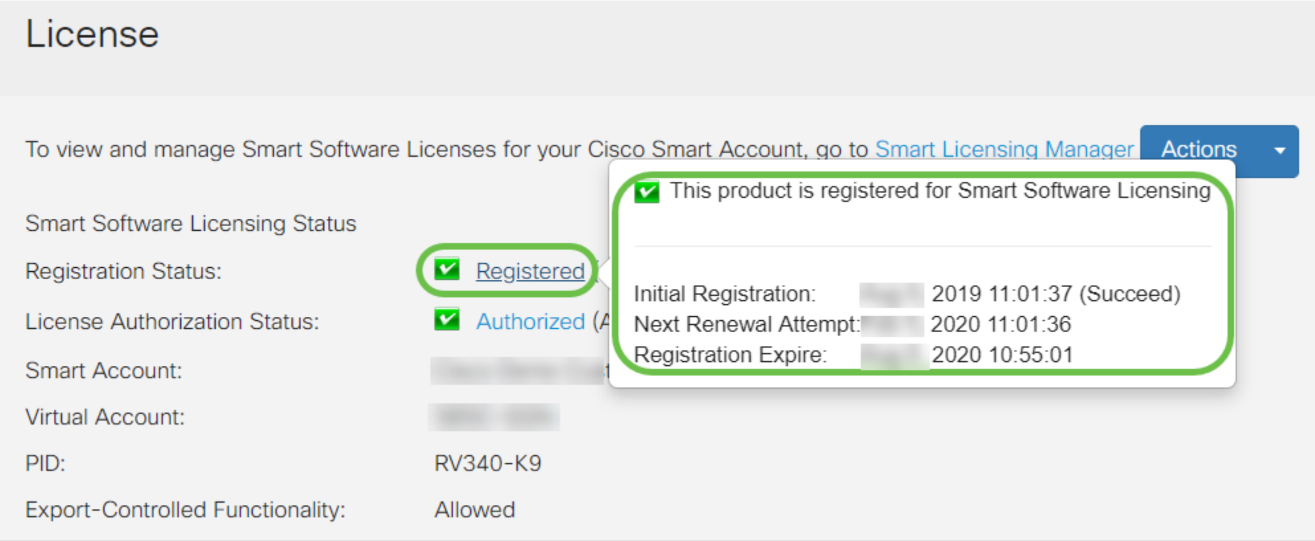
To view and manage Smart Software Licenses for your Cisco Smart Account, go to Smart Licensing Manager

Smart Software Licensing Status

Registration Status:	✓ Registered ([redacted], 2019)
License Authorization Status:	✓ Authorized ([redacted], 2019)
Smart Account:	Cisco Demo Customer Smart Account
Virtual Account:	[redacted]
PID:	RV340-K9
Export-Controlled Functionality:	Allowed

Step 12 (Optional)

To view more detail of the *Registration Status* of the license, hover your pointer over the *Registered* status. A dialog message appears with the following information:



License

To view and manage Smart Software Licenses for your Cisco Smart Account, go to Smart Licensing Manager

Smart Software Licensing Status

Registration Status:	✓ Registered
License Authorization Status:	✓ Authorized (A
Smart Account:	[redacted]
Virtual Account:	[redacted]
PID:	RV340-K9
Export-Controlled Functionality:	Allowed

✓ This product is registered for Smart Software Licensing

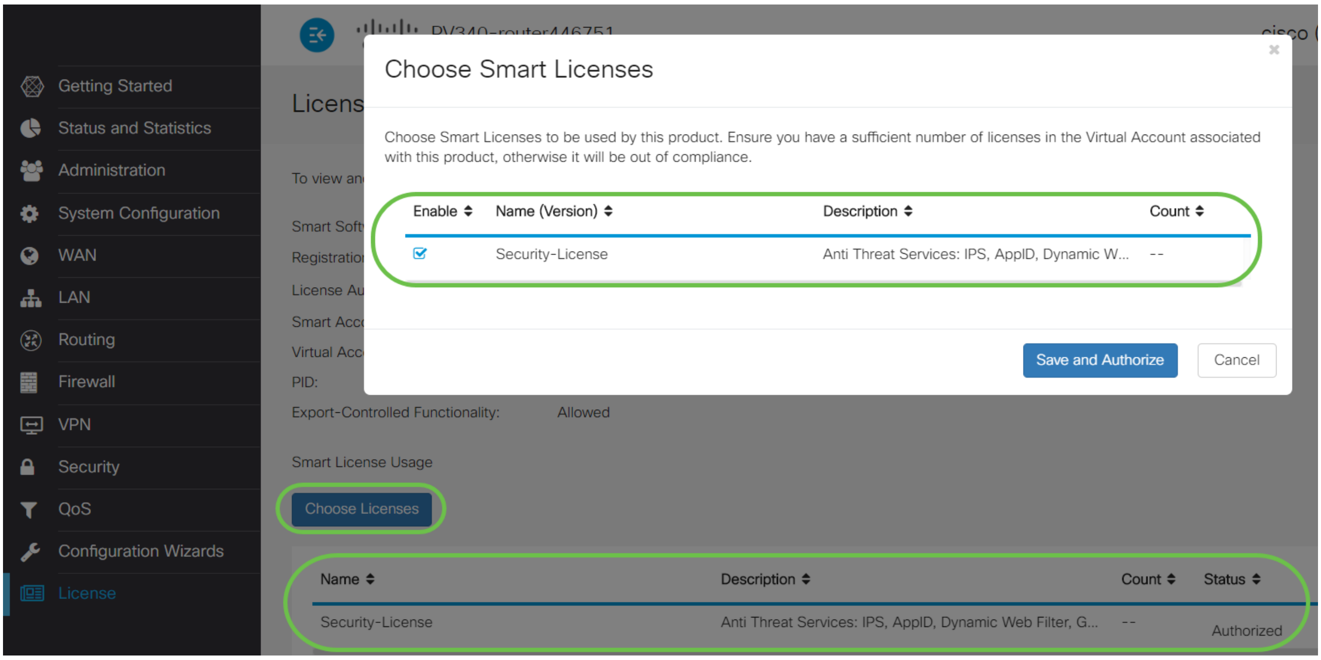
Initial Registration:	[redacted] 2019 11:01:37 (Succeed)
Next Renewal Attempt:	[redacted] 2020 11:01:36
Registration Expire:	[redacted] 2020 10:55:01

- Initial Registration — This area indicates the date and time the license was registered.
- Next Renewal Attempt — This area indicates the date and time the router will attempt to renew the license.
- Registration Expire — This area indicates the date and time the registration expires.

Step 13

On the *License* page verify the *Security-License* status is showing *Authorized*. You may also click on the **Choose License** button to verify the *Security-License* is enabled.

If you run into any issues on this step, you may need to reboot your router.



Choose Smart Licenses

Choose Smart Licenses to be used by this product. Ensure you have a sufficient number of licenses in the Virtual Account associated with this product, otherwise it will be out of compliance.

Enable	Name (Version)	Description	Count
☑	Security-License	Anti Threat Services: IPS, AppID, Dynamic W...	--

To view an

Smart Soft

Registratio

License Au

Smart Acc

Virtual Acc

PID:

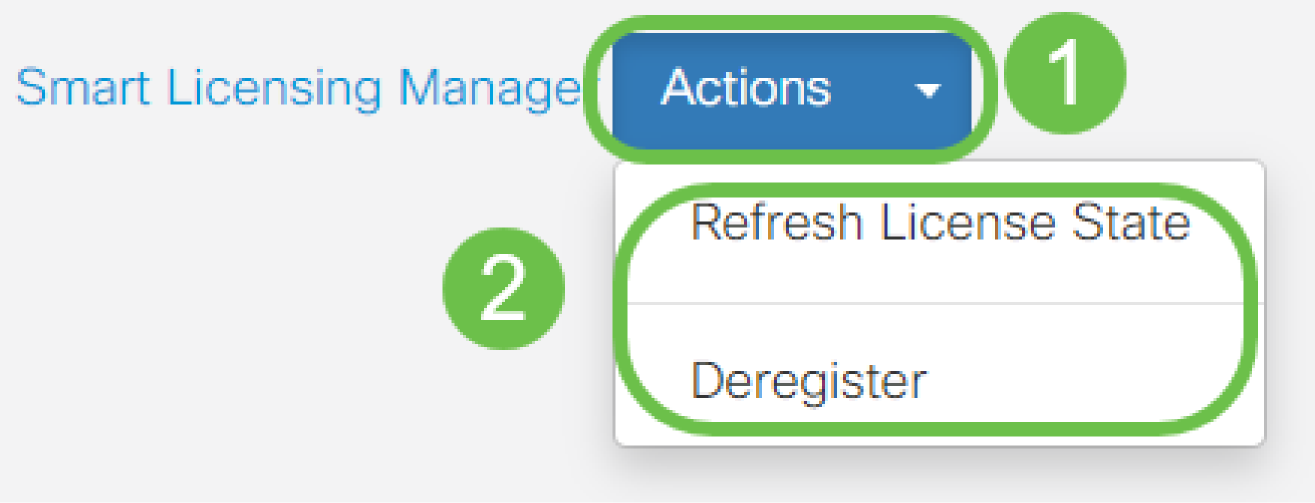
Export-Controlled Functionality: Allowed

Smart License Usage

Name	Description	Count	Status
Security-License	Anti Threat Services: IPS, AppID, Dynamic Web Filter, G...	--	Authorized

Step 14 (Optional)

To *Refresh License State* or *Deregister* the license from the router, click on the *Smart Licensing Manager* **Actions** drop-down menu and select an action item.



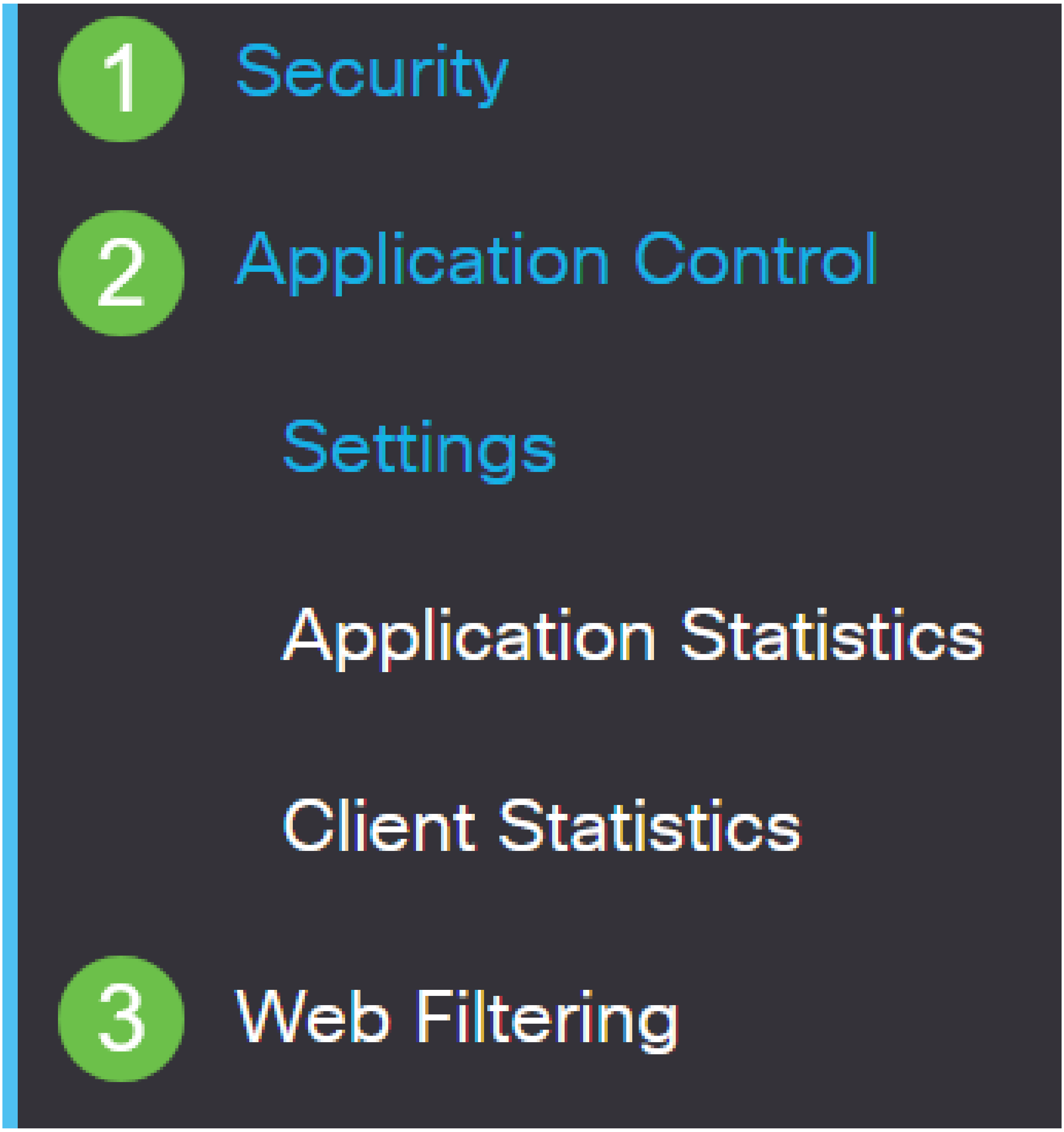
Now that you have your license on the router, you need to complete the steps in the next section.

Web Filtering on the RV345P Router

You have 90 days after activation to use web filtering at no cost. After the free trial, if you want to continue using this feature, you need to purchase a license. Click to go back to that section.

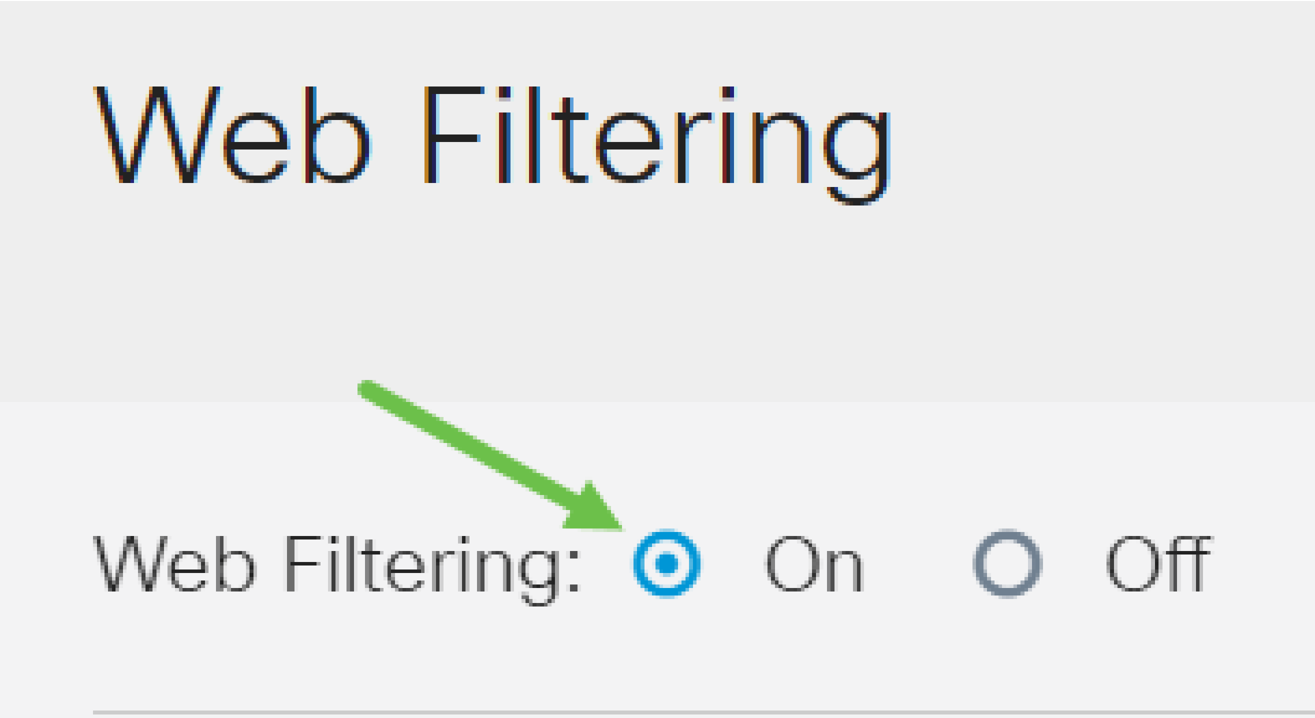
Step 1

Log into the web-based utility and choose **Security** > **Application Control** > **Web Filtering**.



Step 2

Select the **On** radio button.

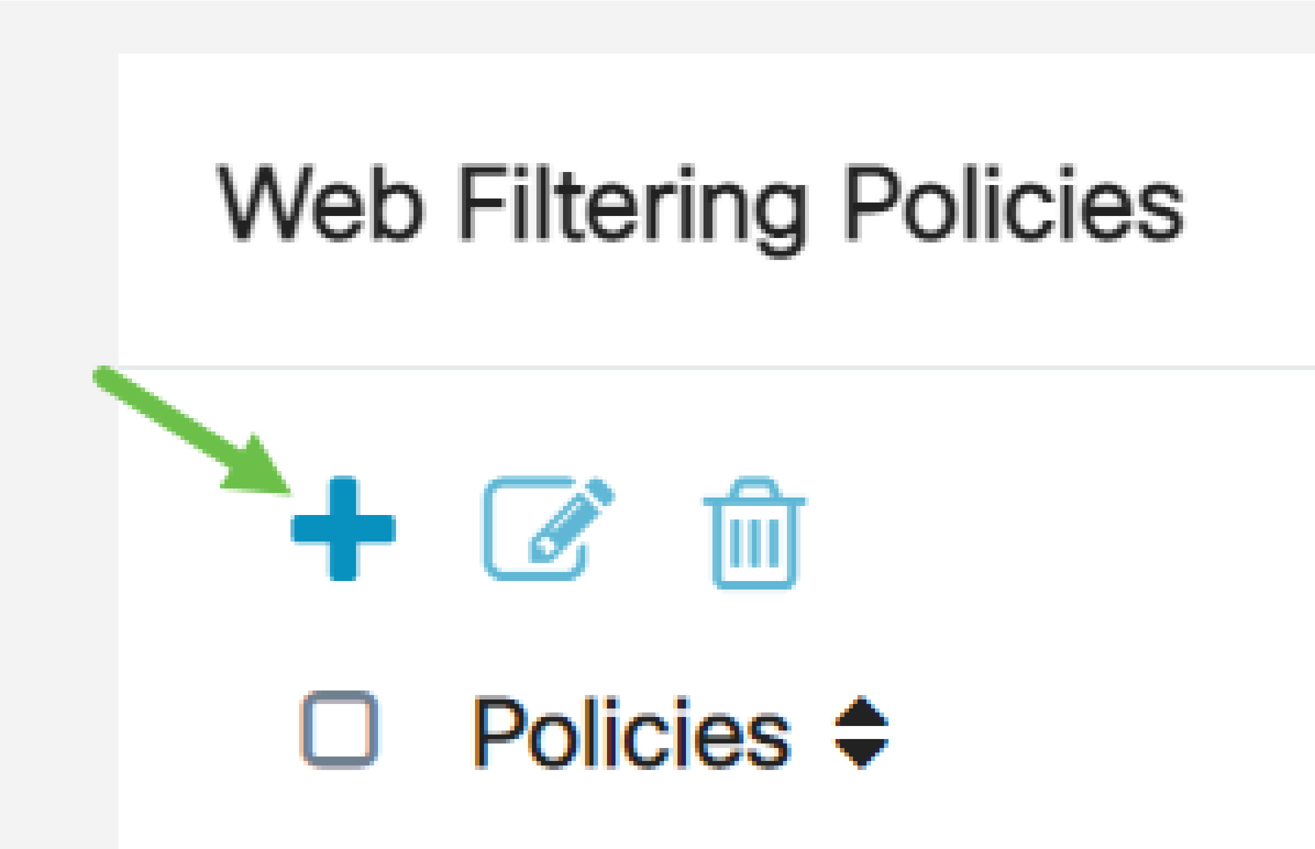


Web Filtering

Web Filtering: ● On ○ Off

Step 3

Click the **add icon**.

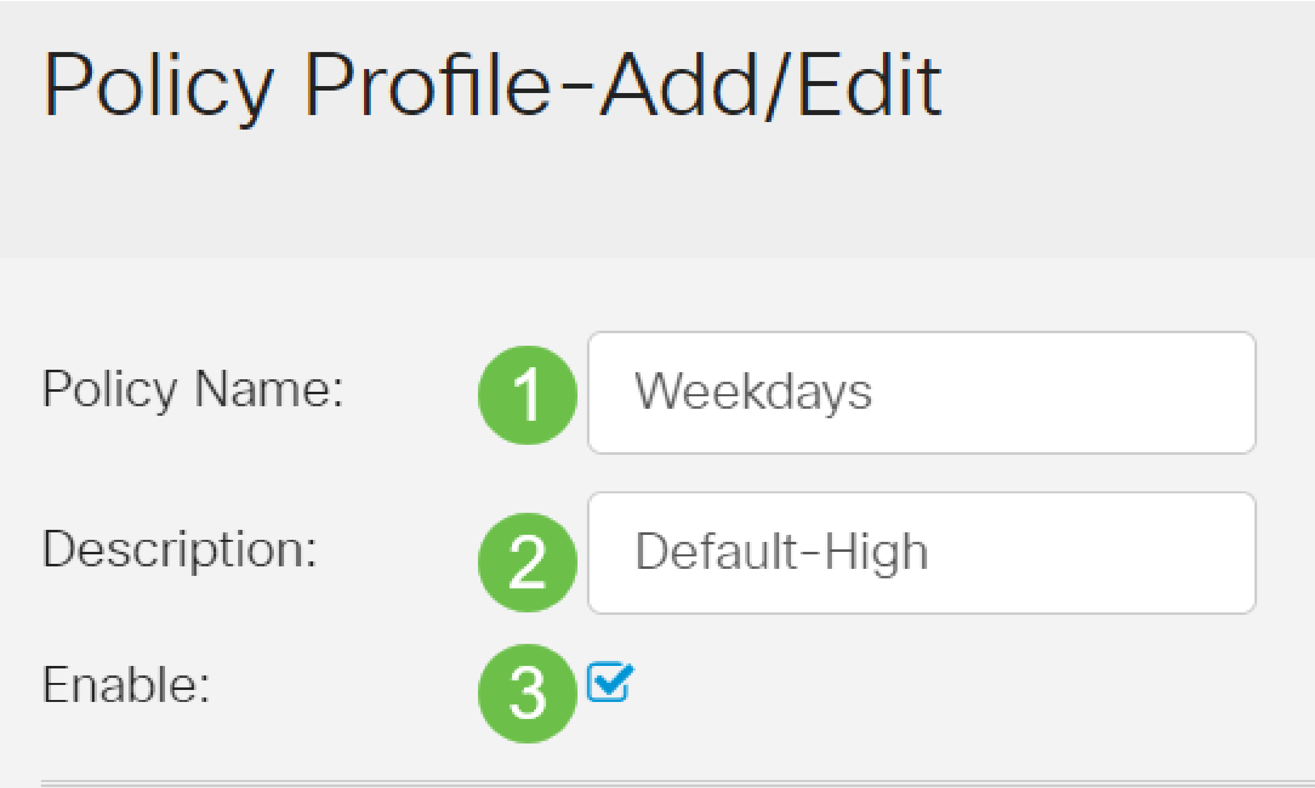


Web Filtering Policies

□ Policies

Step 4

Enter a *Policy Name*, *Description*, and the *Enable* checkbox.



Policy Profile-Add/Edit

Policy Name: Weekdays

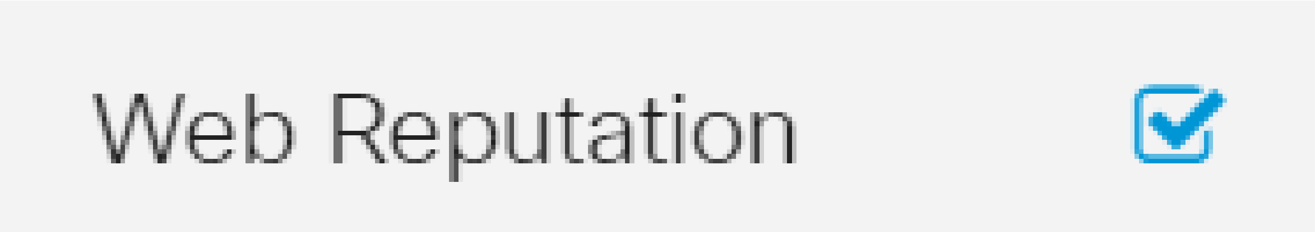
Description: Default-High

Enable: ☑

If Content Filtering is enabled on your router, a notification will appear to inform you that Content Filtering has been disabled and that the two features cannot be enabled simultaneously. Click **Apply** to proceed with the configuration.

Step 5

Check the Web Reputation checkbox to enable filtering based on a web reputation index.



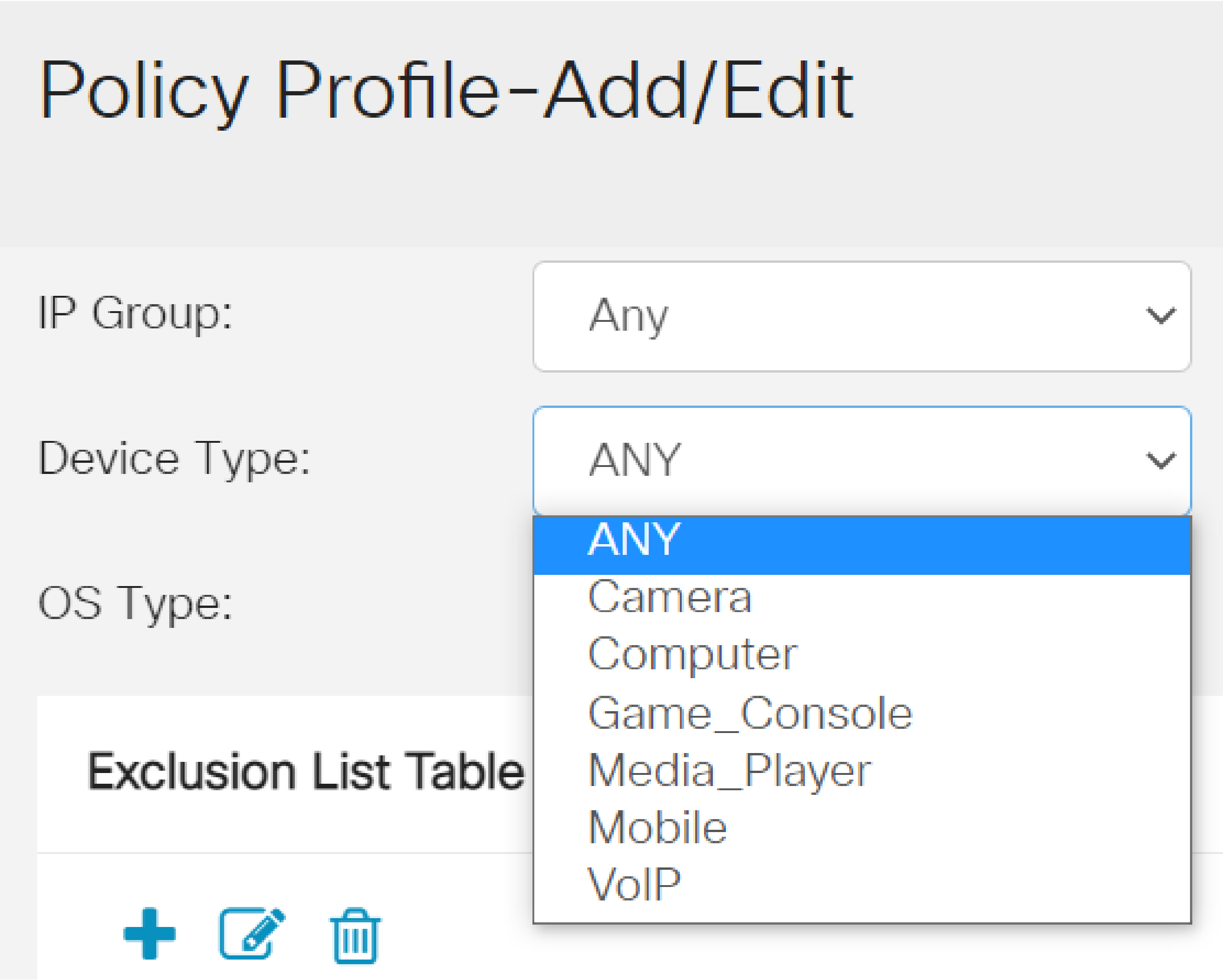
Web Reputation ☑

Content will be filtered according to the notoriety of a website or URL based on a web reputation index. If the score falls below 40, the website will be blocked. To read more about the web reputation technology, click **here** for more details.

Step 6

From the *Device Type* drop-down list, select the source/destination of the packets to be filtered. Only one option can be chosen at a time. The options are:

- ANY — Choose this to apply the policy to any device.
- Camera — Choose this to apply the policy to cameras (such as IP security cameras).
- Computer — Choose this to apply the policy to computers.
- Game_Console — Choose this to apply the policy to Gaming Consoles.
- Media_Player — Choose this to apply the policy to Media Players.
- Mobile — Choose this to apply the policy to mobile devices.
- VoIP — Choose this to apply the policy to Voice over Internet Protocol devices.



Policy Profile-Add/Edit

IP Group: Any

Device Type: ANY

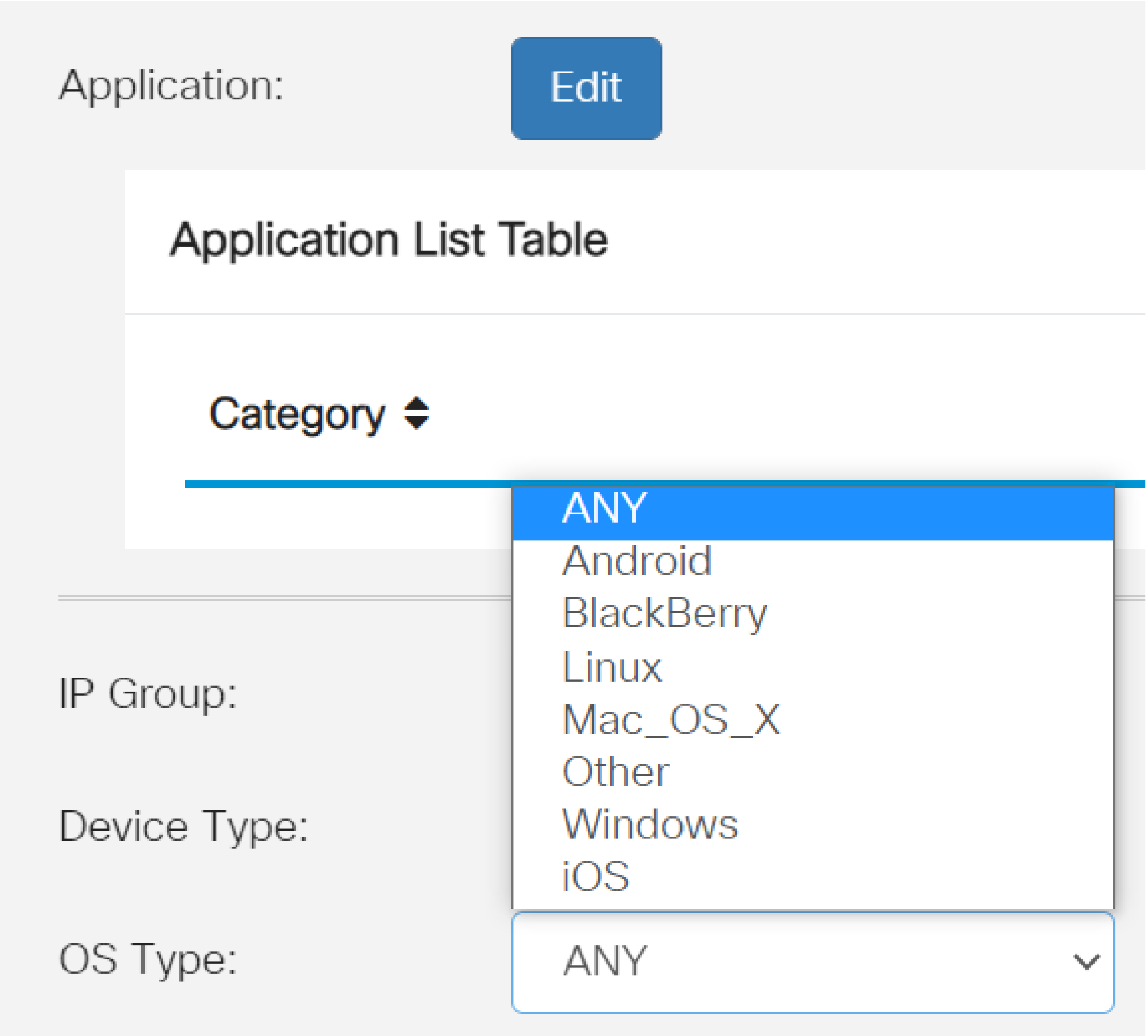
OS Type:

Exclusion List Table

Step 7

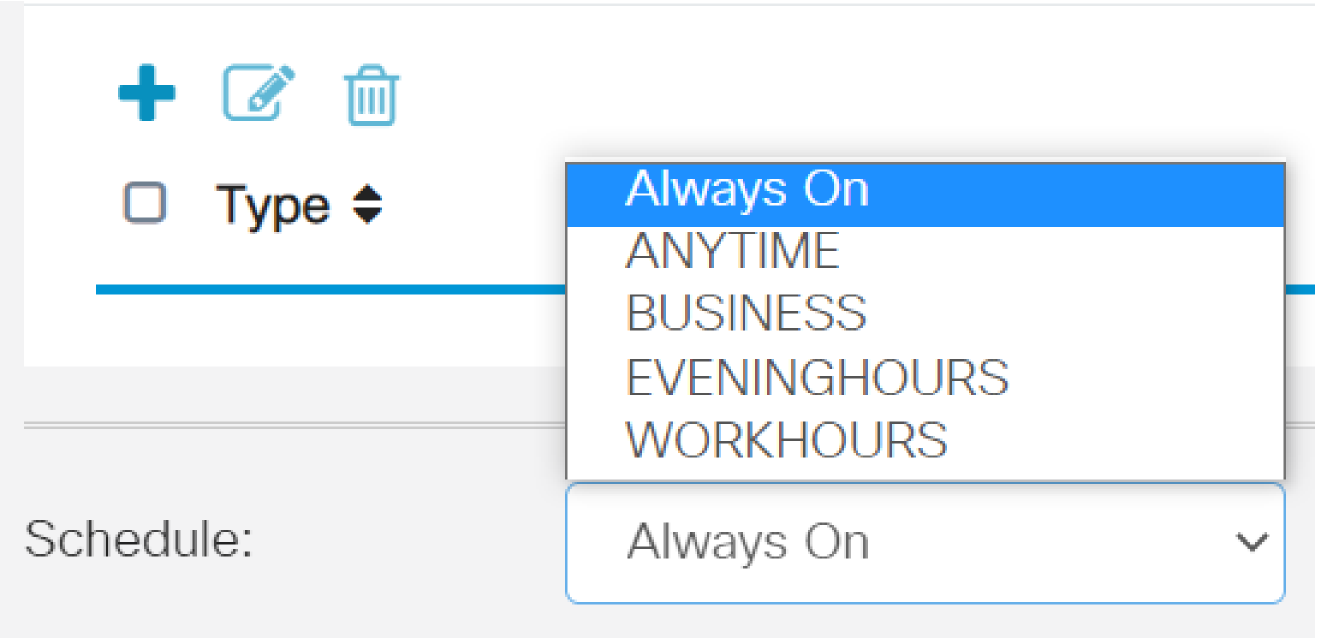
From the *OS Type* drop-down list, choose an Operating System (OS) to which the policy should be applicable. Only one option can be chosen at a time. The options are:

- ANY — Applies the policy to any type of OS. This is the default.
- Android — Applies the policy to Android OS only.
- BlackBerry — Applies the policy to Blackberry OS only.
- Linux — Applies the policy to Linux OS only.
- Mac_OS_X — Applies the policy to Mac OS only.
- Other — Applies the policy to an OS that is not listed.
- Windows — Applies the policy to the Windows OS.
- iOS — Applies the policy to iOS OS only.



Step 8

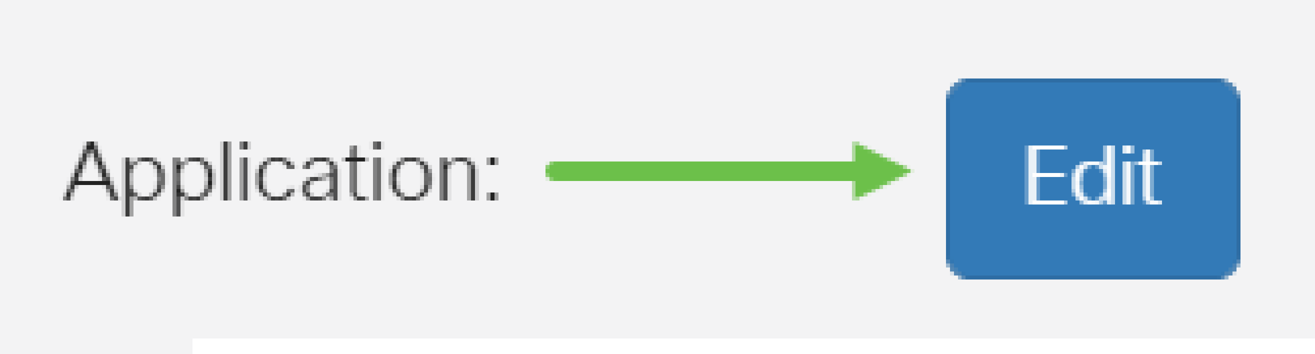
Scroll down to the *Schedule* section and select the option that best fits your needs.



Schedule: Always On

Step 9

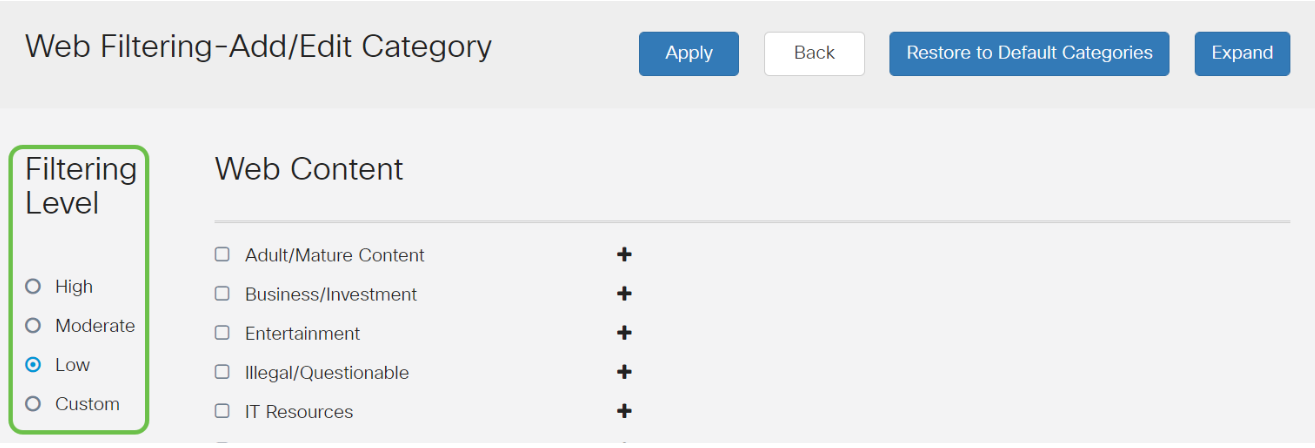
Click the **edit icon**.



Step 10

In the Filtering Level column, click a radio button to quickly define the filtering extent that would best fit the network policies. The options are High, Moderate, Low, and Custom. Click on any of the filtering levels below to know the specific pre-defined sub-categories filtered to each of their enabled Web Content Category. Pre-defined filters cannot be altered any further and are greyed out.

- **Low** — This is the default option. Security is enabled with this option.
- **Moderate** — Adult/Mature Content, Illegal/Questionable, and Security are enabled with this option.
- **High** — Adult/Mature Content, Business/Investment, Illegal/Questionable, IT Resources, and Security are enabled with this option.
- **Custom** — No defaults are set to allow user-defined filters.


Web Filtering-Add/Edit Category

Filtering Level

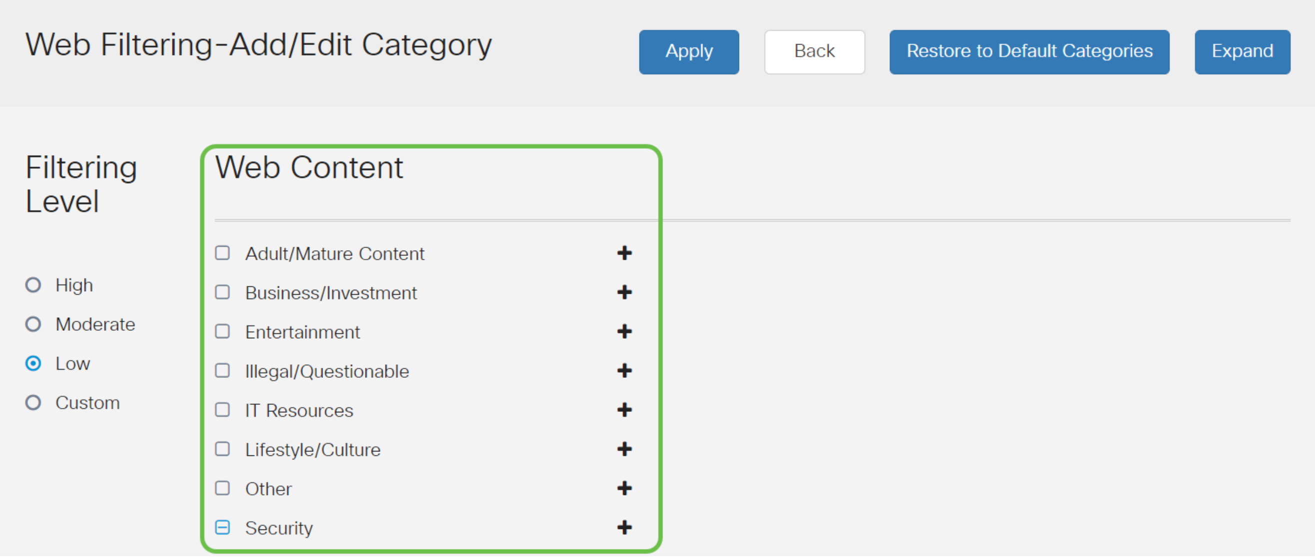
○ High
○ Moderate
● Low
○ Custom

Web Content

□ Adult/Mature Content +
□ Business/Investment +
□ Entertainment +
□ Illegal/Questionable +
□ IT Resources +

Step 11

Enter the web content that you want to filter. Click on the **plus icon** if you want more detail on one section.


Web Filtering-Add/Edit Category

Filtering Level

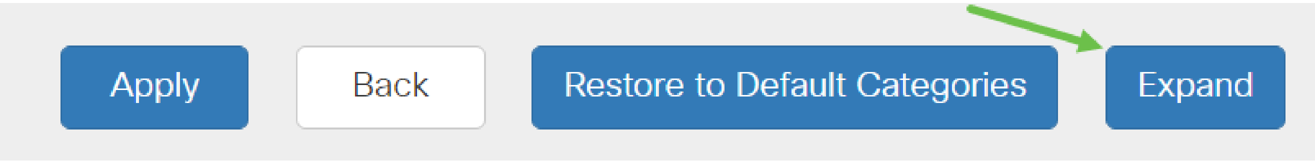
○ High
○ Moderate
● Low
○ Custom

Web Content

□ Adult/Mature Content +
□ Business/Investment +
□ Entertainment +
□ Illegal/Questionable +
□ IT Resources +
□ Lifestyle/Culture +
□ Other +
⊟ Security +

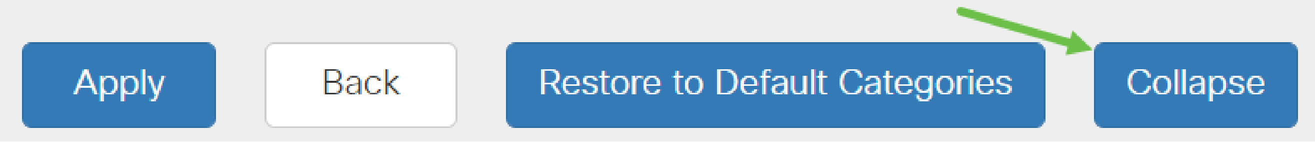
Step 12 (Optional)

To view all Web Content sub-categories and descriptions, you can click the **Expand** button.



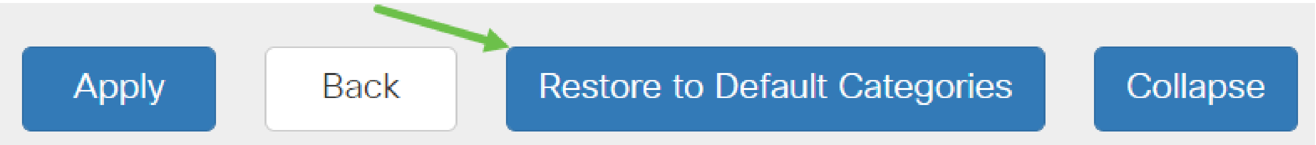
Step 13 (Optional)

Click **Collapse** to collapse the sub-categories and descriptions.



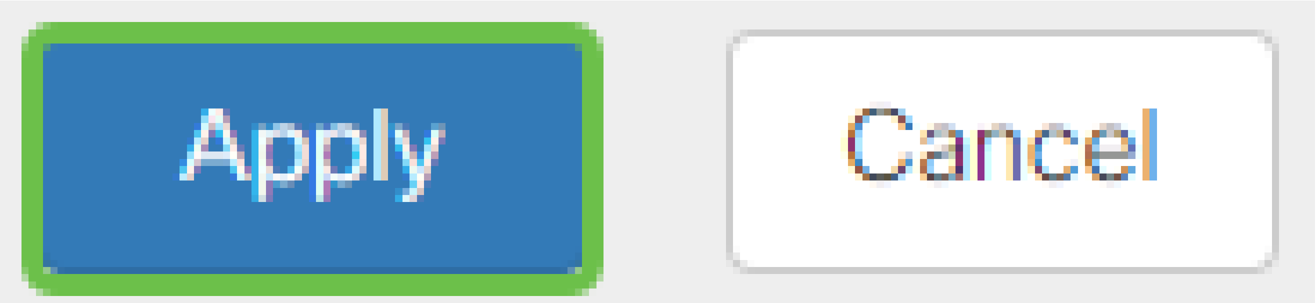
Step 14 (Optional)

To return to the default categories, click **Restore to Default Categories**.



Step 15

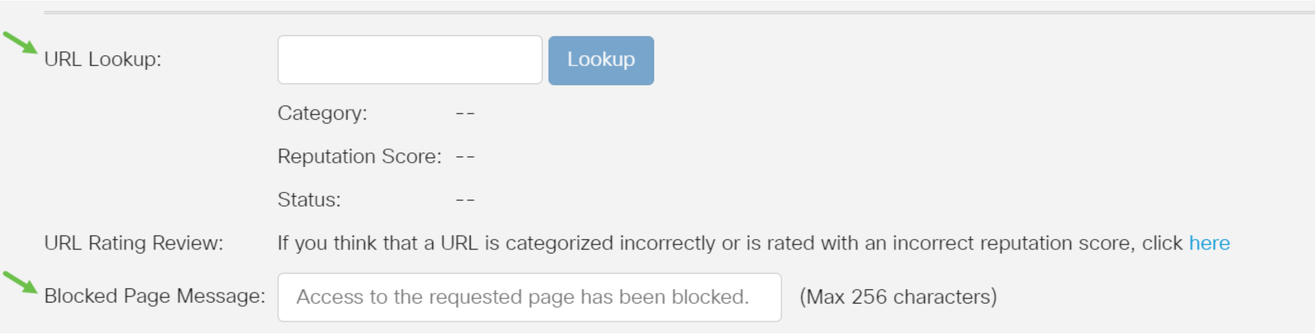
Click **Apply** to save the configuration and to return to the Filter page to continue the setup.



In the Application List Table, the corresponding sub-categories based on the chosen filtering level will populate the table.

Step 16 (Optional)

Other options include URL Lookup and the message that shows when a requested page has been blocked.



URL Lookup: Lookup

Category: --

Reputation Score: --

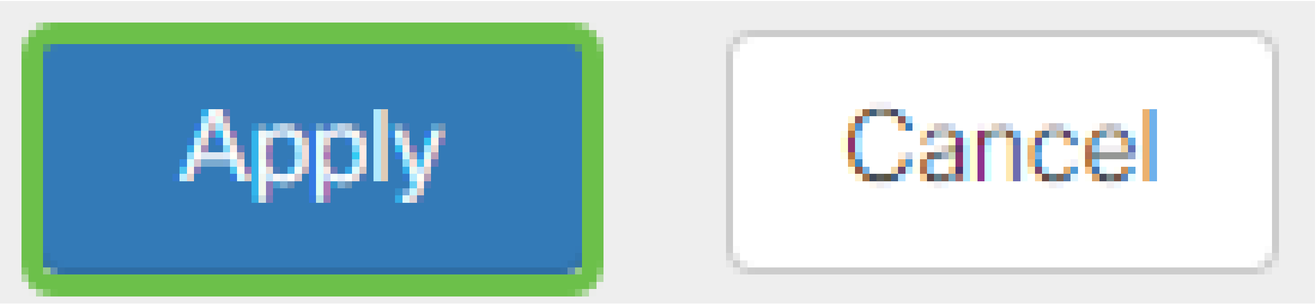
Status: --

URL Rating Review: If you think that a URL is categorized incorrectly or is rated with an incorrect reputation score, click here

Blocked Page Message: Access to the requested page has been blocked. (Max 256 characters)

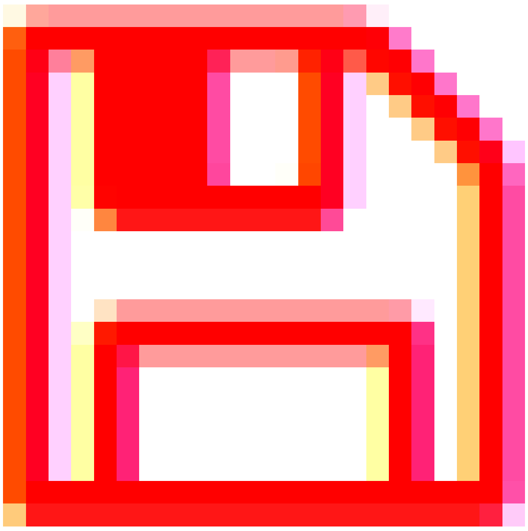
Step 17 (Optional)

Click **Apply**.



Step 18

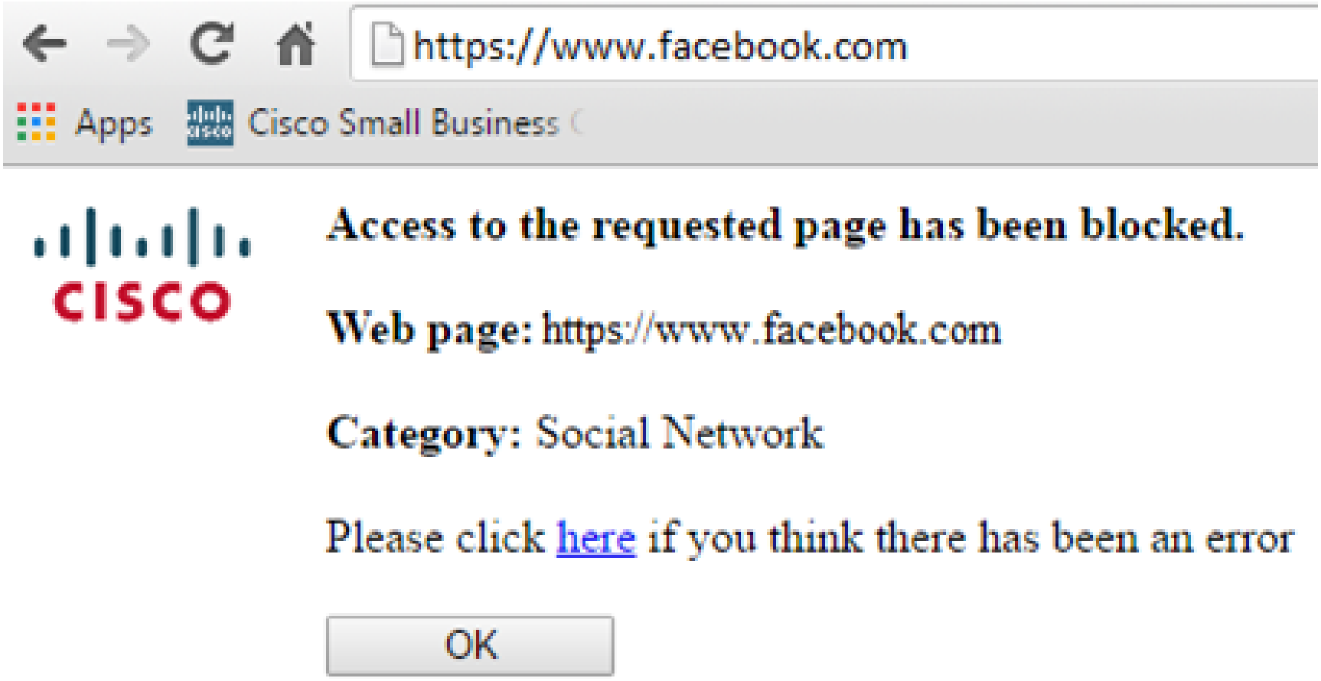
To save the configuration permanently, go to the *Copy/Save Configuration* page or click the **save icon** at the upper portion of the page.



Step 19 (Optional)

To verify that a website or URL has been filtered or blocked, launch a web browser or open a new tab in your browser. Enter the domain name you have block listed or have filtered to be blocked or denied.

In this example, we used **www.facebook.com**.



https://www.facebook.com

Access to the requested page has been blocked.

Web page: https://www.facebook.com

Category: Social Network

Please click here if you think there has been an error

You should now have successfully configured web filtering on your RV345P Router. Since you are using the RV Security License for web filtering, you probably don't need Umbrella. If you also want Umbrella, click here. If you have enough security, click to skip to the next section.

Troubleshooting

If you've purchased a license but it is not appearing in your virtual account, you have two options:

1. Follow up with the reseller to request they make the transfer.
2. Reach out to us and we'll get in touch with the reseller.

Ideally, you wouldn't have to do either, but if you arrive at this crossroad we're happy to help! To make the process as expedient as possible, you will need the credentials in the table above as well as those outlined below.

Information Required	Locating the information
License Invoice	This should be emailed to you after completing the purchase of the licenses.
Cisco Sales Order number	You may need to go back to the reseller to get this.
Screenshot of your Smart Account license page	Taking a screenshot captures the contents of your screen for sharing with our team. If you're unfamiliar with screenshots you can use the below methods.

Screenshots

Once you have a token, or if you are troubleshooting, it is recommended that you take a screenshot to capture the contents of your screen.

Given the differences in the procedure required to capture a screenshot, see below for links specific to your operating system.

- **Windows**
- **MAC**

- **iPhone/iPad**
- **Android**

Umbrella RV Branch License (Optional)

Umbrella is a simple, yet very effective cloud security platform from Cisco.

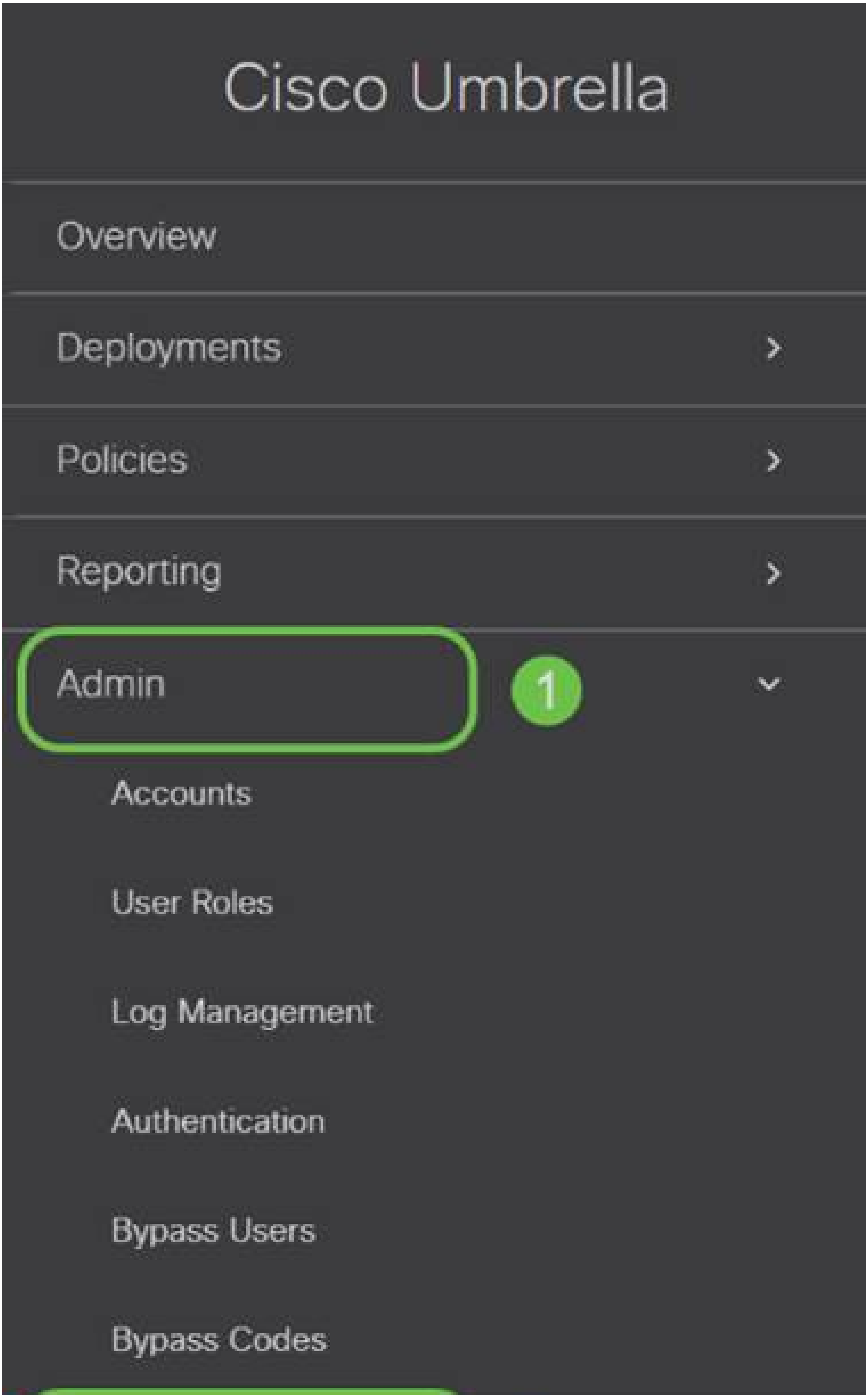
Umbrella operates in the cloud and performs many security-related services. From emergent threat to post-event investigation. Umbrella discovers and prevents attacks across all ports and protocols.

Umbrella uses DNS as its main vector for defense. When users enter a URL in their browser bar and hit *Enter*, Umbrella participates in the transfer. That URL passes to Umbrella’s DNS resolver, and if a security warning associates with the domain, the request is blocked. This telemetry data transfers and is analyzed in microseconds, adding nearly no latency. Telemetry data uses logs and instruments tracking billions of DNS requests throughout the world. When this data is pervasive, correlating it across the globe enables rapid response to attacks as they begin. See Cisco’s privacy policy here for more information: full policy, summary version. Think of telemetry data as data derived from tools and logs.

Visit Cisco Umbrella to learn more and to create an account. If you run into any issues, check here for documentation, and here for Umbrella Support options.

Step 1

After logging into your Umbrella Account, from the *Dashboard* screen click on **Admin** > **API Keys**.



Cisco Umbrella

Overview

Deployments

Policies

Reporting

Admin

1

Accounts

User Roles

Log Management

Authentication

Bypass Users

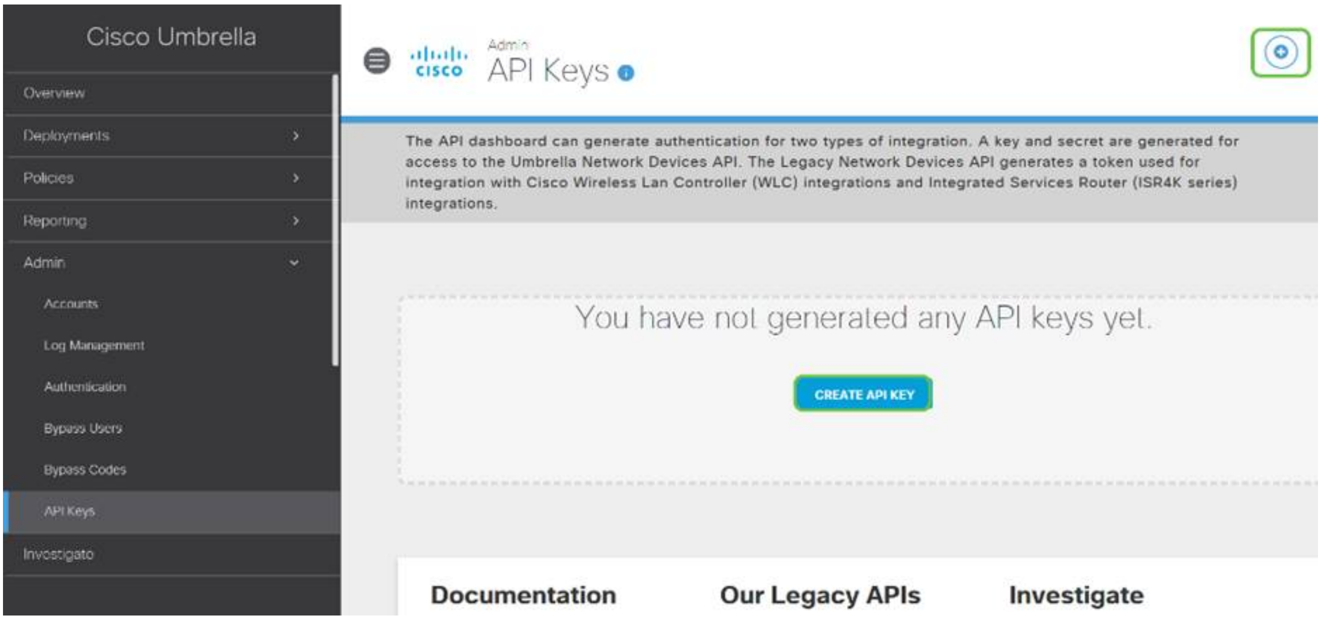
Bypass Codes

Anatomy of the API Keys Screen (with pre-existing API key)

1. Add API Key – Initiates the creation of a new key for use with the Umbrella API.
2. Additional Info – Slides down/up with an explainer for this screen.
3. Token Well – Contains all keys and tokens created by this account. (Populates once a key has been created)
4. Support Documents – Links to documentation on the Umbrella site pertaining to the topics in each section.

Step 2

Click on the **Add API Key** button in the upper-right hand corner or click the **Create API Key** button. They both function the same.



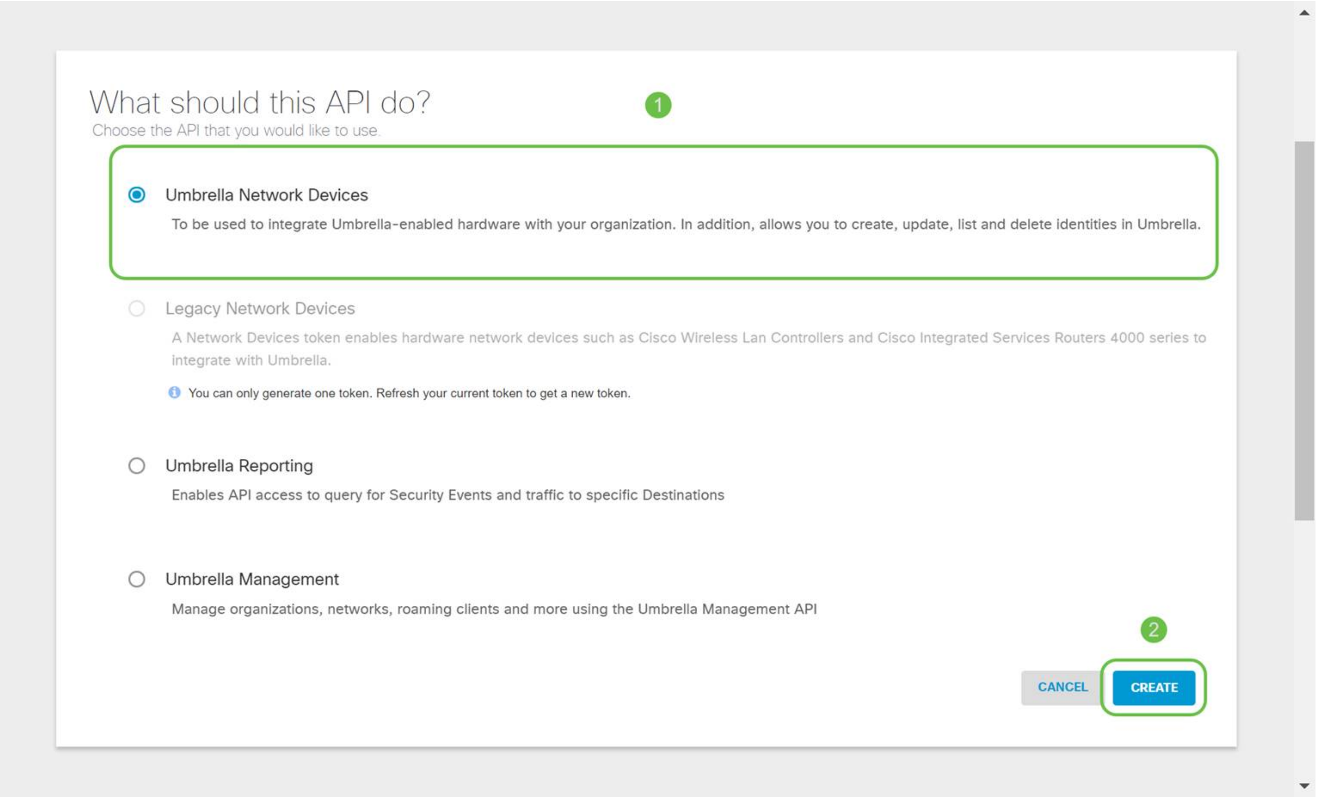
The API dashboard can generate authentication for two types of integration. A key and secret are generated for access to the Umbrella Network Devices API. The Legacy Network Devices API generates a token used for integration with Cisco Wireless Lan Controller (WLC) integrations and Integrated Services Router (ISR4K series) integrations.

You have not generated any API keys yet.

The above screenshot would be similar to what you would see opening this menu for the first time.

Step 3

Select **Umbrella Network Devices** and then click the **Create** button.



What should this API do?

Choose the API that you would like to use.

● Umbrella Network Devices

To be used to integrate Umbrella-enabled hardware with your organization. In addition, allows you to create, update, list and delete identities in Umbrella.

○ Legacy Network Devices

A Network Devices token enables hardware network devices such as Cisco Wireless Lan Controllers and Cisco Integrated Services Routers 4000 series to integrate with Umbrella.

You can only generate one token. Refresh your current token to get a new token.

○ Umbrella Reporting

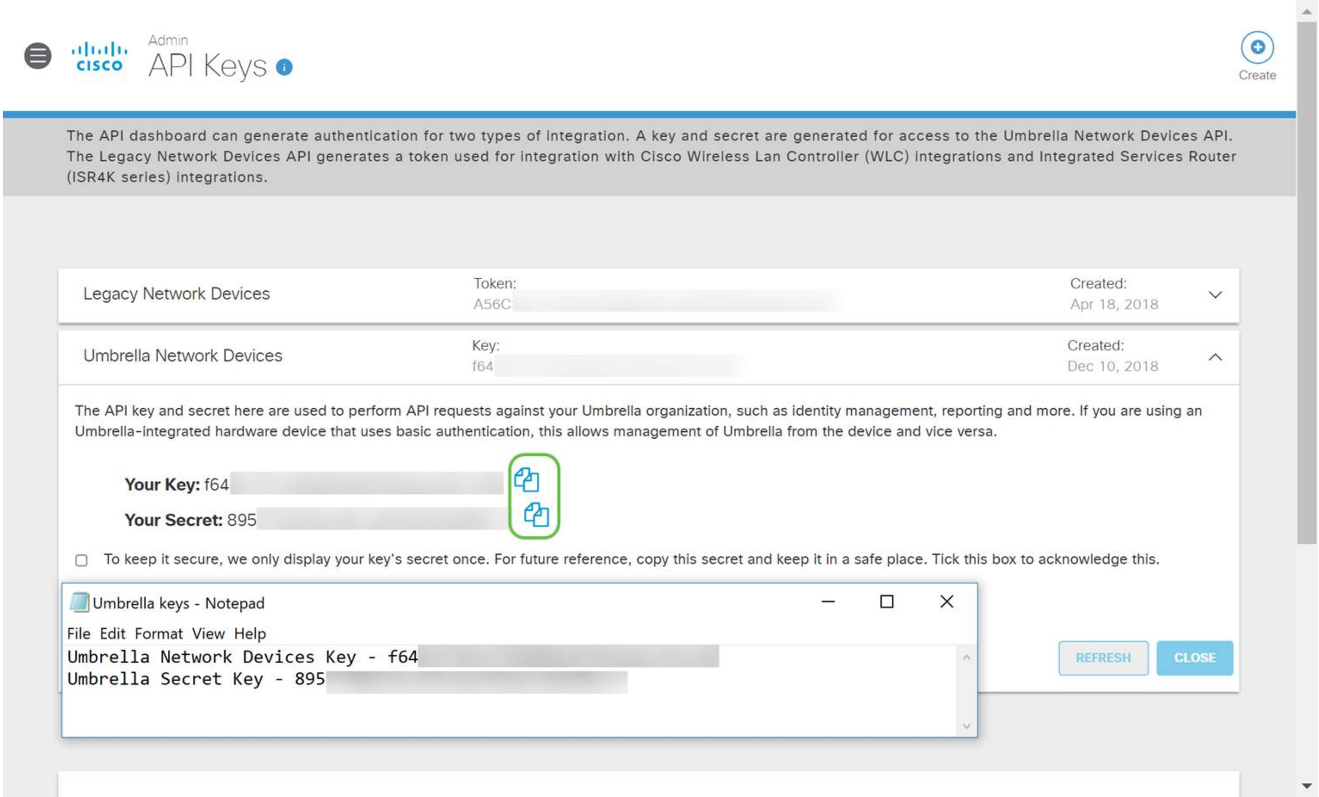
Enables API access to query for Security Events and traffic to specific Destinations

○ Umbrella Management

Manage organizations, networks, roaming clients and more using the Umbrella Management API

Step 4

Open a text editor such as notepad then click the **copy icon** to the right of your API and API *Secret Key*, a pop-up notification will confirm the key is copied to your clipboard. One at a time, paste your secret and API key into the document, labeling them for future reference. In this case, its label is “Umbrella network devices key”. Then save the text file to a secure location that's easy to access later.



The API dashboard can generate authentication for two types of integration. A key and secret are generated for access to the Umbrella Network Devices API. The Legacy Network Devices API generates a token used for integration with Cisco Wireless Lan Controller (WLC) integrations and Integrated Services Router (ISR4K series) integrations.

Legacy Network Devices — Token: A56C[redacted] — Created: Apr 18, 2018

Umbrella Network Devices — Key: f64[redacted] — Created: Dec 10, 2018

The API key and secret here are used to perform API requests against your Umbrella organization, such as identity management, reporting and more. If you are using an Umbrella-integrated hardware device that uses basic authentication, this allows management of Umbrella from the device and vice versa.

Your Key: f64[redacted]

Your Secret: 895[redacted]

□ To keep it secure, we only display your key's secret once. For future reference, copy this secret and keep it in a safe place. Tick this box to acknowledge this.

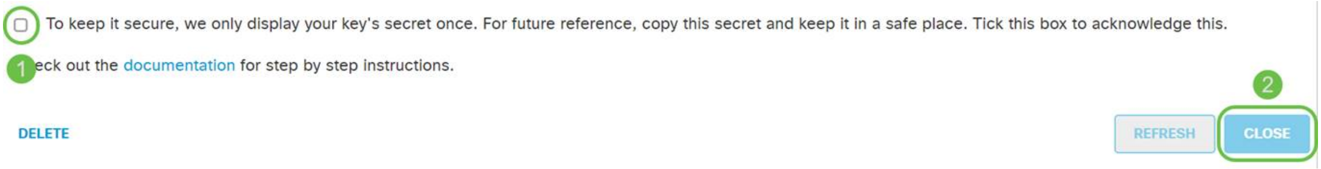
Umbrella keys - Notepad

File Edit Format View Help

```
Umbrella Network Devices Key - f64[redacted]
Umbrella Secret Key - 895[redacted]
```

Step 5

After you’ve copied the key and secret key to a safe location, from the *Umbrella API screen* click the **checkbox** to confirm to complete acknowledgment of the temporary viewing of the secret key, then click the **Close** button.



□ To keep it secure, we only display your key's secret once. For future reference, copy this secret and keep it in a safe place. Tick this box to acknowledge this.

eck out the documentation for step by step instructions.

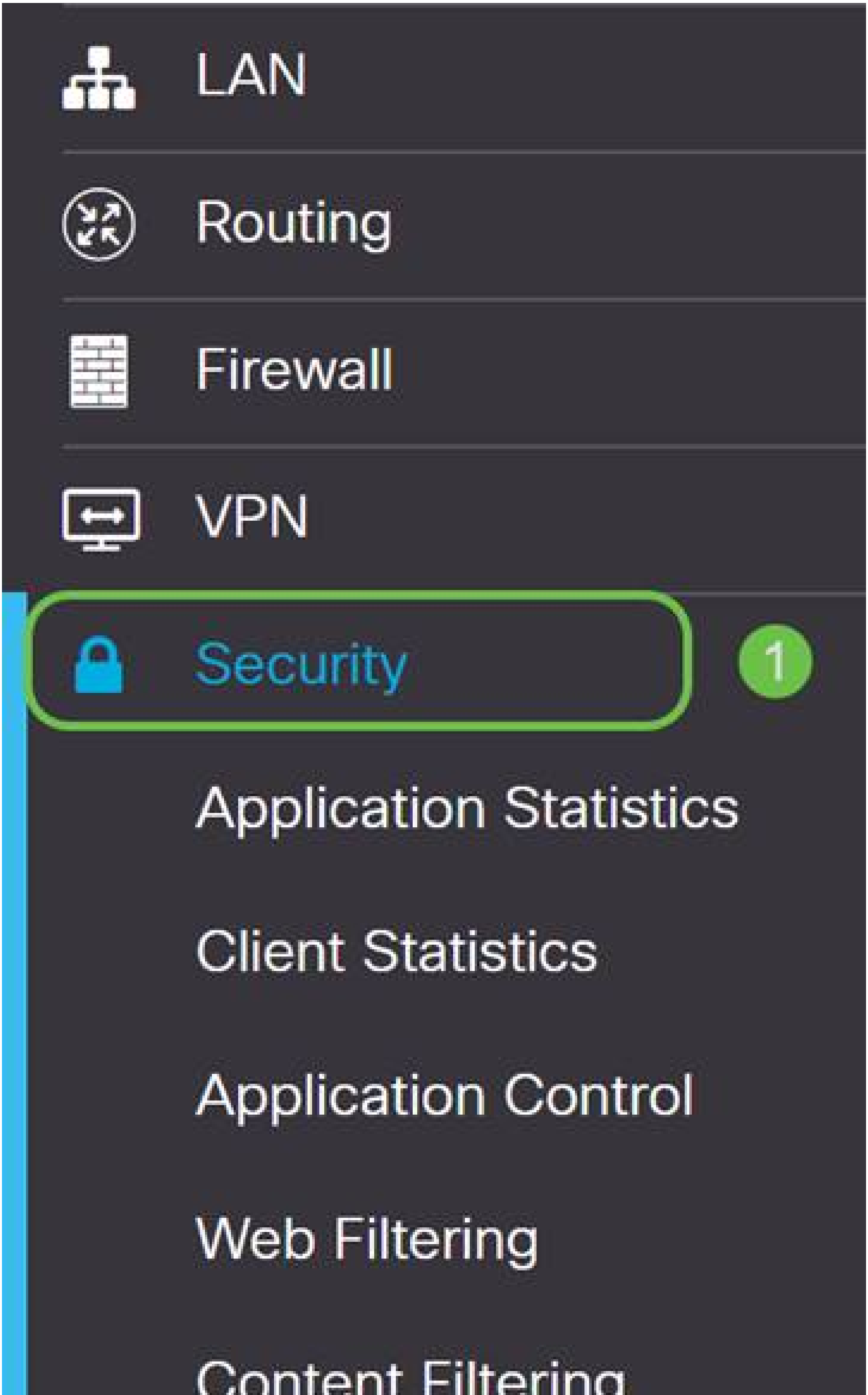
If you lose or accidentally delete the secret key, there is no function or support number to call to retrieve this key. If lost, you will need to delete the key and re-authorize the new API key with each device you wish to protect with Umbrella.

Configuring Umbrella on your RV345P

Now that we’ve created API keys within Umbrella, you can take those keys and install them on your RV345P.

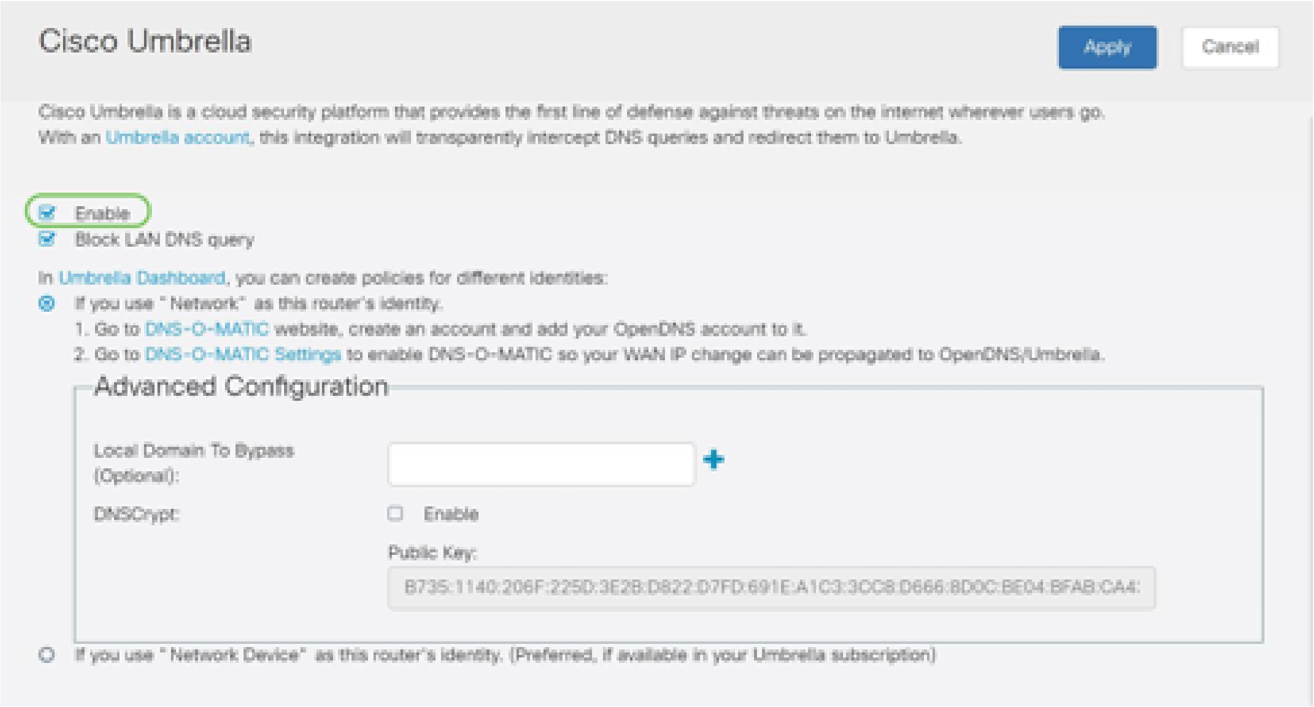
Step 1

After logging into your RV345P router, click on **Security > Umbrella** in the sidebar menu.


LAN
Routing
Firewall
VPN
Security
1
Application Statistics
Client Statistics
Application Control
Web Filtering
Content Filtering

Step 2

The Umbrella API screen has a range of options, begin enabling Umbrella by clicking the **Enable** checkbox.



Cisco Umbrella

Cisco Umbrella is a cloud security platform that provides the first line of defense against threats on the internet wherever users go. With an Umbrella account, this integration will transparently intercept DNS queries and redirect them to Umbrella.

☑ Enable
☑ Block LAN DNS query

In Umbrella Dashboard, you can create policies for different identities:

● If you use " Network" as this router's identity.

1. Go to DNS-O-MATIC website, create an account and add your OpenDNS account to it.
2. Go to DNS-O-MATIC Settings to enable DNS-O-MATIC so your WAN IP change can be propagated to OpenDNS/Umbrella.

Advanced Configuration

Local Domain To Bypass (Optional):

DNSCrypt: □ Enable

Public Key: B735:1140:206F:225D:3E2B:D822:D7FD:691E:A1C3:3CC8:D666:8D0C:BE04:BFAB:CA4:

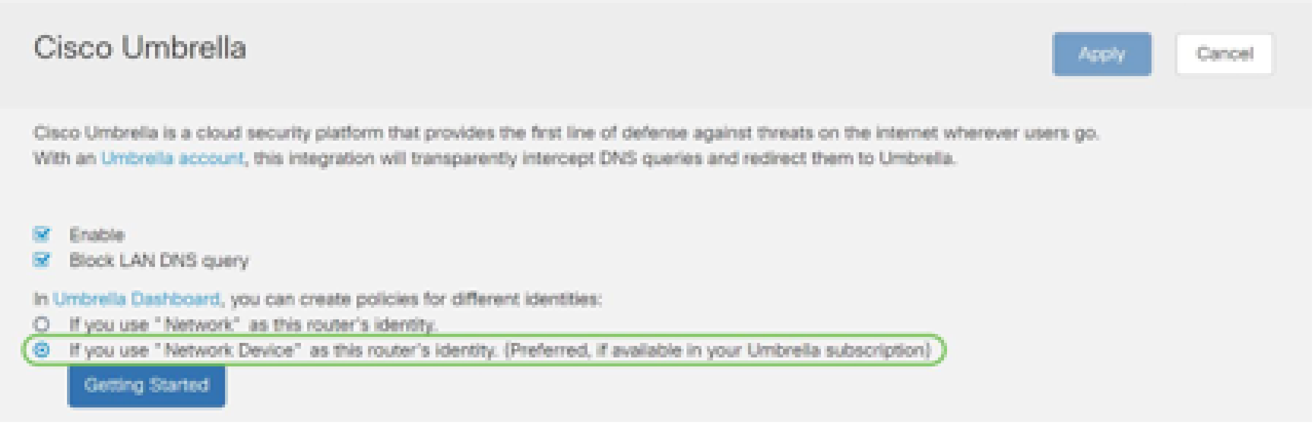
○ If you use " Network Device" as this router's identity. (Preferred, if available in your Umbrella subscription)

Step 3 (Optional)

On by default, the box *Block LAN DNS Queries* is selected. This neat feature automatically creates access control lists on your router which will prevent DNS traffic from going out to the Internet. This feature forces all domain translation requests to be directed through the RV345P and is a good idea for most users.

Step 4

The next step plays out in two different ways. They both depend on the setup of your network. If you use a service like DynDNS or NoIP, you leave the default naming scheme of “Network”. You will need to log into those accounts to ensure Umbrella interfaces with those services as it provides protection. For our purposes we’re relying on “Network Device”, so we click on the bottom radio button.



Cisco Umbrella

Cisco Umbrella is a cloud security platform that provides the first line of defense against threats on the internet wherever users go. With an Umbrella account, this integration will transparently intercept DNS queries and redirect them to Umbrella.

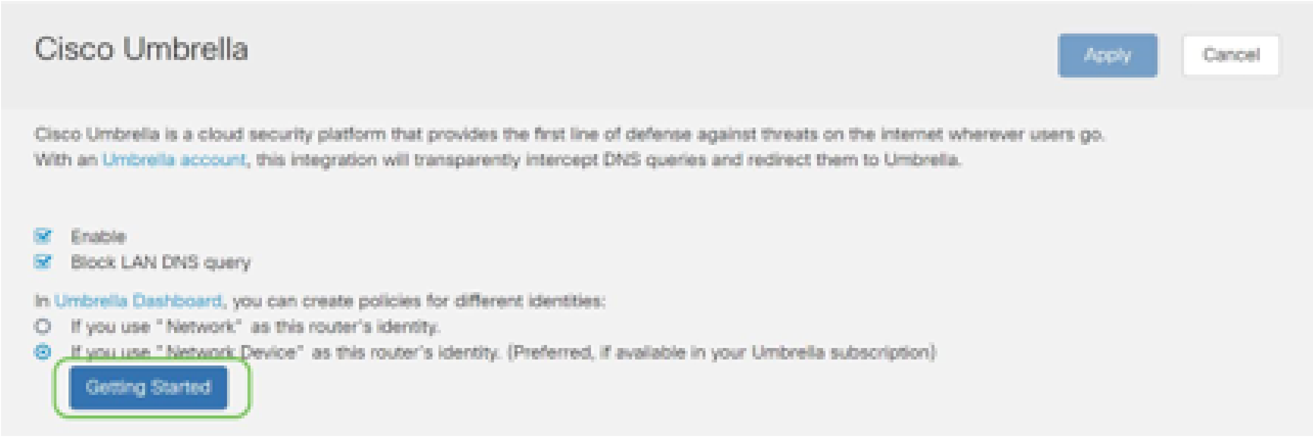
☑ Enable
☑ Block LAN DNS query

In Umbrella Dashboard, you can create policies for different identities:

○ If you use " Network" as this router's identity.
● If you use " Network Device" as this router's identity. (Preferred, if available in your Umbrella subscription)

Step 5

Click **Getting Started**.



Cisco Umbrella

Cisco Umbrella is a cloud security platform that provides the first line of defense against threats on the internet wherever users go. With an Umbrella account, this integration will transparently intercept DNS queries and redirect them to Umbrella.

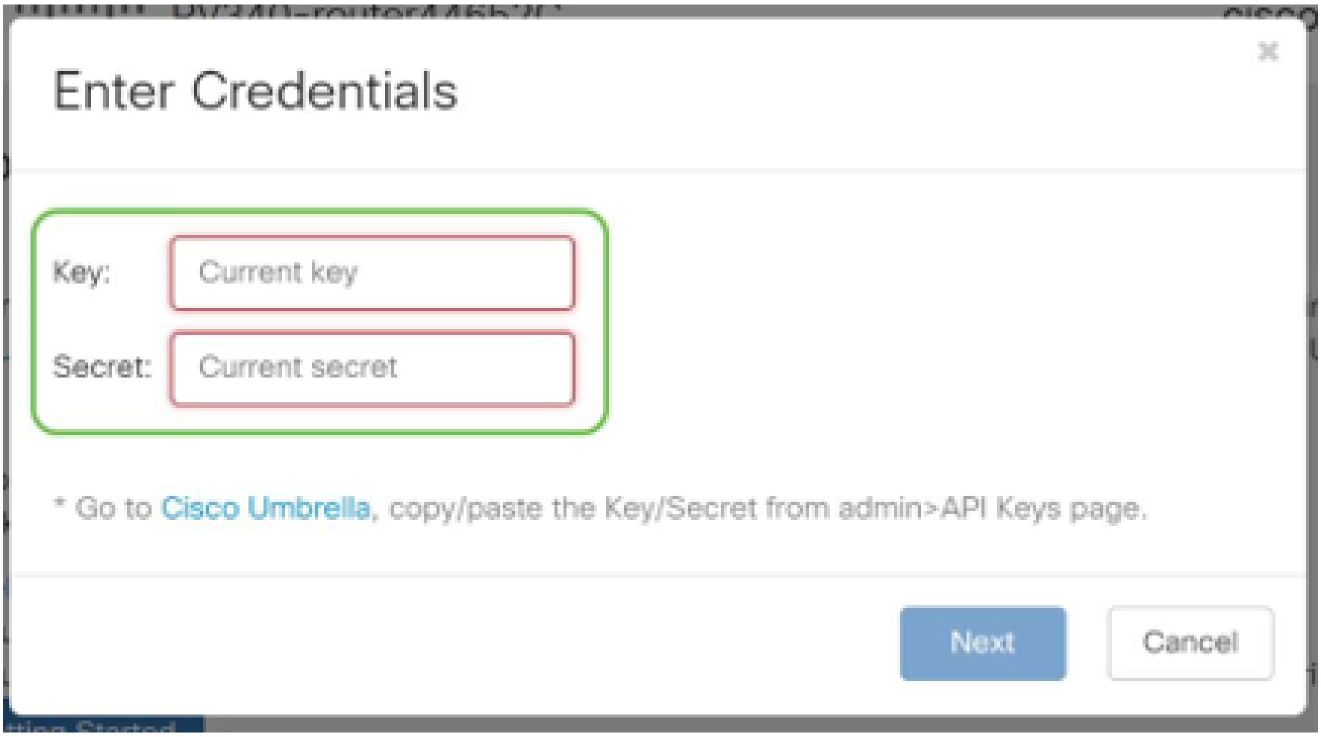
☑ Enable
☑ Block LAN DNS query

In Umbrella Dashboard, you can create policies for different identities:
○ If you use "Network" as this router's identity.
● If you use "Network Device" as this router's identity. (Preferred, if available in your Umbrella subscription)

Step 6

Enter the **API Key** and **Secret Key** to the text boxes.

Calling it out twice so you know it's important! If you lose or accidentally delete the secret key, there is no function or support number to call to retrieve this key. Keep it secret and safe. If lost, you will need to delete the key and re-authorize the new API key with each device you wish to protect with Umbrella.



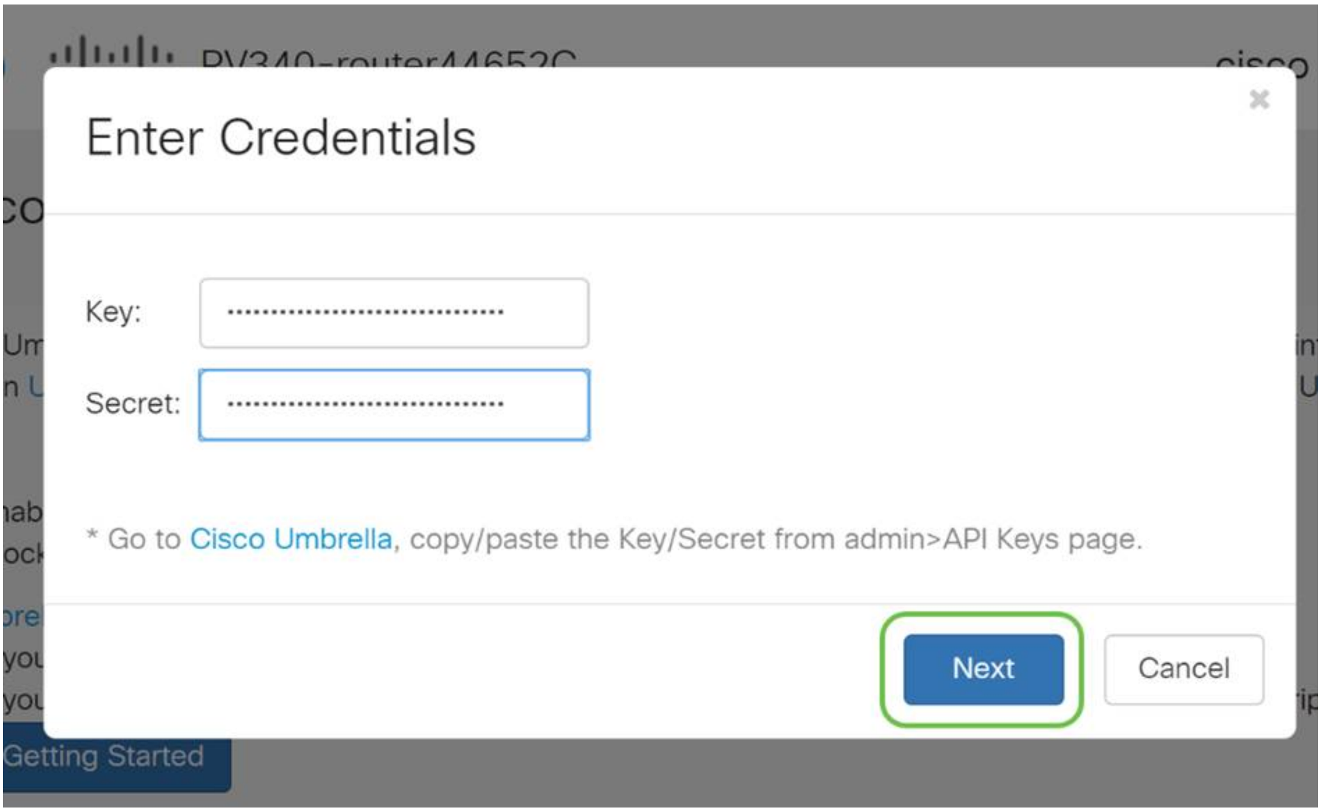
Enter Credentials

Key: Current key
Secret: Current secret

* Go to Cisco Umbrella, copy/paste the Key/Secret from admin>API Keys page.

Step 7

After entering your API and Secret Key, click the **Next** button.



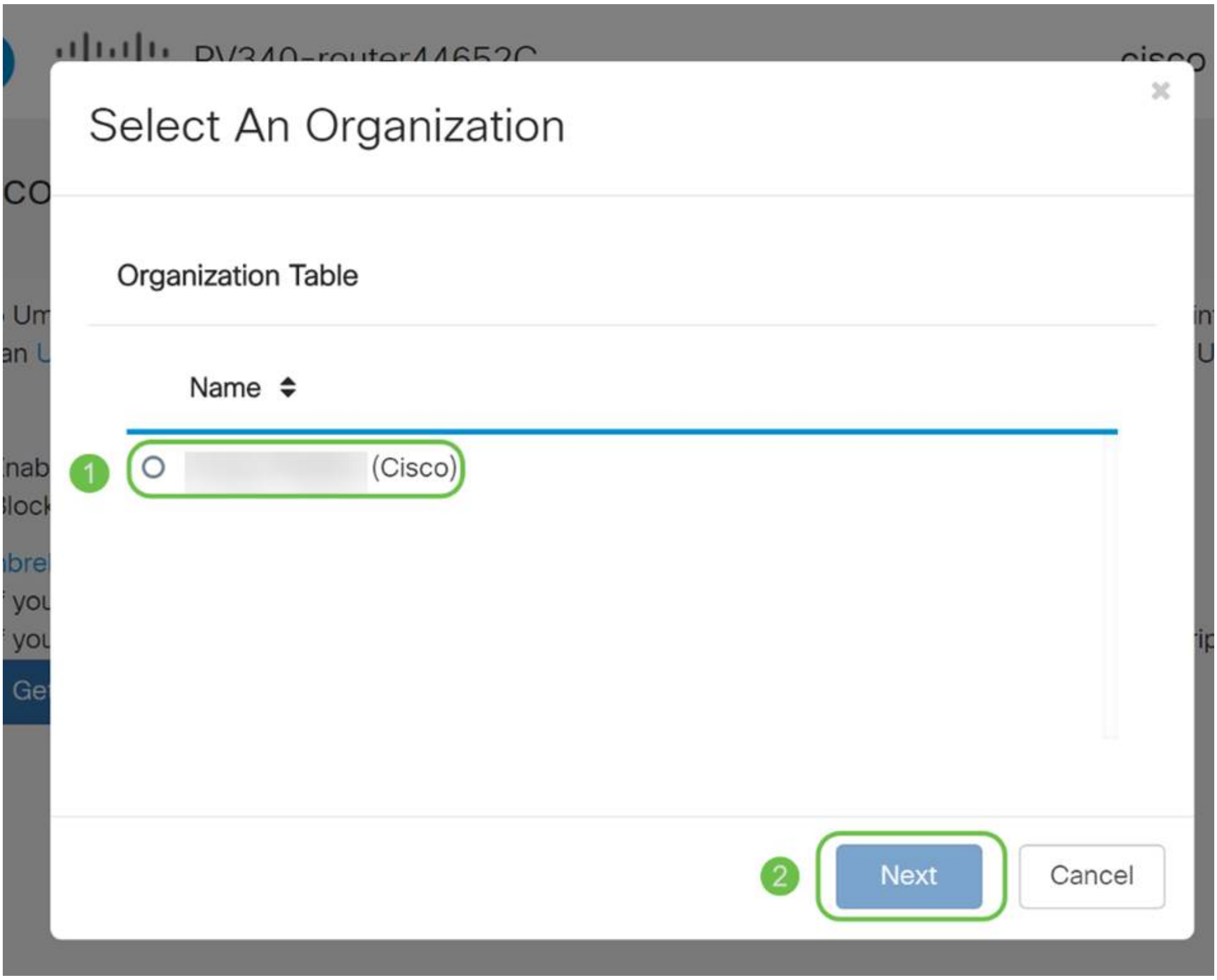
Key: ································

Secret: ································

* Go to Cisco Umbrella, copy/paste the Key/Secret from admin>API Keys page.

Step 8

In the next screen, select the **organization** you wish to associate with the router. Click **Next**.

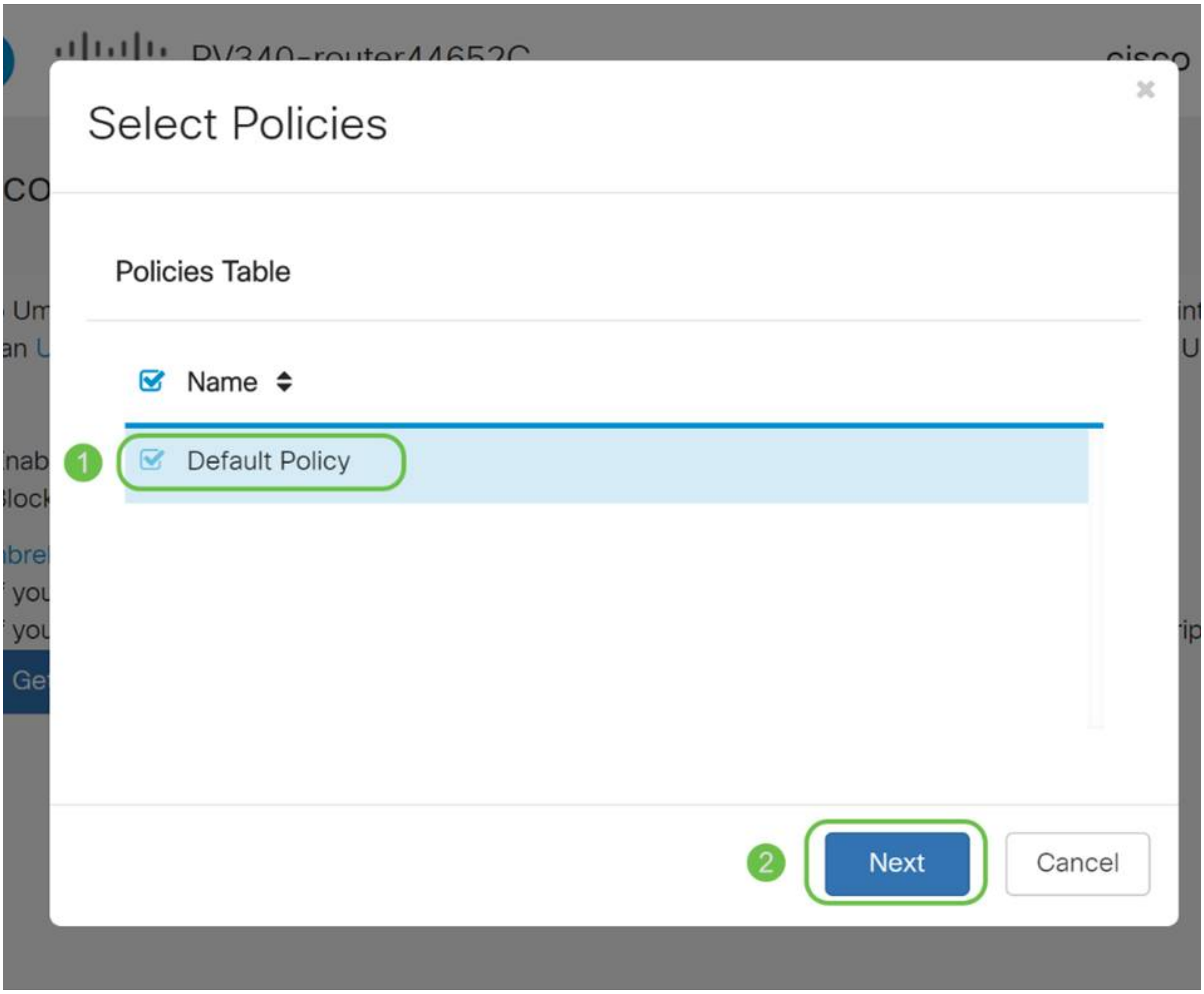


Select An Organization

Organization Table

Step 9

Select the policy to apply to traffic routed by the RV345P. For most users, the default policy will provide enough coverage.



Select Policies

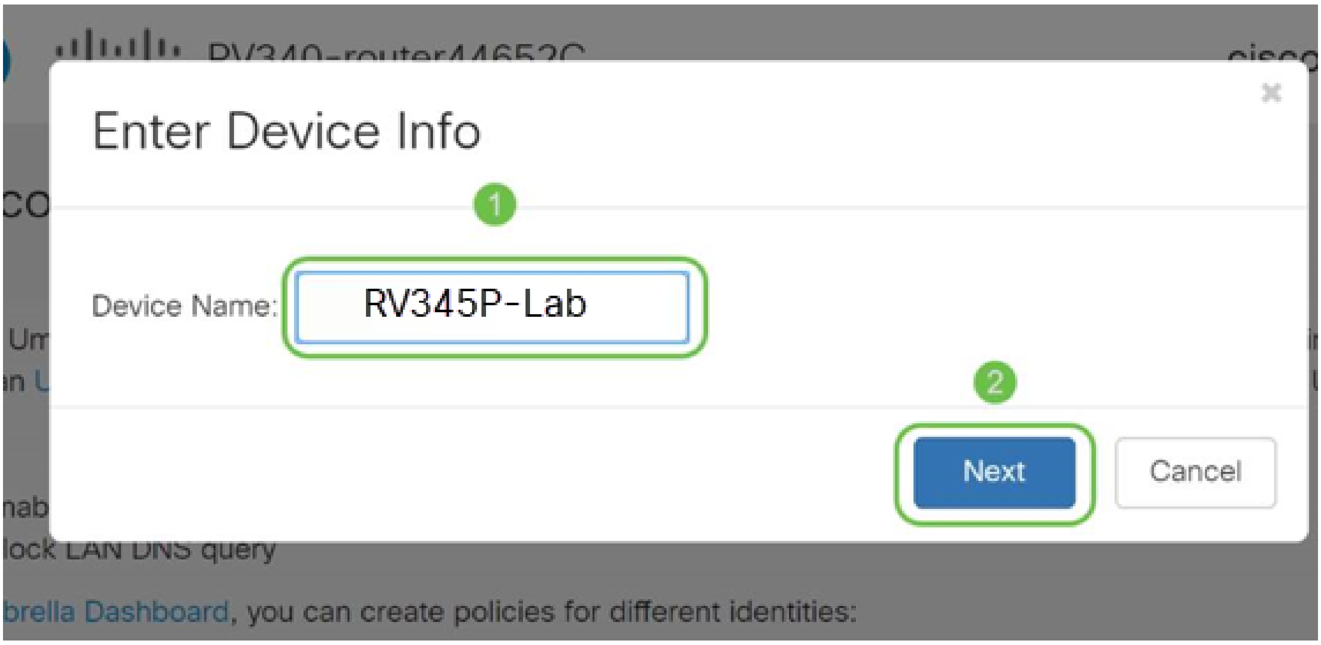
Policies Table

☑ Name

1 ☑ Default Policy

Step 10

Assign a name to the device so it may be designated in Umbrella reporting. In our setup, we have named it *RV345P-Lab*.

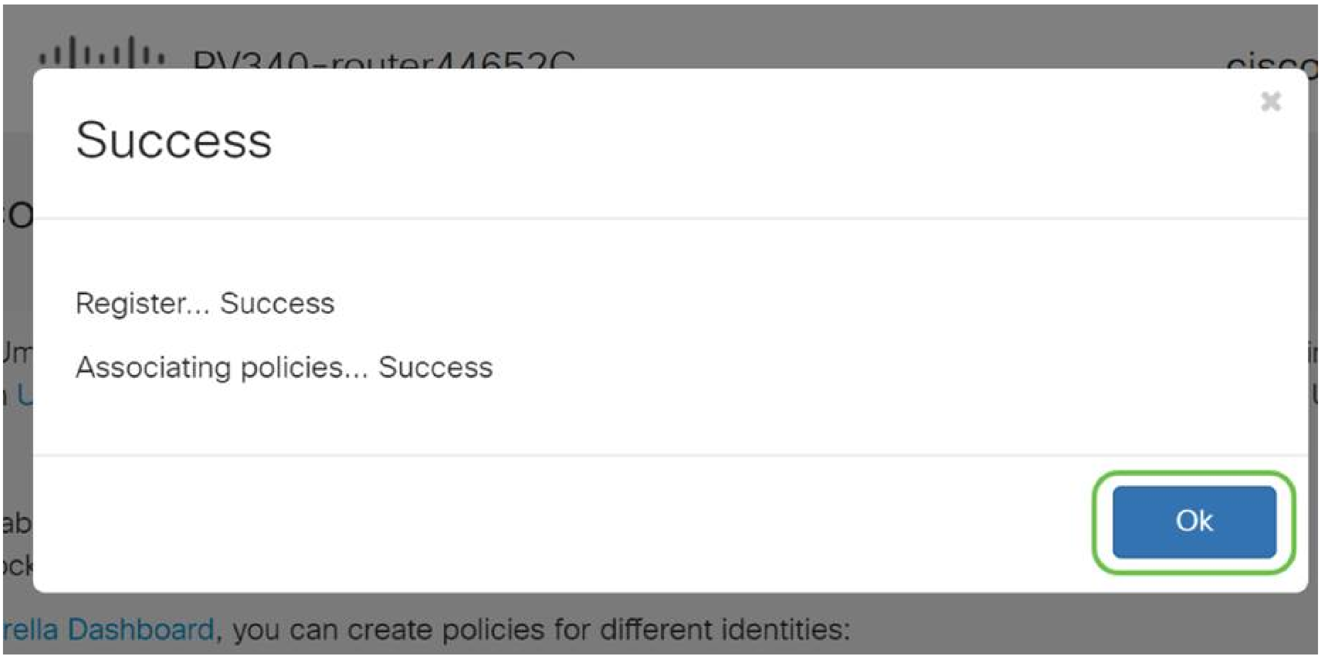


Enter Device Info

Device Name: RV345P-Lab

Step 11

The next screen will validate your chosen settings and provide an update when associated successfully. Click **OK**.



RV340-router44652C
cisco
rella Dashboard, you can create policies for different identities:

Success

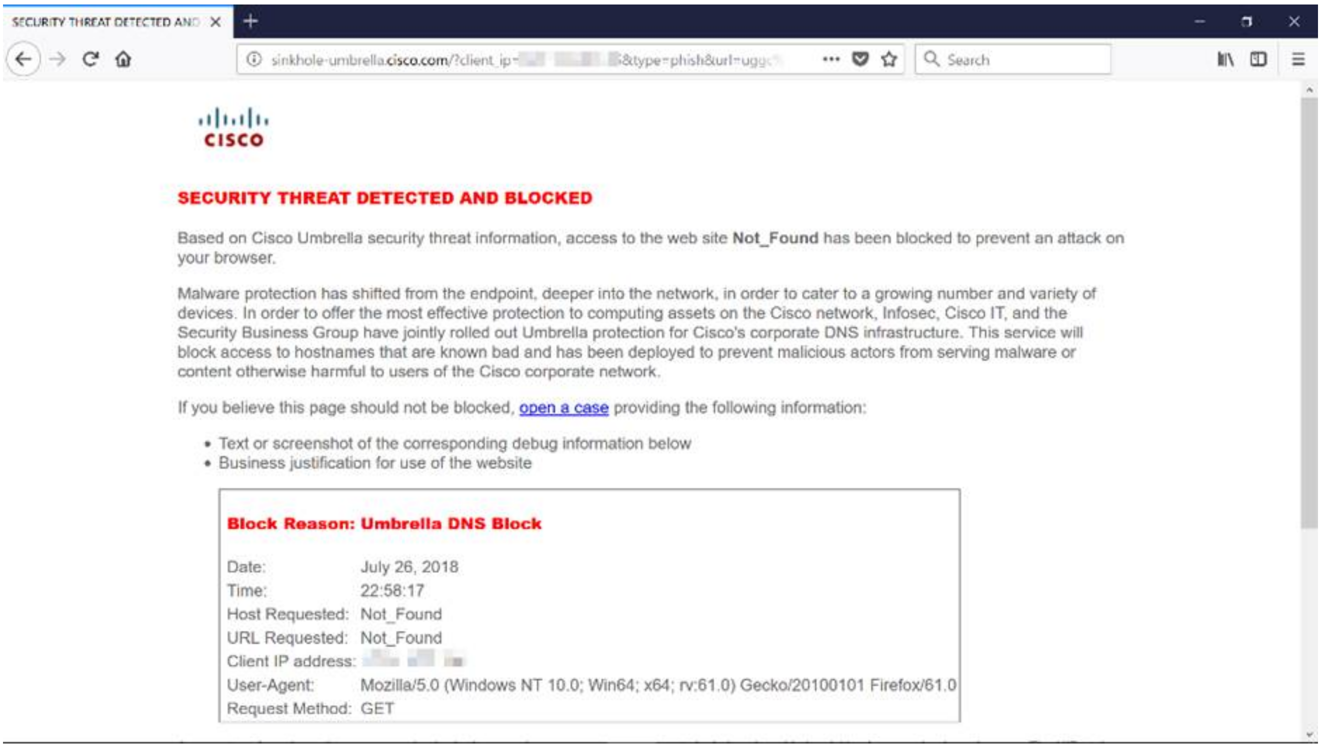
Register... Success

Associating policies... Success

Confirmation

Congratulations, you are now protected by Cisco Umbrella. Or are you? Let's be sure by double-checking with a live example, Cisco has created a website dedicated to determining this as quickly as the page loads. [Click here]() or type https://InternetBadGuys.com into the browser bar.

If Umbrella is configured correctly, you will be greeted by a screen similar to this.



SECURITY THREAT DETECTED AND
sinkhole-umbrella.cisco.com/?client_ip=[redacted]&type=phish&url=ugg
Search
cisco

SECURITY THREAT DETECTED AND BLOCKED

Based on Cisco Umbrella security threat information, access to the web site **Not_Found** has been blocked to prevent an attack on your browser.

Malware protection has shifted from the endpoint, deeper into the network, in order to cater to a growing number and variety of devices. In order to offer the most effective protection to computing assets on the Cisco network, Infosec, Cisco IT, and the Security Business Group have jointly rolled out Umbrella protection for Cisco's corporate DNS infrastructure. This service will block access to hostnames that are known bad and has been deployed to prevent malicious actors from serving malware or content otherwise harmful to users of the Cisco corporate network.

If you believe this page should not be blocked, open a case providing the following information:

- Text or screenshot of the corresponding debug information below
- Business justification for use of the website

Block Reason: Umbrella DNS Block

Date:	July 26, 2018
Time:	22:58:17
Host Requested:	Not_Found
URL Requested:	Not_Found
Client IP address:	[redacted]
User-Agent:	Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:61.0) Gecko/20100101 Firefox/61.0
Request Method:	GET

Other Security Options

Are you worried that someone would attempt unauthorized access to the network by unplugging an Ethernet cable from a network device and connecting to it? In this case, it is important to register a list of allowed hosts to directly connect to the router with their respective IP and MAC addresses. Instructions can be found in the article Configure IP Source Guard on the RV34x Series Router.

VPN Options

A Virtual Private Network (VPN) connection allows users to access, send, and receive data to and from a private network by means of going through a public or shared network such as the Internet but still ensuring a secure connection to an underlying network infrastructure to protect the private network and its resources.

A VPN tunnel establishes a private network that can send data securely using encryption and authentication. Corporate offices mostly use VPN connection since it is both useful and necessary to allow their employees to have access to their private network even if they are outside the office.

The VPN allows a remote host to act as if they were located on the same local network. The router supports up to 50 tunnels. A VPN connection can be set up between the router and an endpoint after the router has been configured for Internet connection. The VPN client is entirely dependent on the settings of the VPN router to be able to establish a connection.

If you are not sure which VPN best fits your needs, check out Cisco Business VPN Overview and Best Practices.

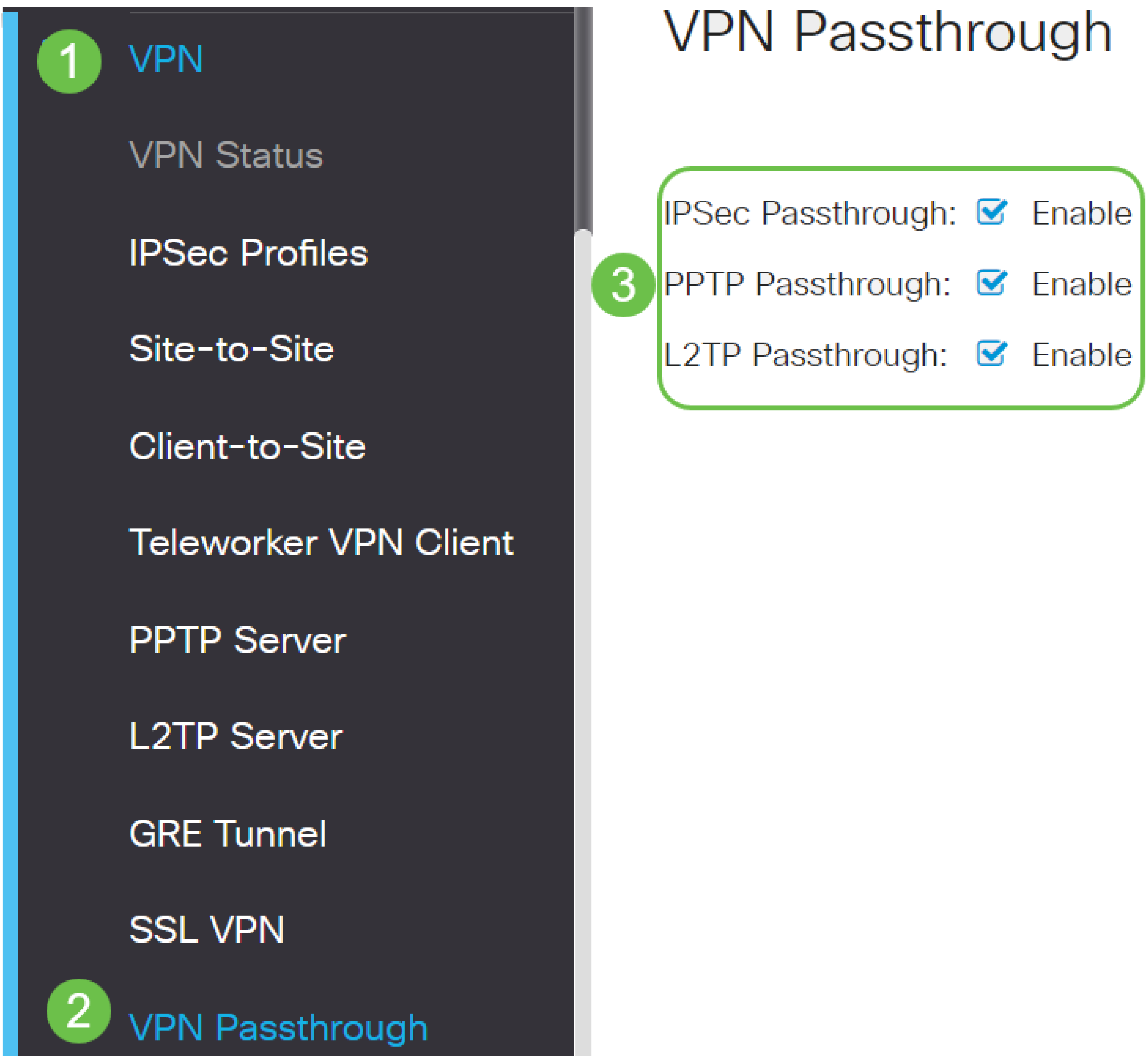
AnyConnect VPN is the only Cisco VPN supported product listed in this configuration guide. Third-party, non-Cisco products, including TheGreenBow and Shrew Soft are not supported by Cisco. They are included strictly for guidance purposes. If you need support on these beyond the article, you should contact that third-party for support.

If you are not planning on setting up a VPN, you can click to jump to the next section.

VPN Passthrough

Generally, every router supports Network Address Translation (NAT) in order to conserve IP addresses when you want to support several clients with the same Internet connection. However, Point-to-Point Tunneling Protocol (PPTP) and Internet Protocol Security (IPsec) VPN do not support NAT. This is where the VPN Passthrough comes in. A VPN Passthrough is a feature that allows VPN traffic generated from VPN clients connected to this router to pass through this router and connect to a VPN endpoint. The VPN Passthrough allows PPTP and IPsec VPN only to pass through to the Internet, which is initiated from a VPN client, and then reach the remote VPN gateway. This feature is commonly found on home routers that support NAT.

By default, IPsec, PPTP, and L2TP Passthrough are enabled. If you want to view or adjust these settings, select **VPN > VPN Passthrough**. View or adjust as needed.



IPSec Passthrough: ☑ Enable

PPTP Passthrough: ☑ Enable

L2TP Passthrough: ☑ Enable

AnyConnect VPN

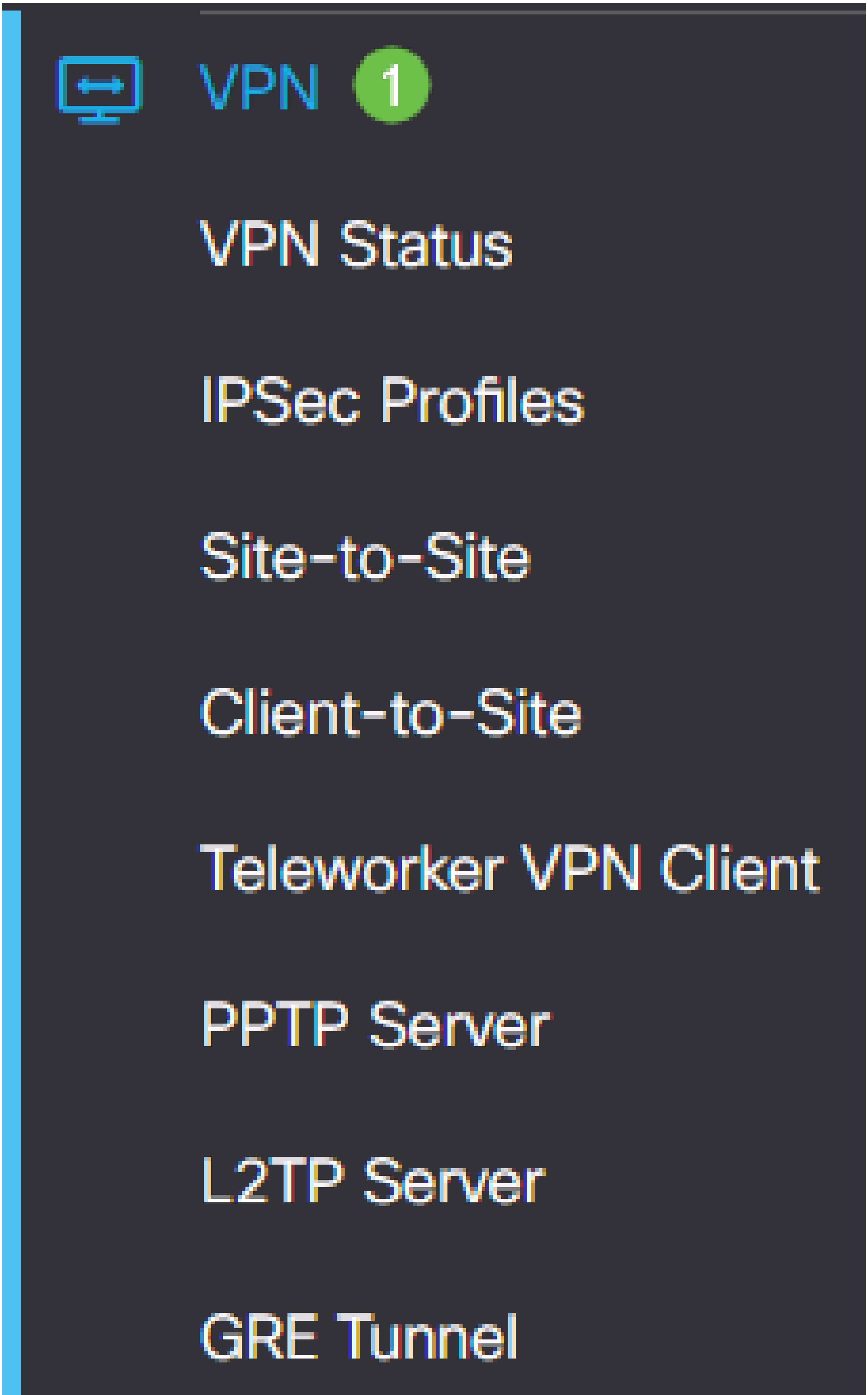
There are several advantages to using Cisco AnyConnect:

1. Secure and persistent connectivity
2. Persistent security and policy enforcement
3. Deployable from the Adaptive Security Appliance (ASA) or from Enterprise Software Deployment Systems
4. Customizable and translatable
5. Easily configured
6. Supports both Internet Protocol Security (IPsec) and Secure Sockets Layer (SSL)
7. Supports Internet Key Exchange version 2.0 (IKEv2.0) protocol

Configure AnyConnect SSL VPN on the RV345P

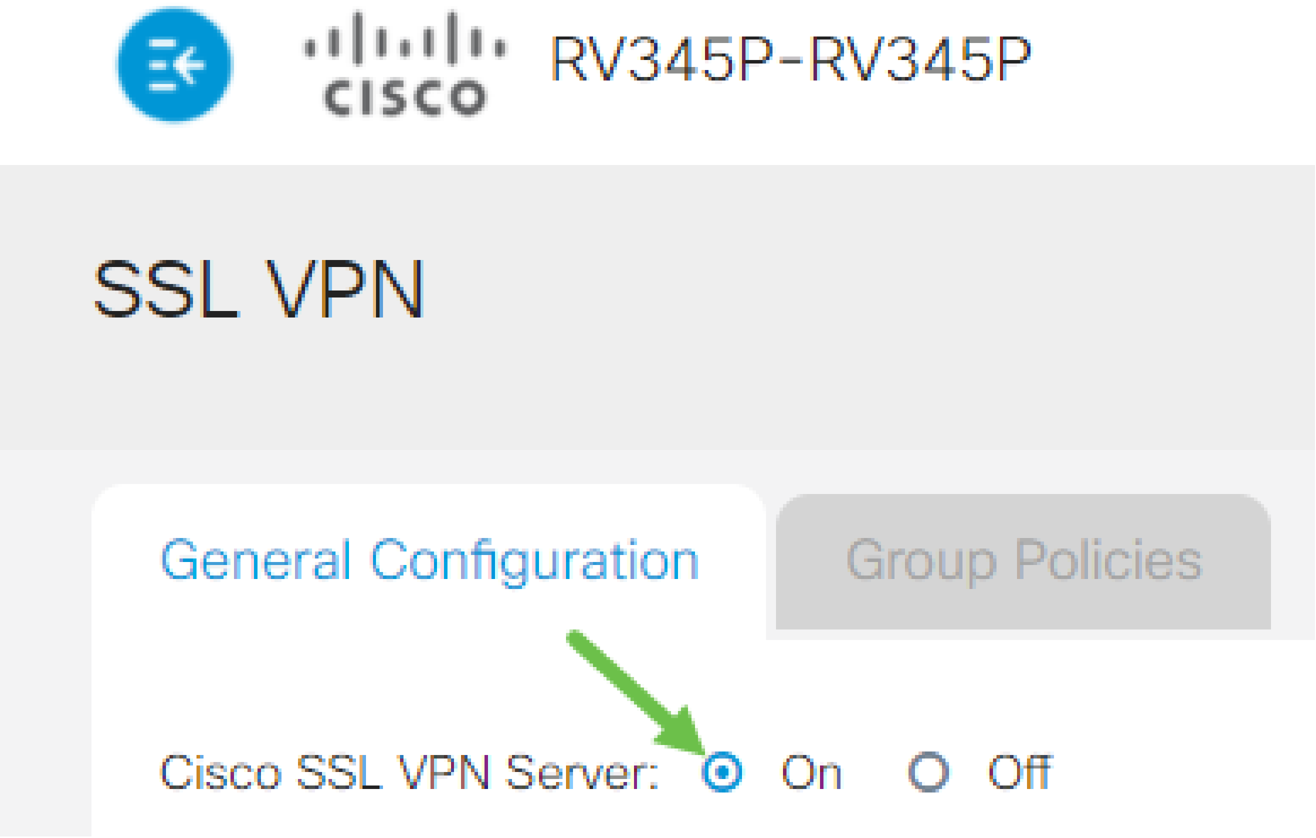
Step 1

Access the router web-based utility and choose **VPN** > **SSL VPN**.


VPN
1
VPN Status
IPSec Profiles
Site-to-Site
Client-to-Site
Teleworker VPN Client
PPTP Server
L2TP Server
GRE Tunnel

Step 2

Click the **On** radio button to enable Cisco SSL VPN Server.



Cisco SSL VPN Server: ● On ○ Off

Mandatory Gateway Settings

Step 1

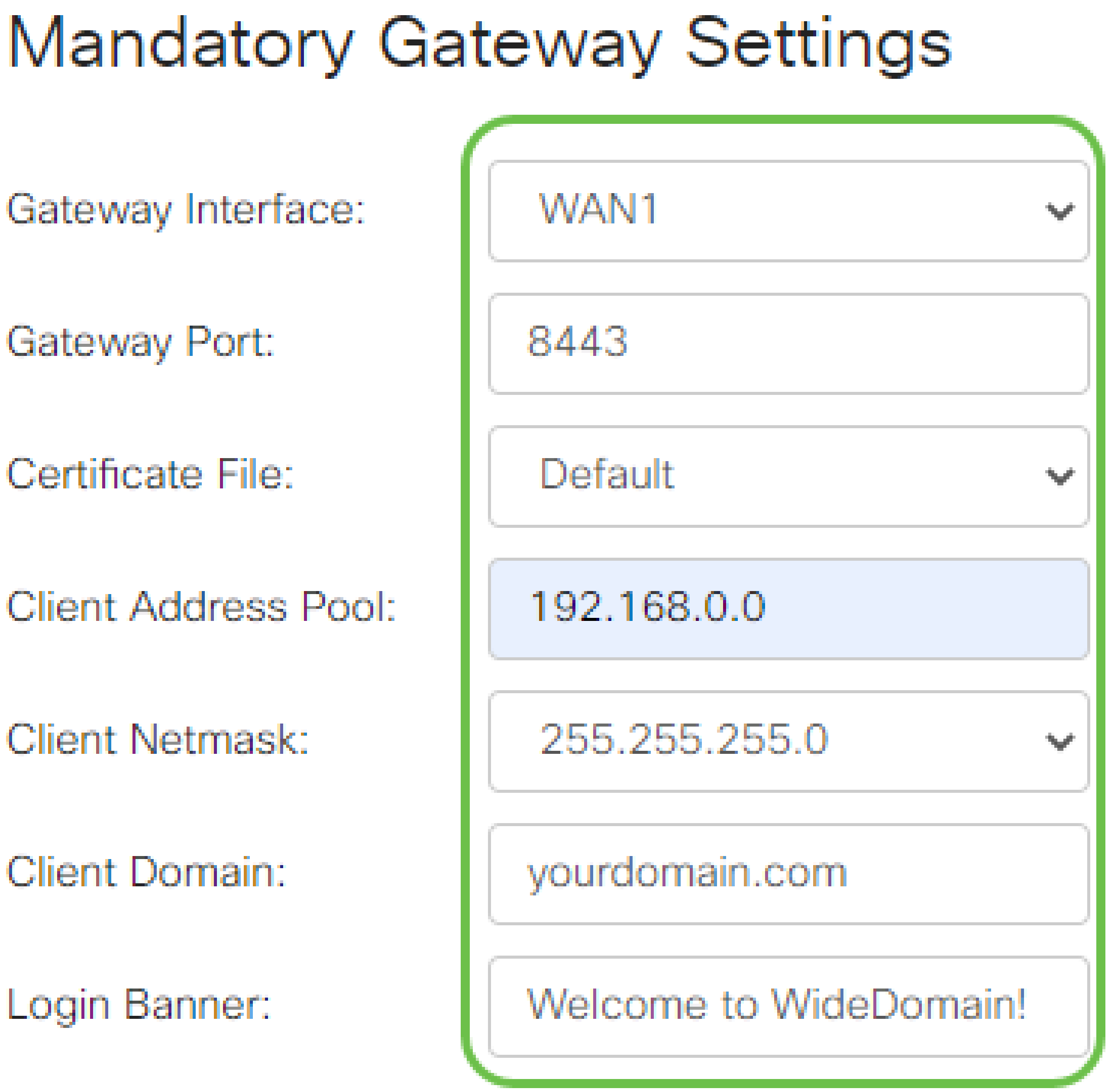
The following configuration settings are mandatory:

1. Choose the Gateway Interface from the drop-down list. This will be the port that will be used for passing traffic through the SSL VPN Tunnels. The options include: WAN1, WAN2, USB1, USB2
2. Enter the port number that is used for the SSL VPN gateway in the Gateway Port field ranging from 1 to 65535.
3. Choose the Certificate File from the drop-down list. This certificate authenticates users who attempt to access the network resource through the SSL VPN tunnels. The drop-down list contains a default certificate and the certificates that are imported.
4. Enter the IP address of the client address pool in the *Client Address Pool* field. This pool will be the range of IP addresses that will be allocated to remote VPN clients.

   Make sure that the IP address range does not overlap with any of the IP addresses on the local network.

5. Choose the Client Netmask from the drop-down list.
6. Enter the client domain name in the *Client Domain* field. This will be the domain name that should be pushed to SSL VPN clients.
7. Enter the text that would appear as a login banner in the *Login Banner* field. This will be the

banner that will be displayed each time a client logs in.



Mandatory Gateway Settings

Gateway Interface: WAN1

Gateway Port: 8443

Certificate File: Default

Client Address Pool: 192.168.0.0

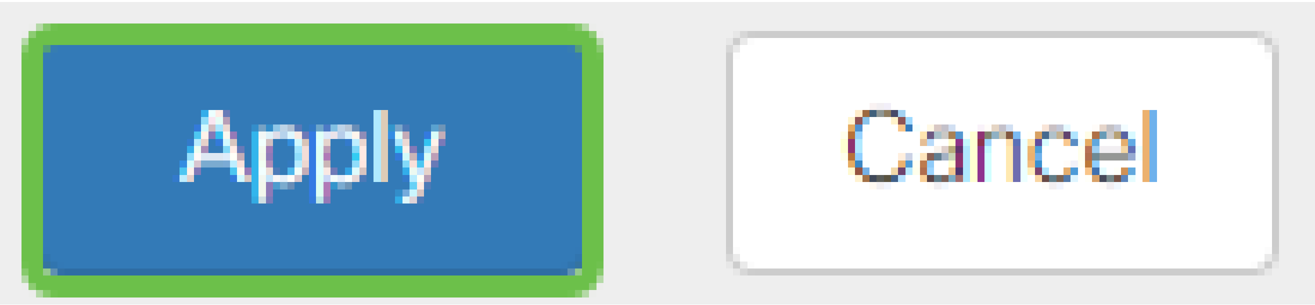
Client Netmask: 255.255.255.0

Client Domain: yourdomain.com

Login Banner: Welcome to WideDomain!

Step 2

Click **Apply**.

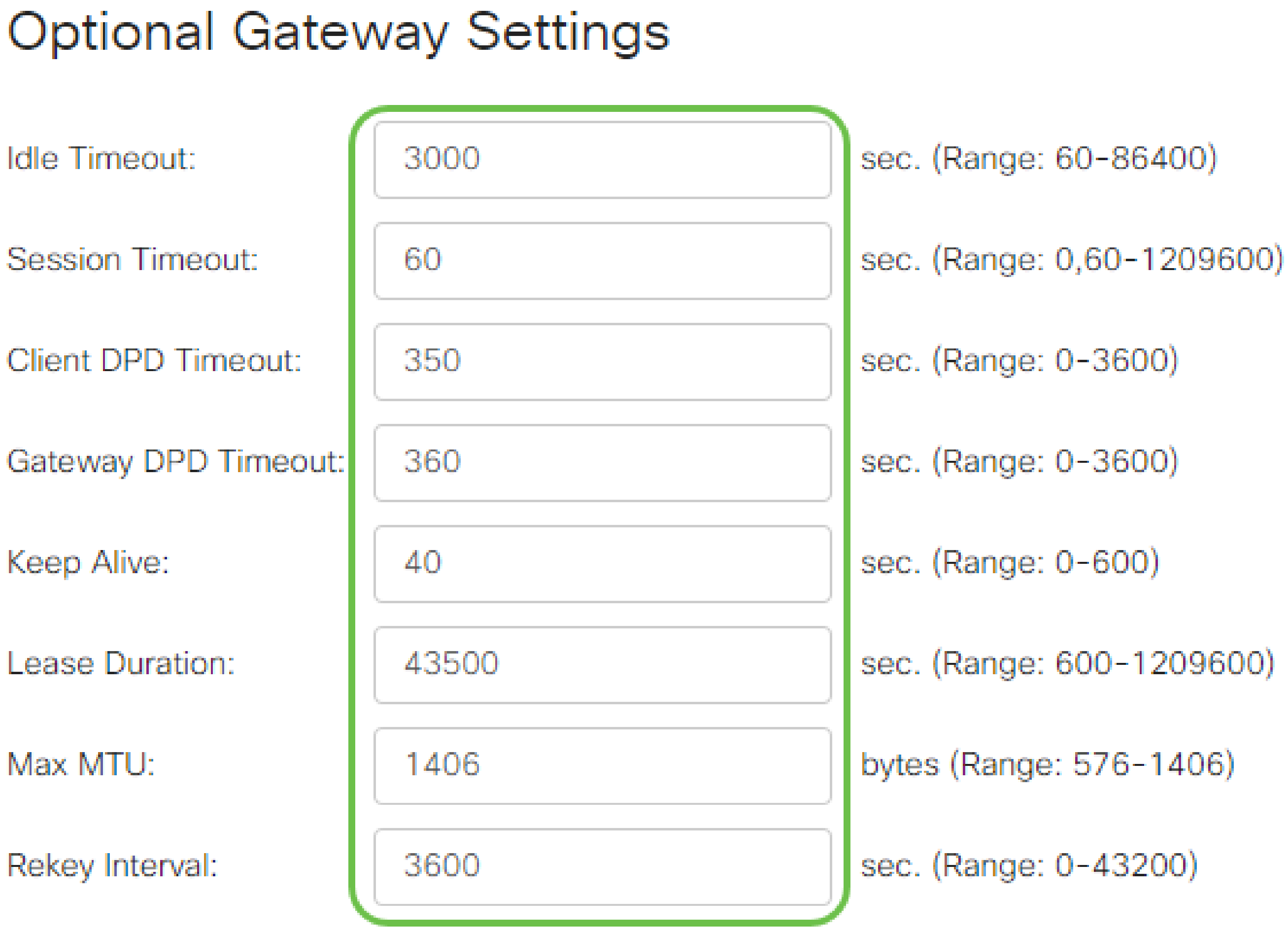


Optional Gateway Settings

Step 1

The following configuration settings are optional:

1. Enter a value in seconds for the Idle Timeout ranging from 60 to 86400. This will be the time duration that the SSL VPN session can remain idle.
2. Enter a value in seconds in the *Session Timeout* field. This is the time it takes for the Transmission Control Protocol (TCP) or User Datagram Protocol (UDP) session to time out after the specified idle time. The range is from 60 to 1209600.
3. Enter a value in seconds in the *ClientDPD Timeout* field ranging from 0 to 3600. This value specifies the periodic sending of HELLO/ACK messages to check the status of the VPN tunnel. This feature must be enabled on both ends of the VPN tunnel.
4. Enter a value in seconds in the *GatewayDPD Timeout* field ranging from 0 to 3600. This value specifies the periodic sending of HELLO/ACK messages to check the status of the VPN tunnel. This feature must be enabled on both ends of the VPN tunnel.
5. Enter a value in seconds in the *Keep Alive* field ranging from 0 to 600. This feature ensures that your router is always connected to the Internet. It will attempt to re-establish the VPN connection if it is dropped.
6. Enter a value in seconds for the duration of the tunnel to be connected in the *Lease Duration* field. The range is from 600 to 1209600.
7. Enter the packet size in bytes that can be sent over the network. The range is from 576 to 1406.
8. Enter the relay interval time in the *Rekey Interval* field. The Rekey feature allows the SSL keys to renegotiate after the session has been established. The range is from 0 to 43200.

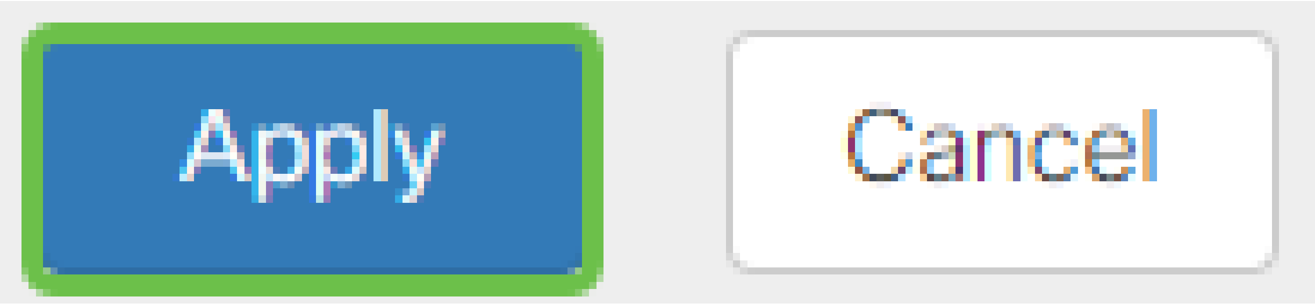


Optional Gateway Settings

Idle Timeout:	3000	sec. (Range: 60-86400)
Session Timeout:	60	sec. (Range: 0,60-1209600)
Client DPD Timeout:	350	sec. (Range: 0-3600)
Gateway DPD Timeout:	360	sec. (Range: 0-3600)
Keep Alive:	40	sec. (Range: 0-600)
Lease Duration:	43500	sec. (Range: 600-1209600)
Max MTU:	1406	bytes (Range: 576-1406)
Rekey Interval:	3600	sec. (Range: 0-43200)

Step 2

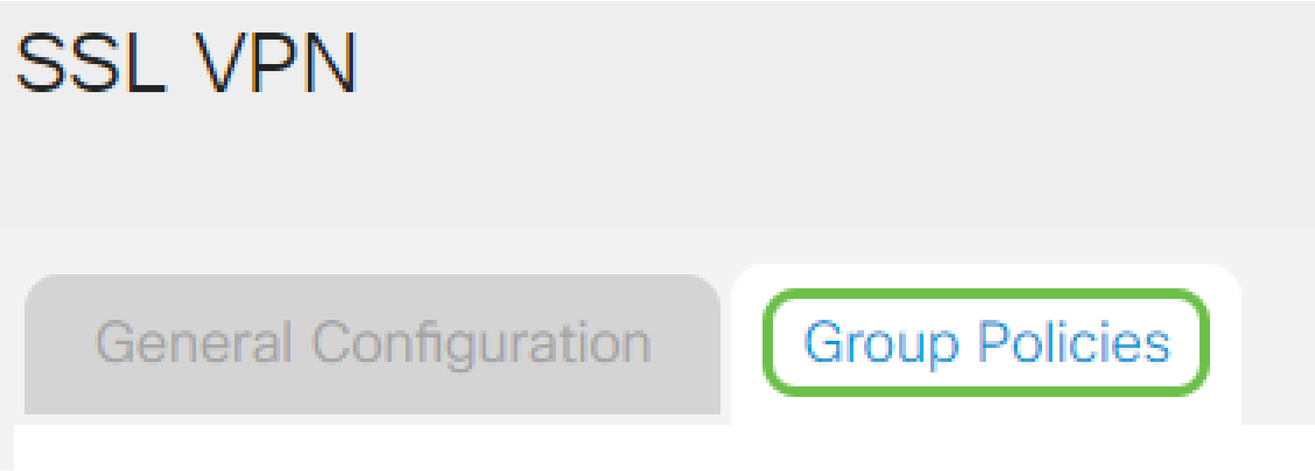
Click **Apply**.



Configure Group Policies

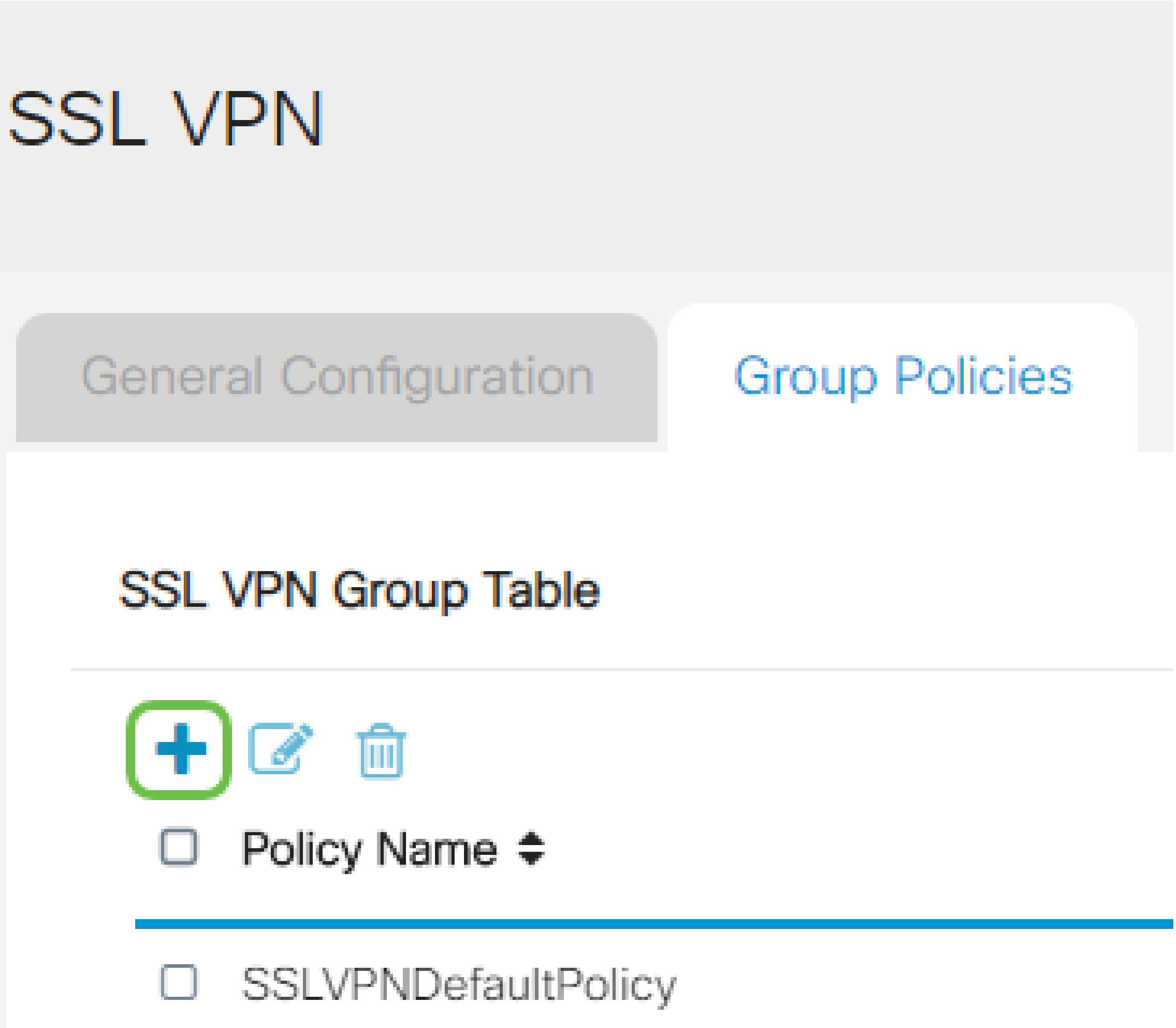
Step 1

Click the **Group Policies** tab.



Step 2

Click the **add icon** under the SSL VPN Group Table to add a group policy.



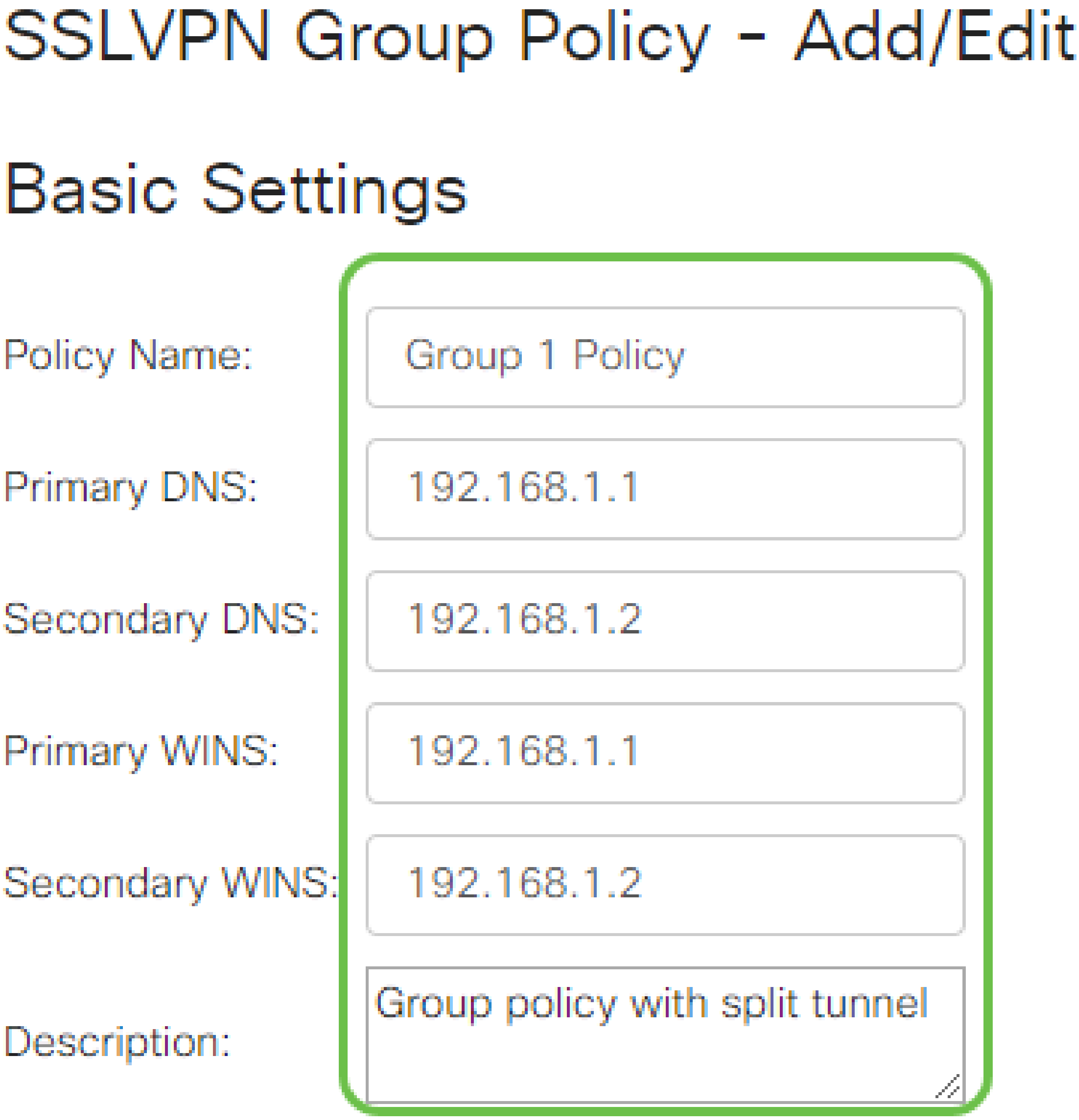
SSL VPN Group Table

	Policy Name ⬍
□	SSLVPNDefaultPolicy

The SSL VPN Group table will show the list of group policies on the device. You can also edit the first group policy on the list, which is named SSLVPNDefaultPolicy. This is the default policy supplied by the device.

Step 3

1. Enter your preferred policy name in the *Policy Name* field.
2. Enter the IP address of the Primary DNS in the field provided. By default, this IP address is already supplied.
3. *(Optional) Enter the IP address of the Secondary DNS in the field provided. This will serve as a backup in case the primary DNS failed.*
4. (Optional) Enter the IP address of the primary WINS in the field provided.
5. (Optional) Enter the IP address of the secondary WINS in the field provided.
6. (Optional) Enter a description of the policy in the *Description* field.



SSLVPN Group Policy - Add/Edit

Basic Settings

Policy Name: Group 1 Policy

Primary DNS: 192.168.1.1

Secondary DNS: 192.168.1.2

Primary WINS: 192.168.1.1

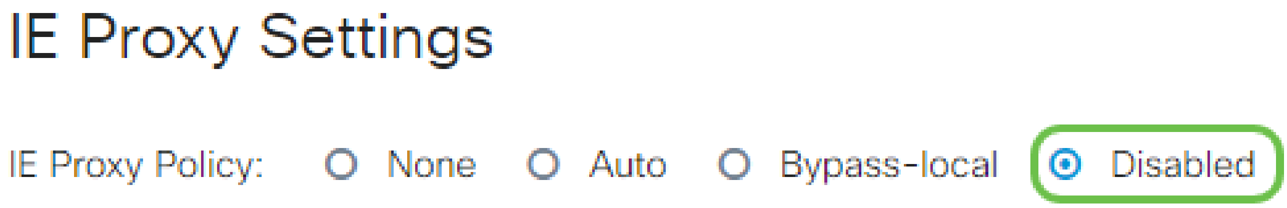
Secondary WINS: 192.168.1.2

Description: Group policy with split tunnel

Step 4 (Optional)

Click on a radio button to choose the IE Proxy Policy to enable Microsoft Internet Explorer (MSIE) proxy settings to establish VPN tunnel. The options are:

- None - Allows the browser to use no proxy settings.
- Auto - Allows the browser to automatically detect the proxy settings.
- Bypass-local - Allows the browser to bypass the proxy settings that are configured on the remote user.
- Disabled - Disables the MSIE proxy settings.

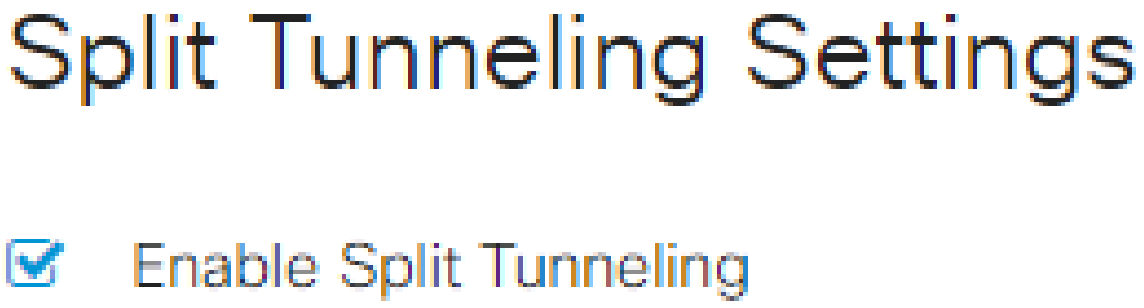


IE Proxy Settings

IE Proxy Policy: ○ None ○ Auto ○ Bypass-local ● Disabled

Step 5 (Optional)

In the Split Tunneling Settings area, check the **Enable Split Tunneling** checkbox to allow Internet destined traffic to be sent unencrypted directly to the Internet. Full Tunneling sends all traffic to the end device where it is then routed to destination resources, eliminating the corporate network from the path for web access.

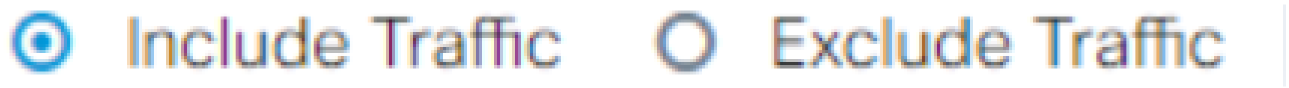


Split Tunneling Settings

☑ Enable Split Tunneling

Step 6 (Optional)

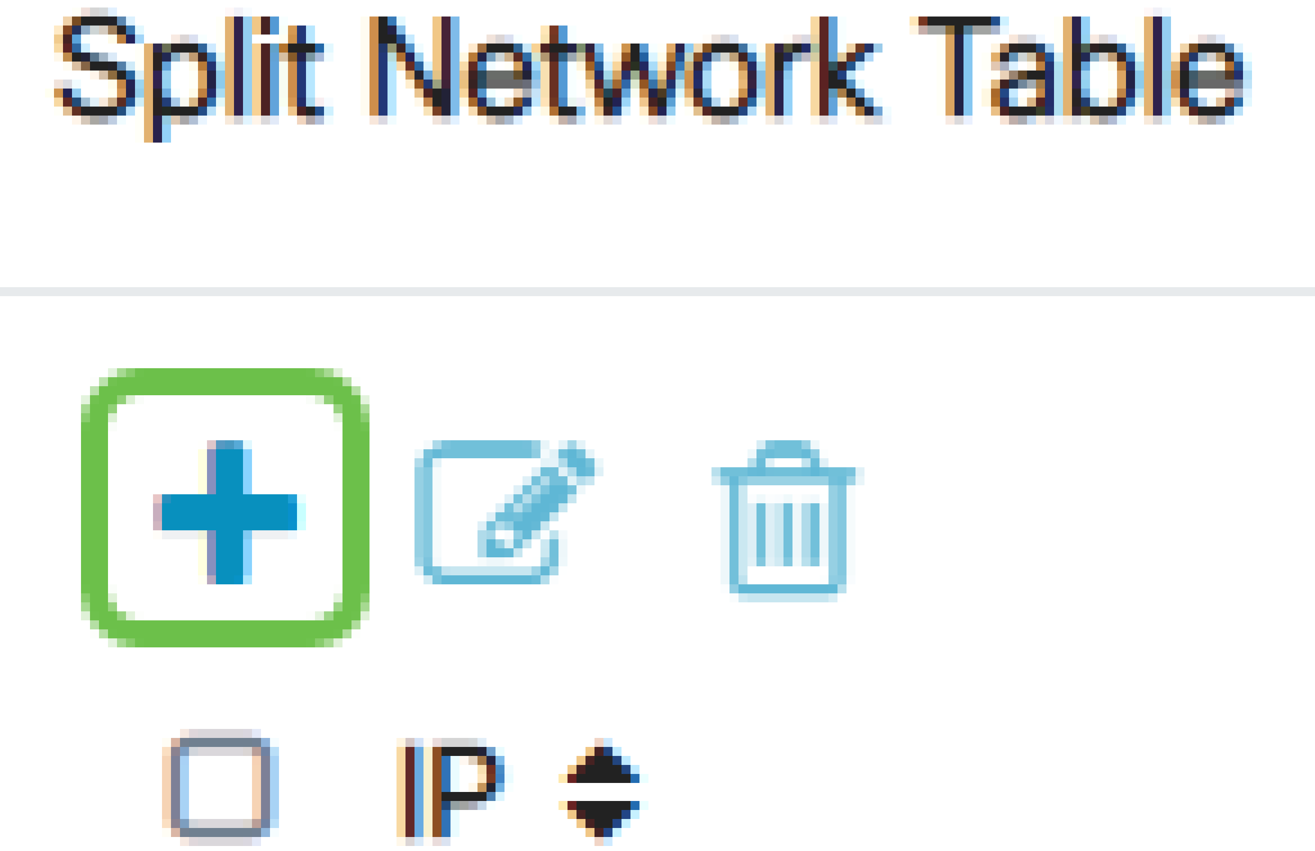
Click on a radio button to choose whether to include or exclude traffic when applying the split tunneling.



● Include Traffic ○ Exclude Traffic

Step 7

In the Split Network Table, click the **add icon** to add a split Network exception.

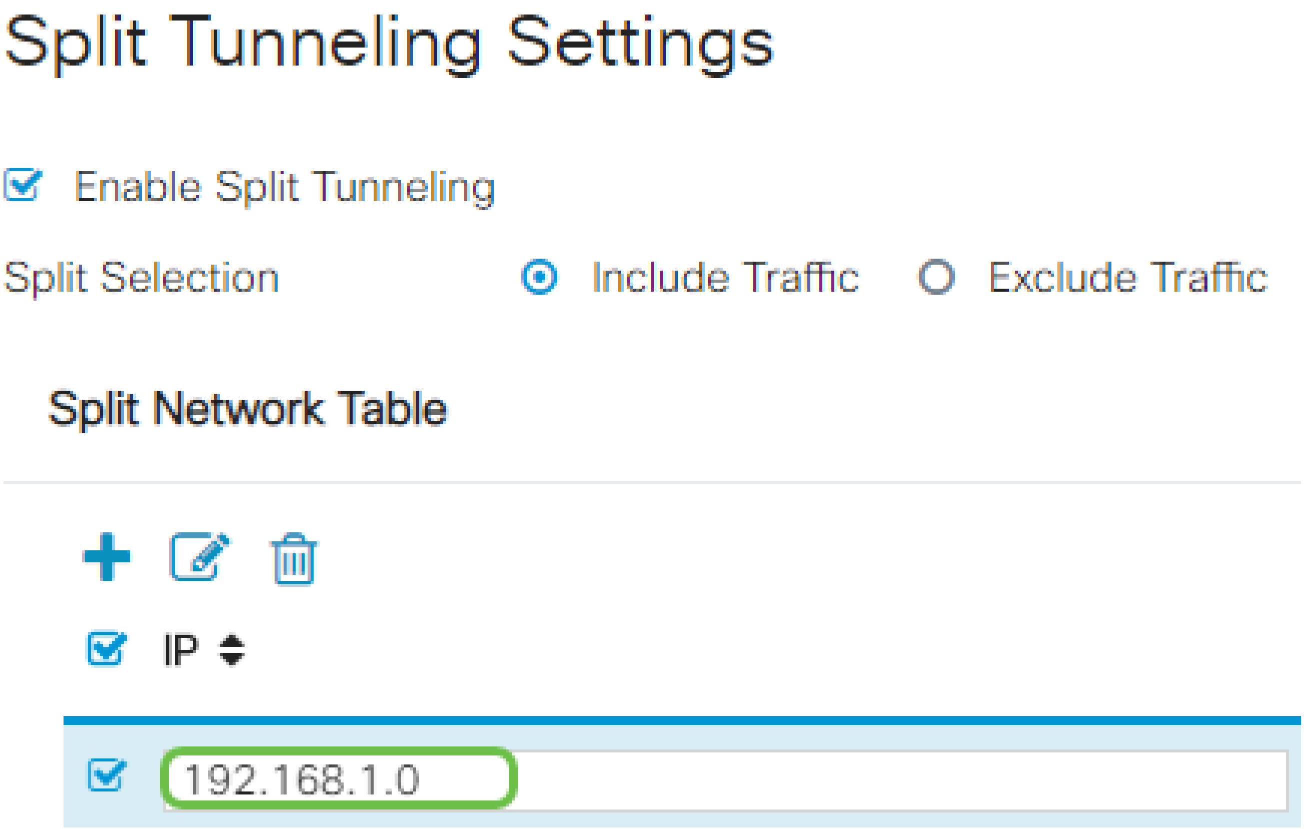

Split Network Table

+ ✎ 🗑

□ IP ⬍

Step 8

Enter the IP address of the network in the field provided.



Split Tunneling Settings

☑ Enable Split Tunneling

Split Selection ● Include Traffic ○ Exclude Traffic

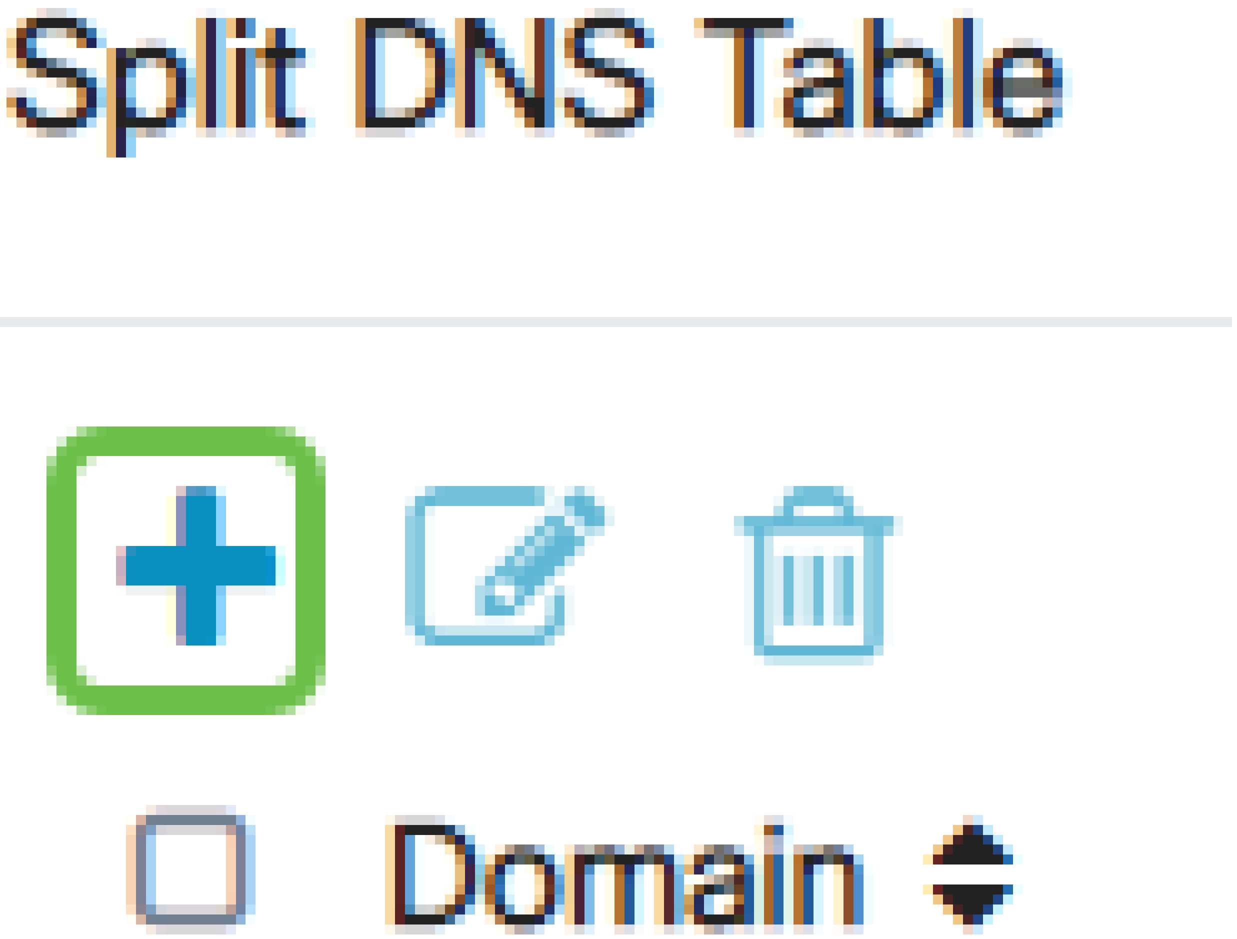
Split Network Table

☑ IP

☑ 192.168.1.0

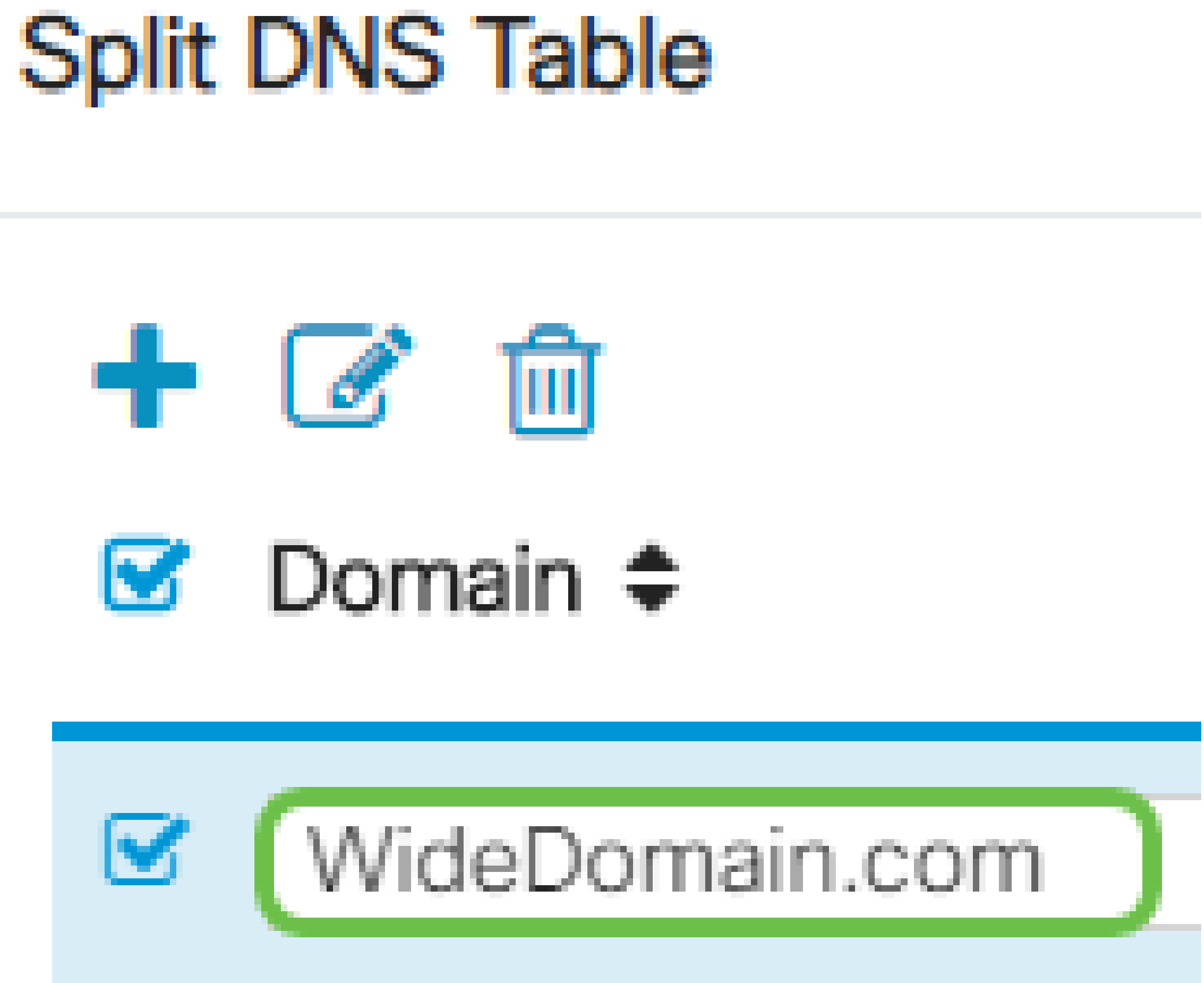
Step 9

In the Split DNS Table, click the **add icon** to add a split DNS exception.



Step 10

Enter the Domain name in the field provided and then click **Apply**.



Split DNS Table

☑ Domain

☑ WideDomain.com

The router comes with 2 AnyConnect server licenses by default. This means that once you have AnyConnect client licenses, you can establish 2 VPN tunnels simultaneously with any other RV340 series router.

In short, the RV345P router does not need a license, but all clients will need one. AnyConnect client licenses allow desktop and mobile clients to access the VPN network remotely.

This next section details how to get licenses for your clients.

AnyConnect Mobility Client

A VPN client is software that is installed and ran on a computer that wishes to connect to the remote network. This client software must be set up with the same configuration as that of the VPN server such as the IP address and authentication information. This authentication information includes the username and the pre-shared key that will be used to encrypt the data. Depending on the physical location of the networks to be connected, a VPN client can also be a hardware device. This usually happens if the VPN connection is used to connect two networks that are in separate locations.

The Cisco AnyConnect Secure Mobility Client is a software application for connecting to a VPN that works on various operating systems and hardware configurations. This software application makes it possible for remote resources of another network to become accessible as if the user is directly connected to his network, but in a secure way.

Once the router is registered and configured with AnyConnect, the client can install licenses on the router from your available pool of licenses that you purchase, which is detailed in the next section.

Purchase License

You must purchase a license from your Cisco distributor or your Cisco partner. When ordering a license, you must provide your Cisco Smart Account ID or Domain ID in the form of *name@domain.com*.

If you don’t have a Cisco distributor or partner, you can locate one here.

At the time of writing, the following Product SKUs can be used to purchase additional licenses in bundles of 25. Note that there are other options for the AnyConnect client licenses as outlined in the Cisco AnyConnect Ordering Guide, however, the Product ID listed would be the minimum requirement for full functionality.

Please note, the AnyConnect client license Product SKU listed first, provides licenses for a term of 1 year, and requires a minimum purchase of 25 licenses. Other product SKUs which are applicable to the RV340 series routers are also available with varying subscription levels, as follows:

- **LS-AC-PLS-1Y-S1** — 1-year Cisco AnyConnect Plus client license
- **LS-AC-PLS-3Y-S1** — 3-year Cisco AnyConnect Plus client license
- **LS-AC-PLS-5Y-S1** — 5-year Cisco AnyConnect Plus client license
- **LS-AC-PLS-P-25-S** — 25 pack Cisco AnyConnect Plus perpetual client license
- **LS-AC-PLS-P-50-S** — 50 pack Cisco AnyConnect Plus perpetual client license

Client Information

When your client sets up one of the following, you should send them these links:

- Windows: AnyConnect on a Windows Computer
- Mac: Install AnyConnect on Mac.
- Ubuntu Desktop: Installing and Using AnyConnect on Ubuntu Desktop
- If you have problems, you can go to Gather Information for Basic Troubleshooting on Cisco AnyConnect Secure Mobility Client Errors.

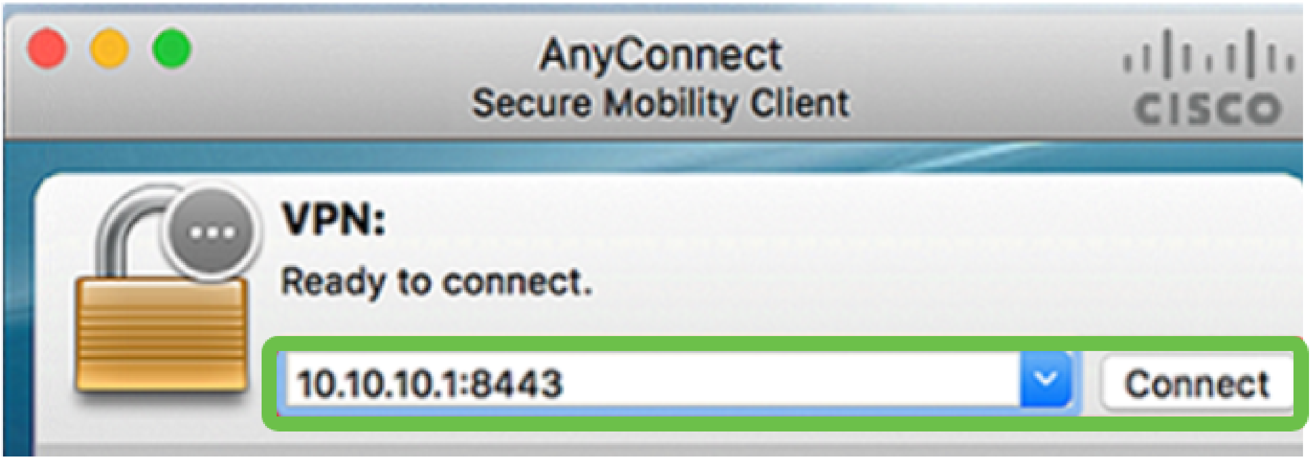
Verify AnyConnect VPN Connectivity

Step 1

Click on the **AnyConnect Secure Mobility Client icon**.

Step 2

In the AnyConnect Secure Mobility Client window, enter the gateway IP address and the gateway port number separated by a colon (:), and then click **Connect**.

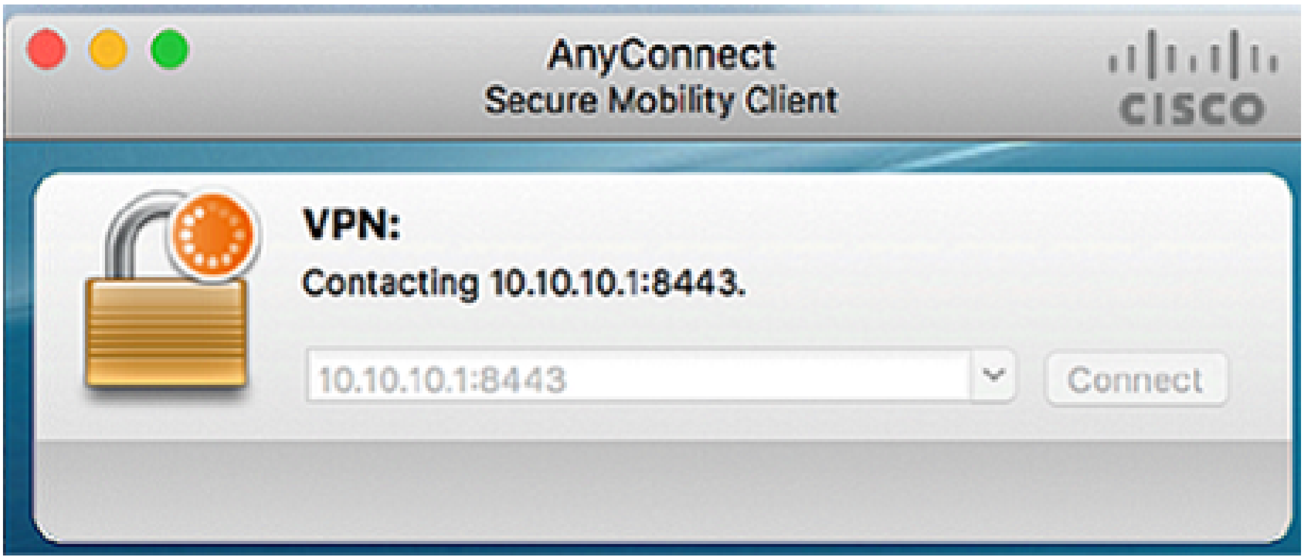


VPN:

Ready to connect.

10.10.10.1:8443

The software will now show that it is contacting the remote network.



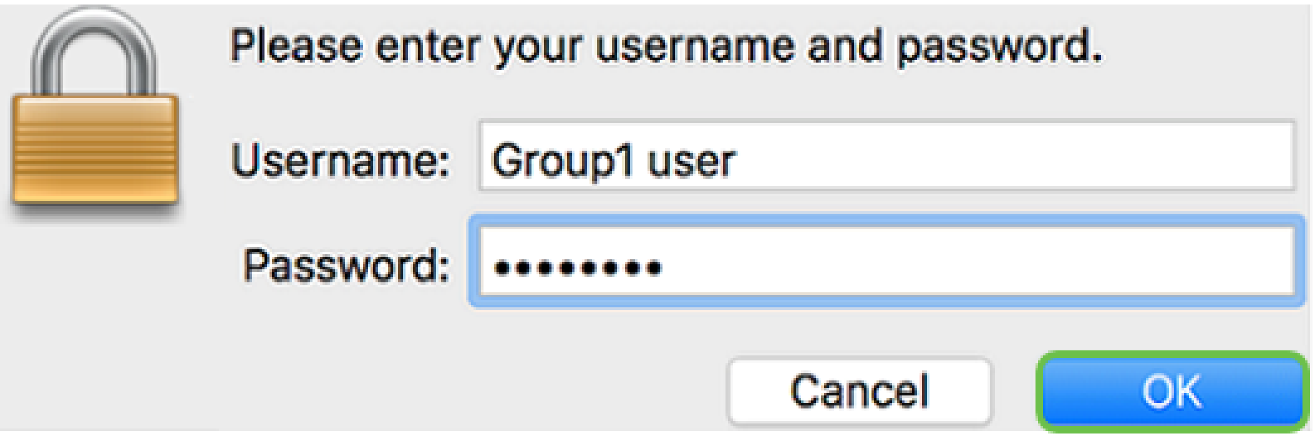
AnyConnect
Secure Mobility Client

VPN:

Contacting 10.10.10.1:8443.

Step 3

Enter your server username and password in the respective fields and then click **OK**.



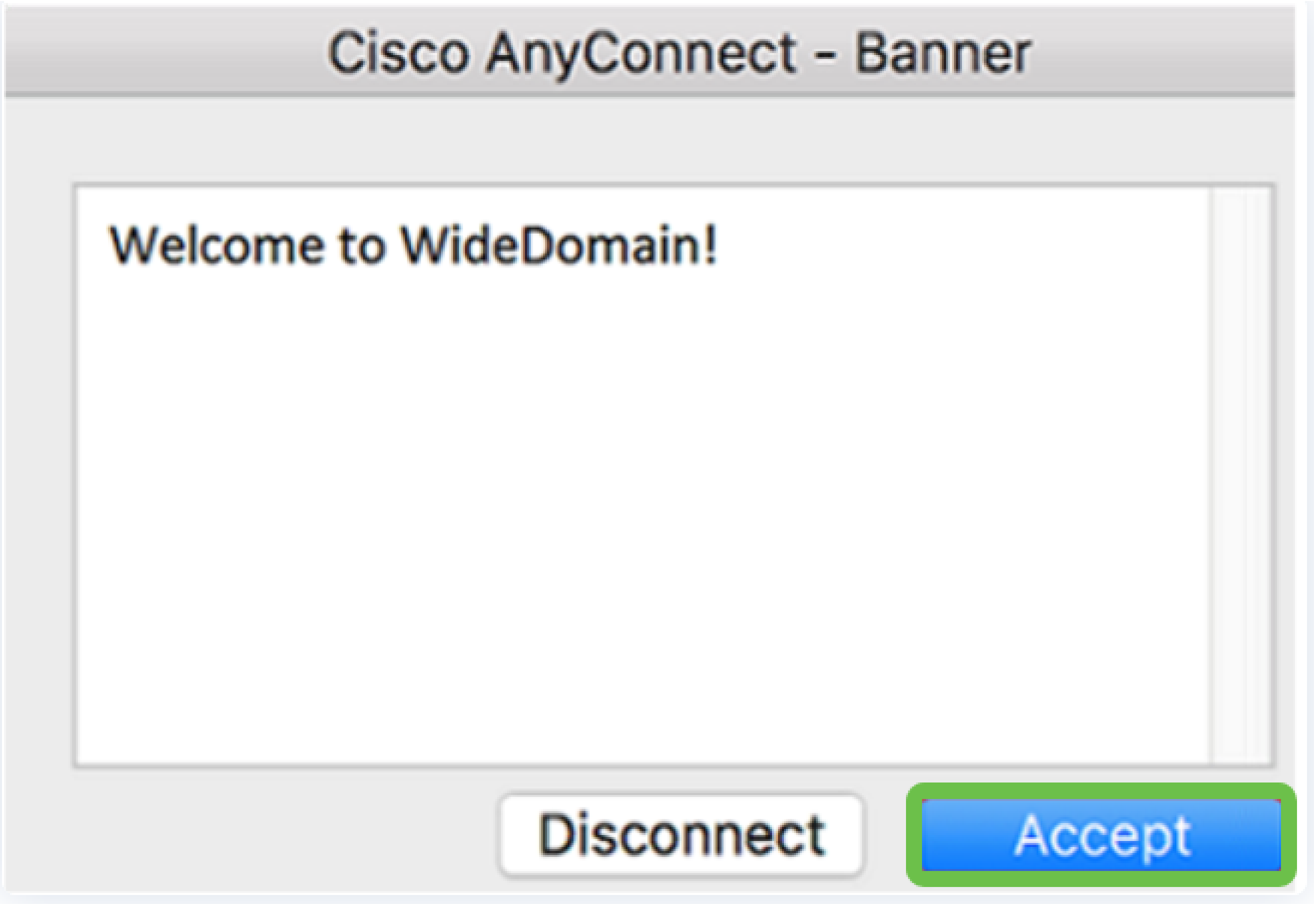
Please enter your username and password.

Username: Group1 user

Password: •••••••••

Step 4

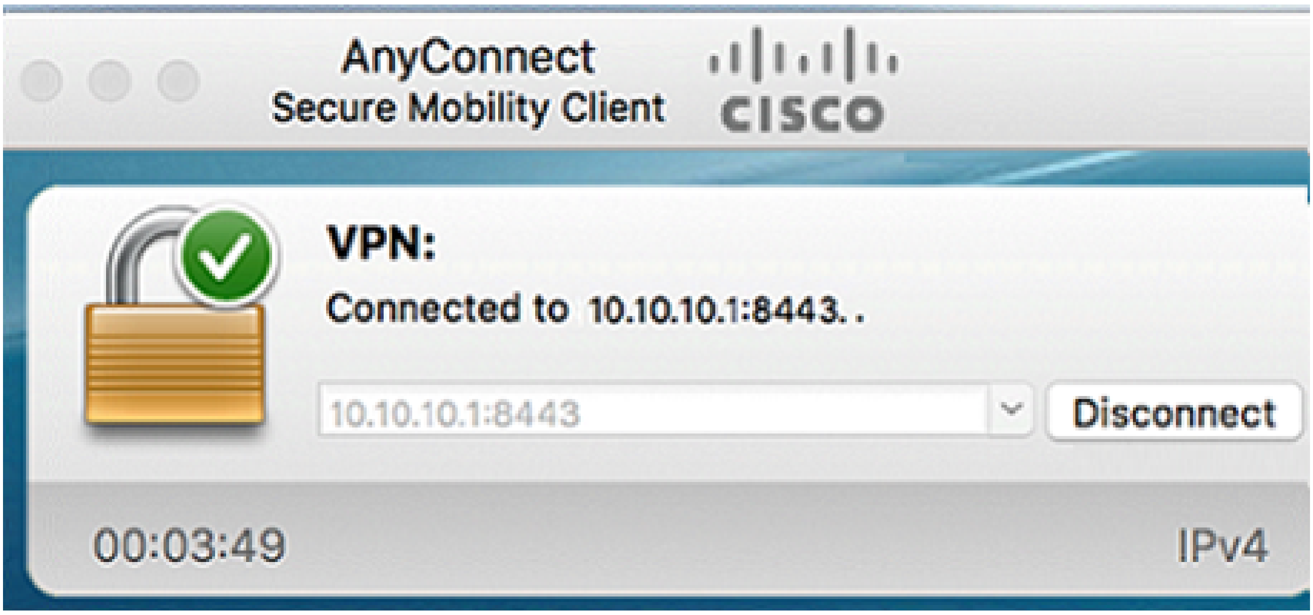
As soon as the connection is established, the Login Banner will appear. Click **Accept**.



Cisco AnyConnect - Banner

Welcome to WideDomain!

The AnyConnect window should now indicate the successful VPN connection to the network.



VPN:

Connected to 10.10.10.1:8443. .

10.10.10.1:8443

00:03:49

IPv4

If you are now using AnyConnect VPN, you can skip past other VPN options and move to the next section.

Shrew Soft VPN

An IPsec VPN allows you to securely obtain remote resources by establishing an encrypted tunnel across the Internet. The RV34X series routers work as IPsec VPN servers and support the Shrew Soft VPN Client. This section will show you how to configure your router and the Shrew Soft Client to secure a connection to a VPN.

Cisco does not support Shrew Soft. This example is provided for demonstration purposes only. If you have problems with Shrew Soft, please contact them for support.

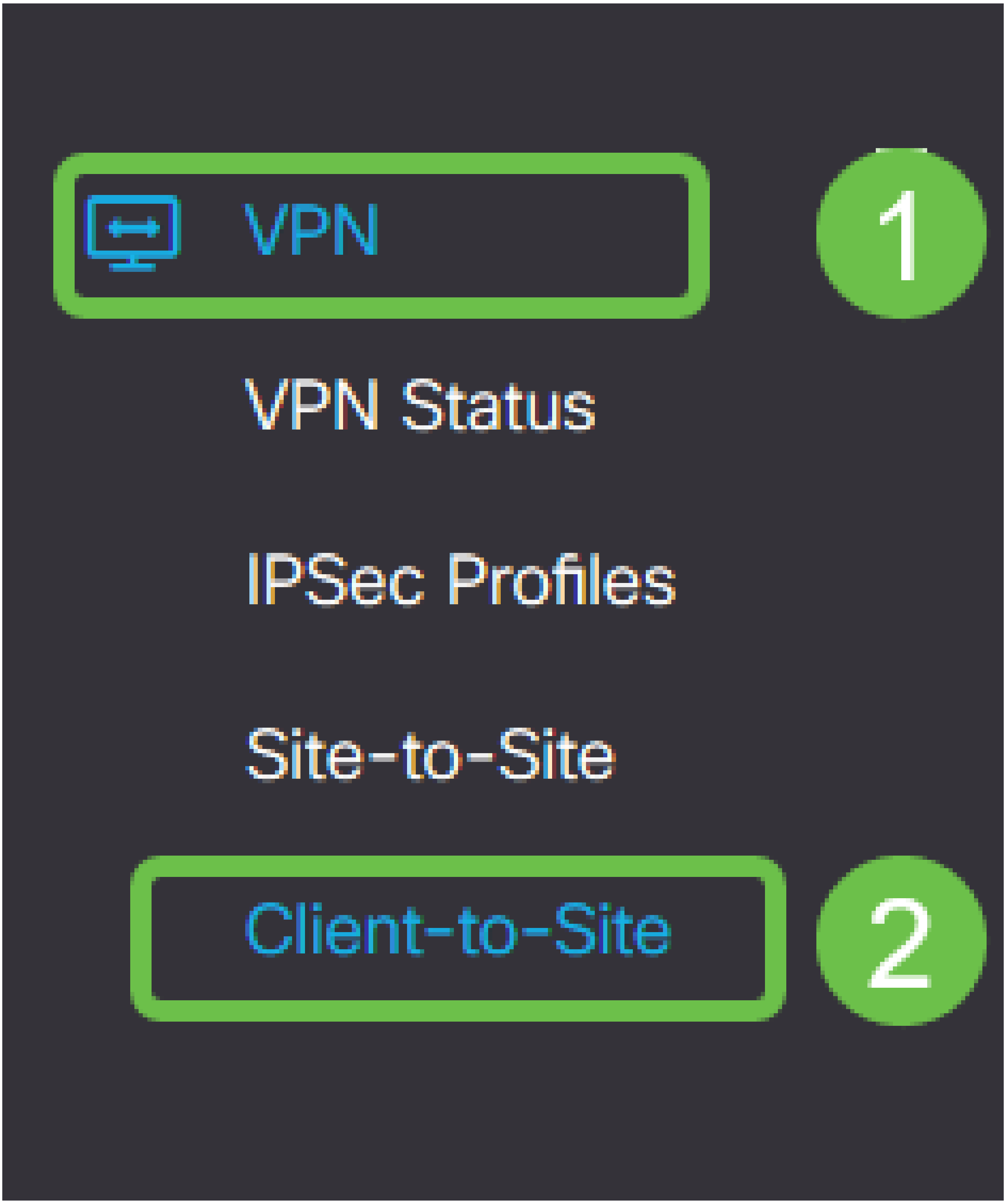
You can download the latest version of the Shrew Soft VPN client software here: **https://www.shrew.net/download/vpn**

Configure Shrew Soft on the RV345P Series Router

We will start by configuring the **Client-to-Site VPN** on the RV345P.

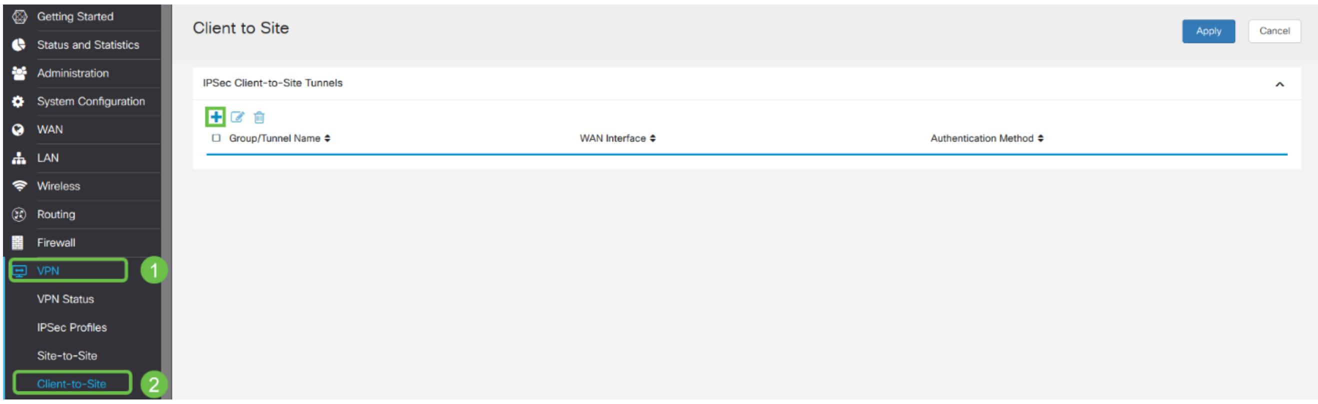
Step 1

Navigate to **VPN > Client-to-Site.**



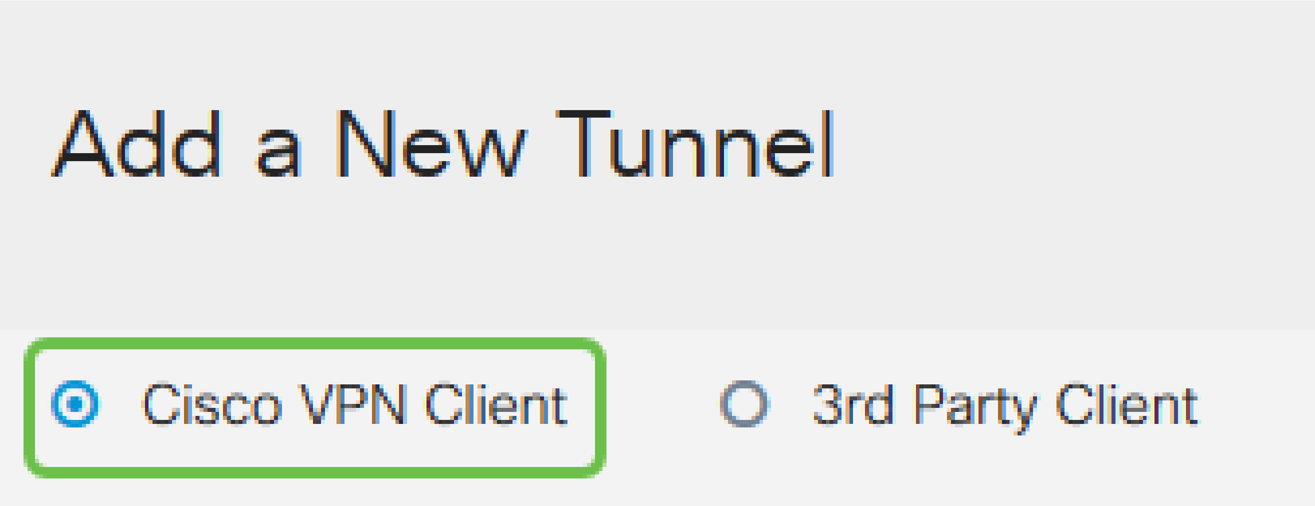
Step 2

Add a **Client-to-Site** VPN profile.



Step 3

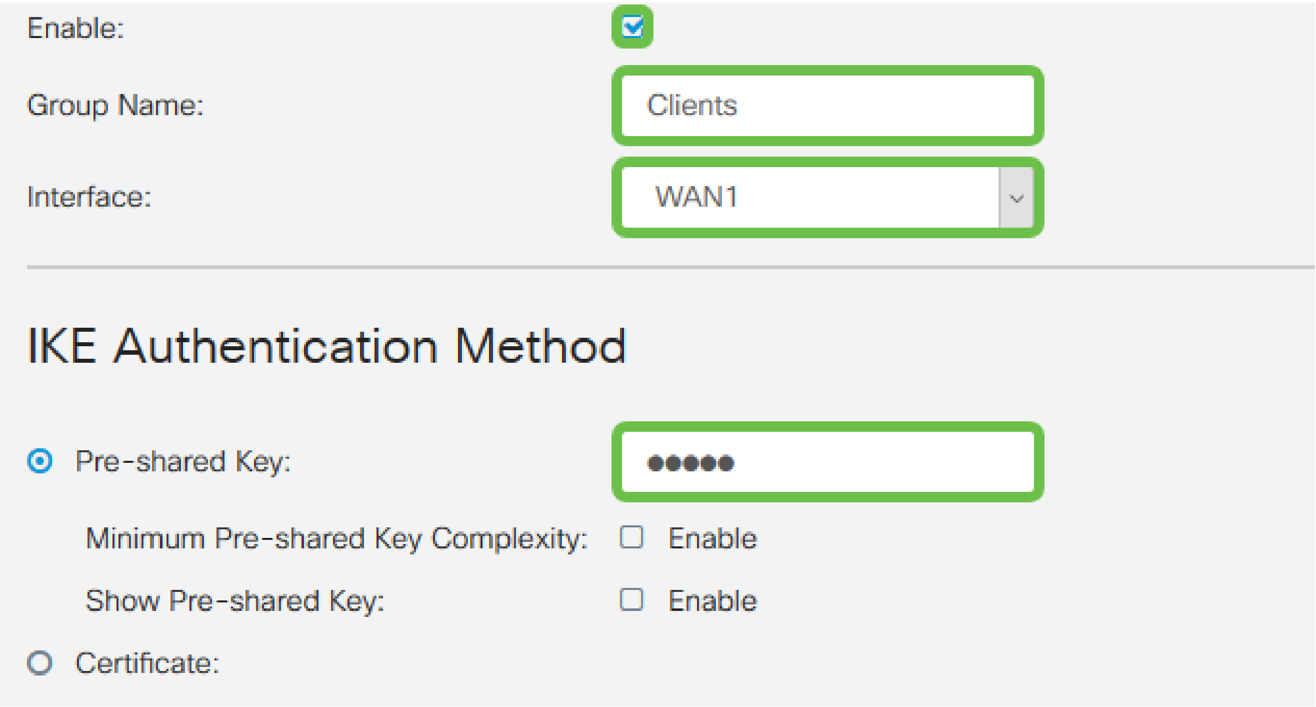
Select the **Cisco VPN Client** option.



Step 4

Check the **Enable** box to make the VPN Client Profile active. We will also configure the *Group Name*, select the **WAN interface**, and enter a **Pre-shared Key**.

Please note the *Group Name* and *Pre-shared Key* as they will be used later when configuring the client.



Enable: ☑

Group Name: Clients

Interface: WAN1

IKE Authentication Method

● Pre-shared Key: ●●●●●

Minimum Pre-shared Key Complexity: □ Enable

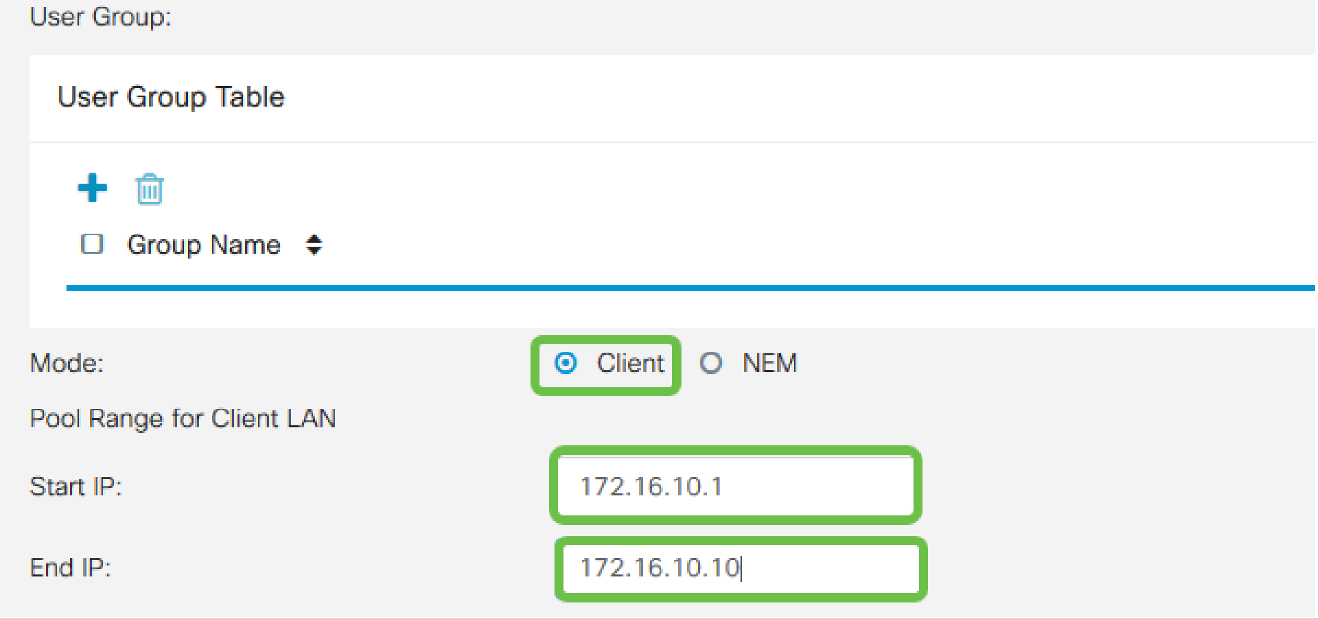
Show Pre-shared Key: □ Enable

○ Certificate:

Step 5

Leave the **User Group Table** blank for now. This is for the *User Group* on the router, but we have not configured it yet. Make sure the **Mode** is set to **Client**. Enter the **Pool Range for Client LAN**. We will use 172.16.10.1 through 172.16.10.10.

The Pool Range should use a unique subnet that isn't used elsewhere on the network.



User Group:

User Group Table

□ Group Name

Mode: ● Client ○ NEM

Pool Range for Client LAN

Start IP: 172.16.10.1

End IP: 172.16.10.10

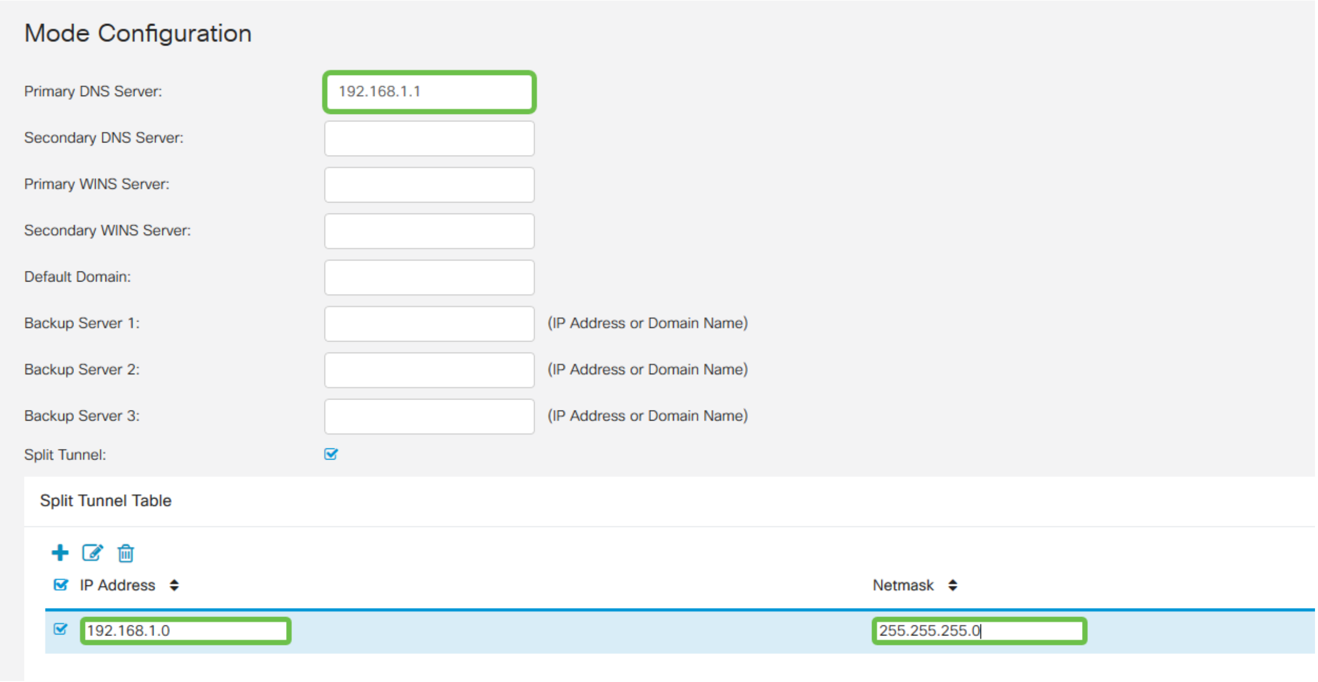
Step 6

Here is where we configure the **Mode Configuration** settings. Here are the settings we will use:

- **Primary DNS Server**: If you have an internal DNS Server or want to use an external DNS Server, you can enter it here. Otherwise, the default is set to the RV345P LAN IP address. We will use the default in our example.
- **Split Tunnel:** Check to enable Split Tunneling. This is used to specify which traffic will go

over the VPN tunnel. We will use Split Tunnel in our example.

- **Split Tunnel Table:** Enter the networks the VPN client should have access to over the VPN. This example uses the RV345P LAN network.



Mode Configuration

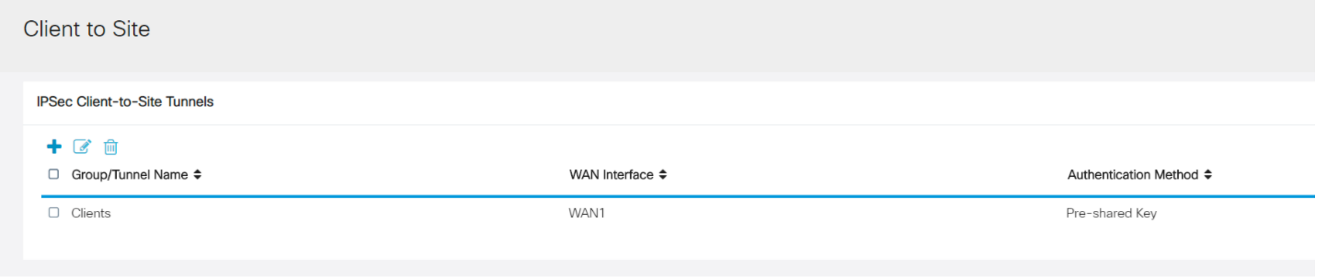
Primary DNS Server:	192.168.1.1	
Secondary DNS Server:		
Primary WINS Server:		
Secondary WINS Server:		
Default Domain:		
Backup Server 1:		(IP Address or Domain Name)
Backup Server 2:		(IP Address or Domain Name)
Backup Server 3:		(IP Address or Domain Name)
Split Tunnel:	☑	

Split Tunnel Table

☑ IP Address	Netmask
☑ 192.168.1.0	255.255.255.0

Step 7

After clicking **Save**, we can see the Profile in the **IPsec Client-to-Site Groups** list.



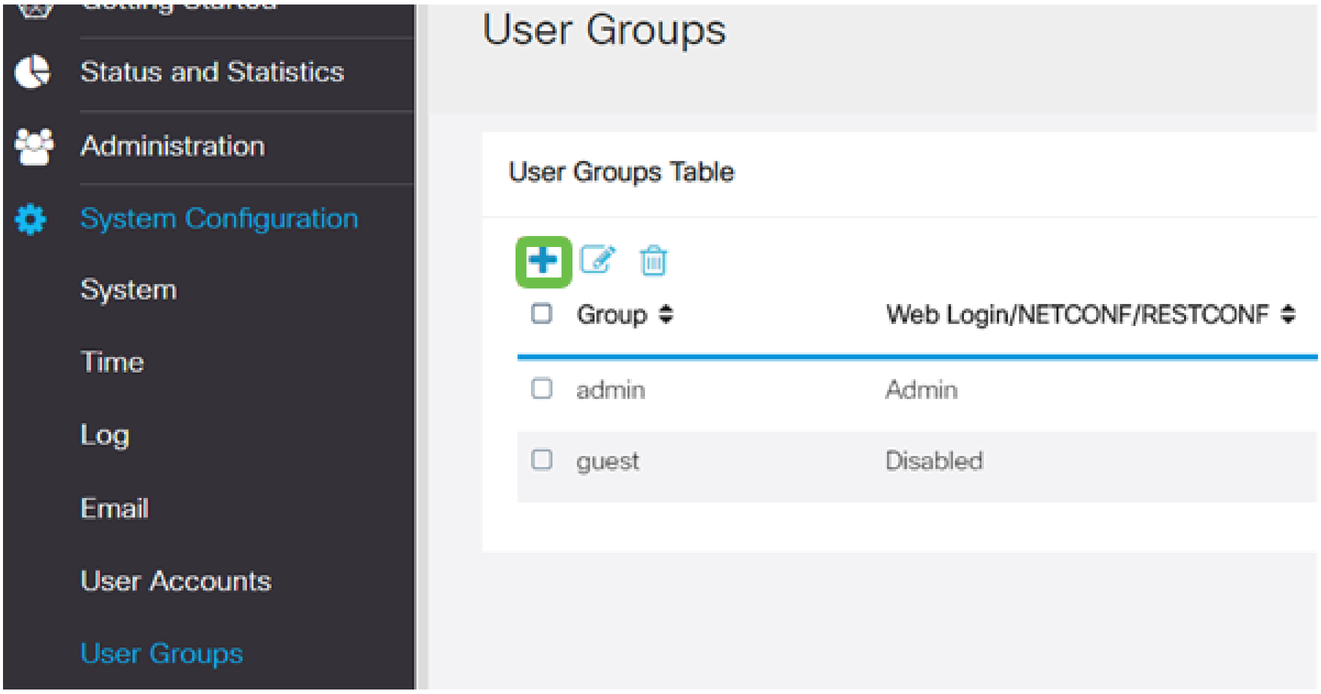
Client to Site

IPSec Client-to-Site Tunnels

□ Group/Tunnel Name	WAN Interface	Authentication Method
□ Clients	WAN1	Pre-shared Key

Step 8

Configure a **User Group** to use for Authenticating VPN client users. Under **System Configuration** > **User Groups**, click on the **plus icon** to add a User Group.



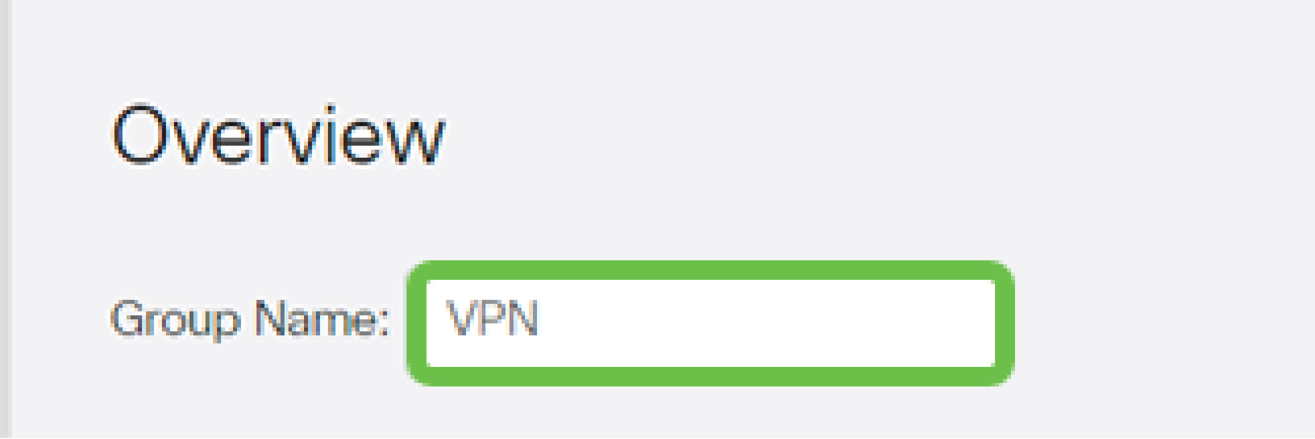
User Groups

User Groups Table

□ Group	Web Login/NETCONF/RESTCONF
□ admin	Admin
□ guest	Disabled

Step 9

Enter a **Group Name**.

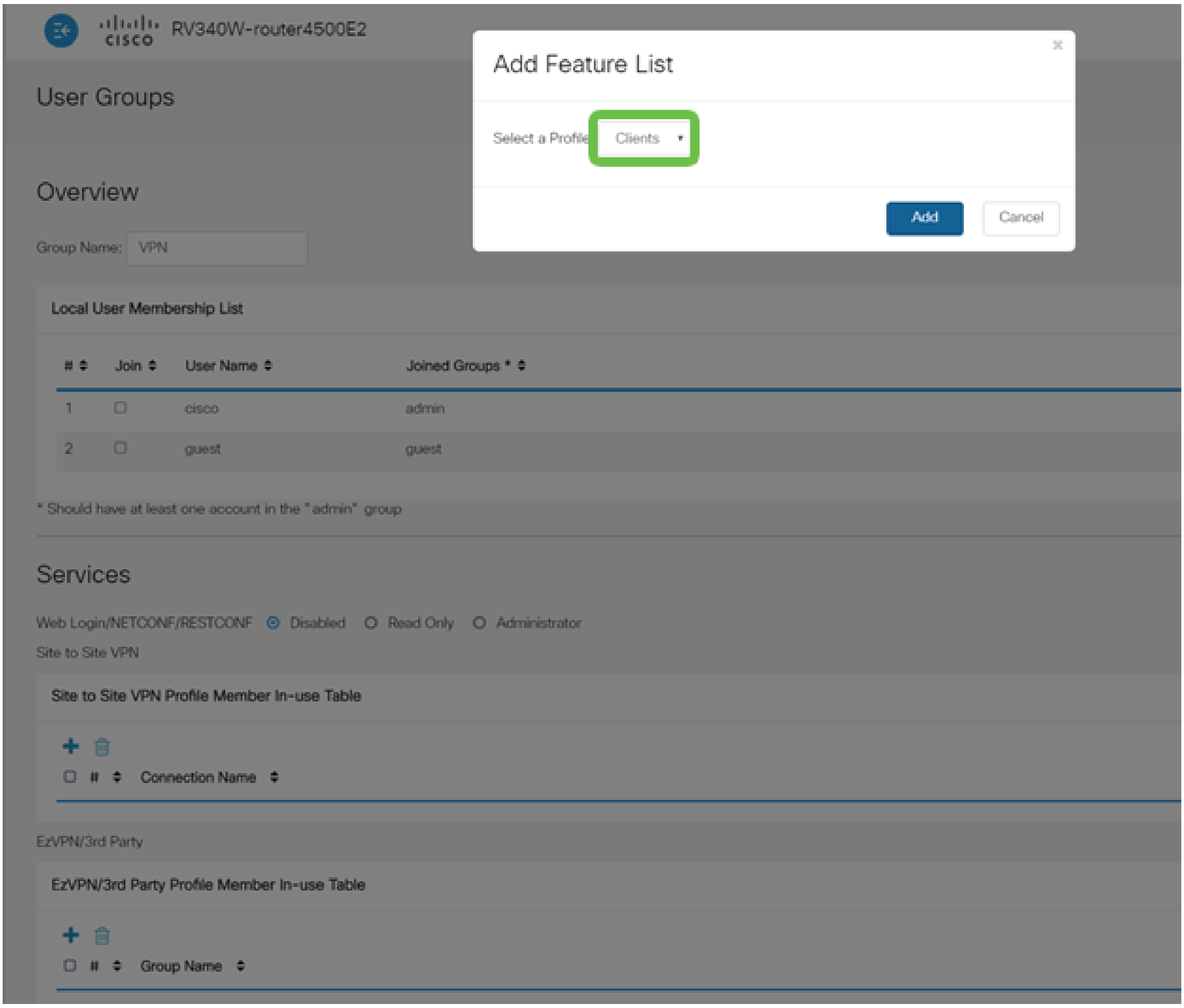


Overview

Group Name: VPN

Step 10

Under **Services** > **EzVPN/3rd Party**, click **Add** to link this User Group to the **Client-to-Site** Profile that was configured earlier.



RV340W-router4500E2

User Groups

Overview

Group Name: VPN

Local User Membership List

#	Join	User Name	Joined Groups *
1	□	cisco	admin
2	□	guest	guest

* Should have at least one account in the "admin" group

Services

Web Login/NETCONF/RESTCONF ● Disabled ○ Read Only ○ Administrator

Site to Site VPN

Site to Site VPN Profile Member In-use Table

□	#	Connection Name

EzVPN/3rd Party

EzVPN/3rd Party Profile Member In-use Table

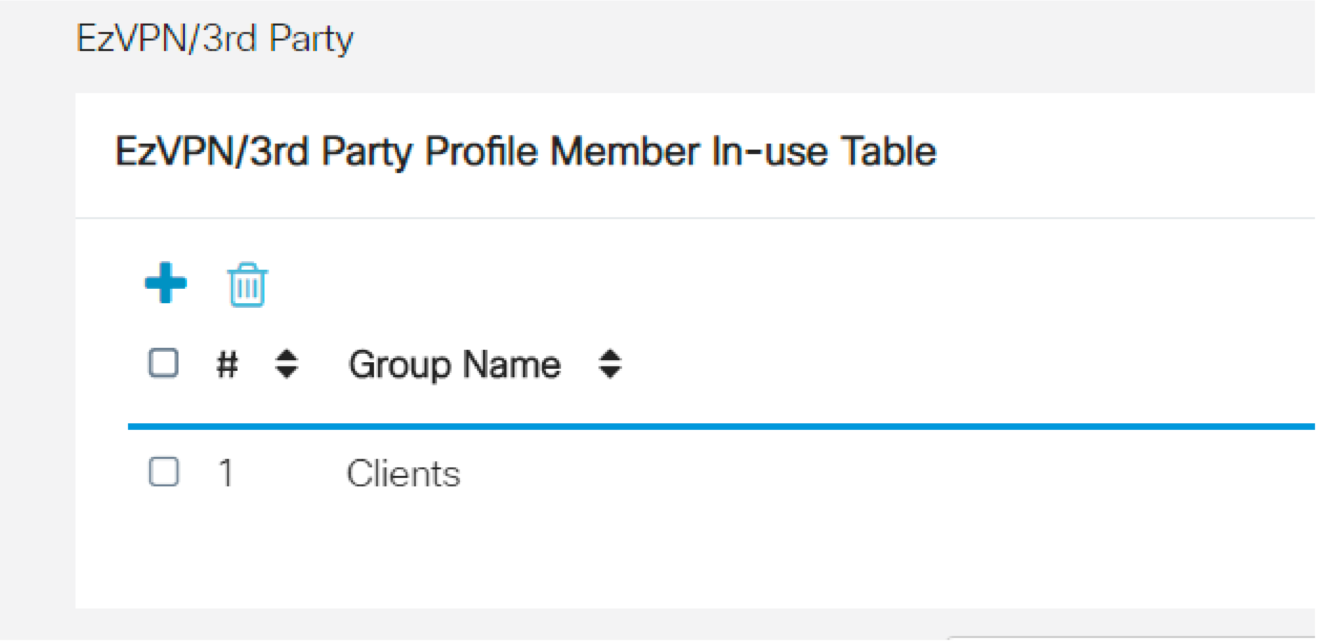
□	#	Group Name

Add Feature List

Select a Profile: Clients

Step 11

You should now see the **Client-to-Site** Group Name in the list for **EzVPN/3rd Party.**



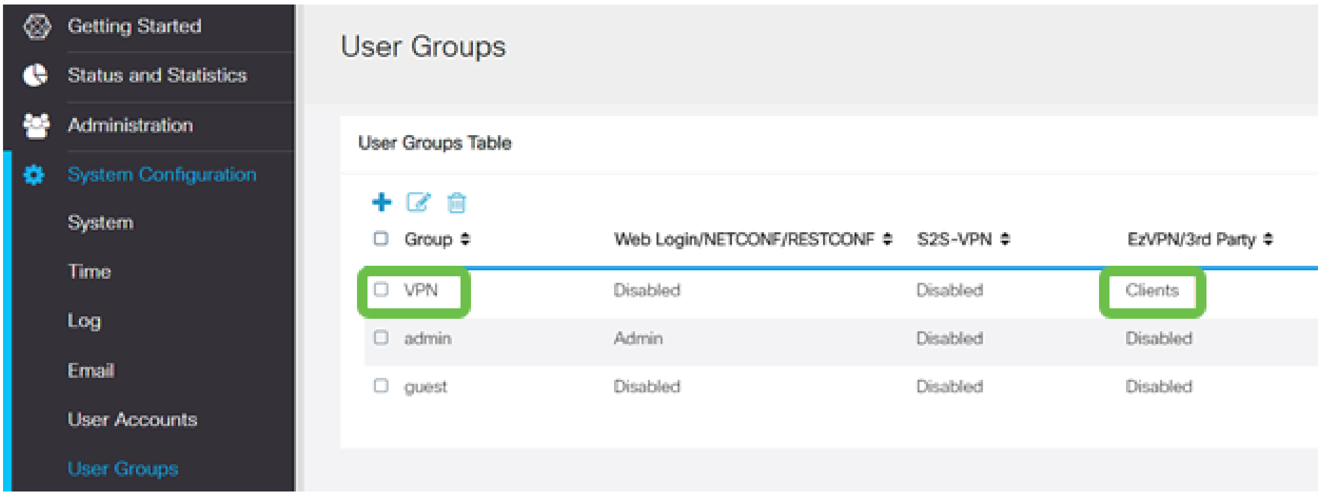
EzVPN/3rd Party

EzVPN/3rd Party Profile Member In-use Table

□	#	Group Name
□	1	Clients

Step 12

After you **Apply** the User Group configuration, you will see it in the **User Groups** list and it will show the new User Group will be used with the Client-to-Site Profile you created earlier.



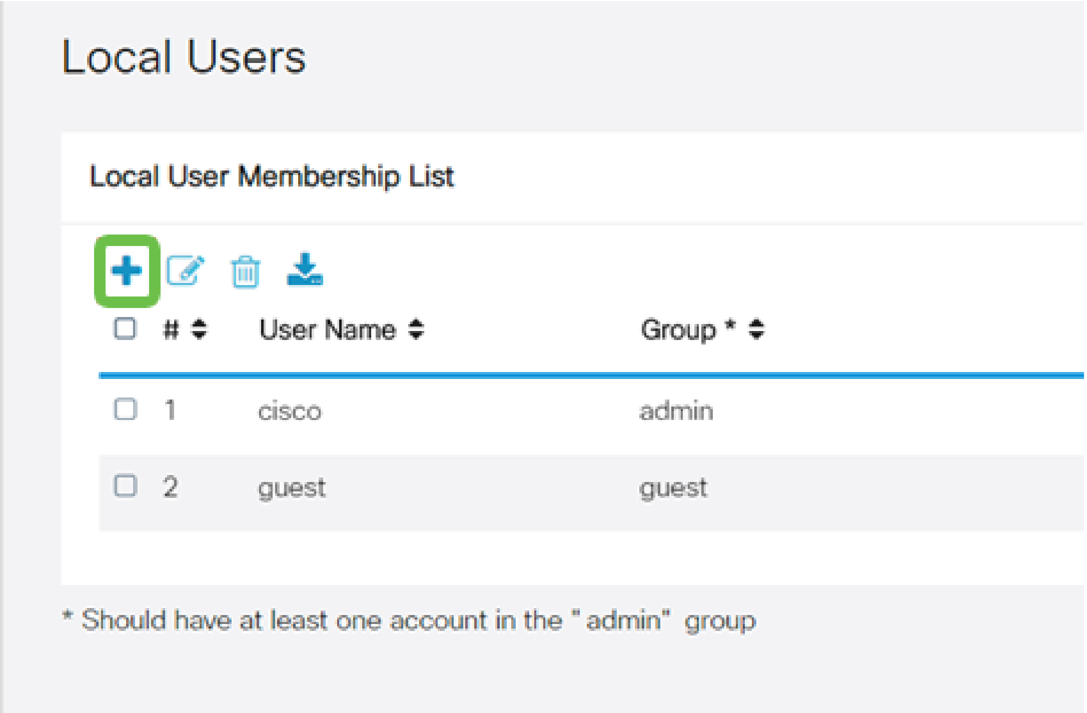
User Groups

User Groups Table

□	Group	Web Login/NETCONF/RESTCONF	S2S-VPN	EzVPN/3rd Party
□	VPN	Disabled	Disabled	Clients
□	admin	Admin	Disabled	Disabled
□	guest	Disabled	Disabled	Disabled

Step 13

Configure a new User in **System Configuration > User Accounts**. Click on the **plus icon** to create a new user.



Local Users

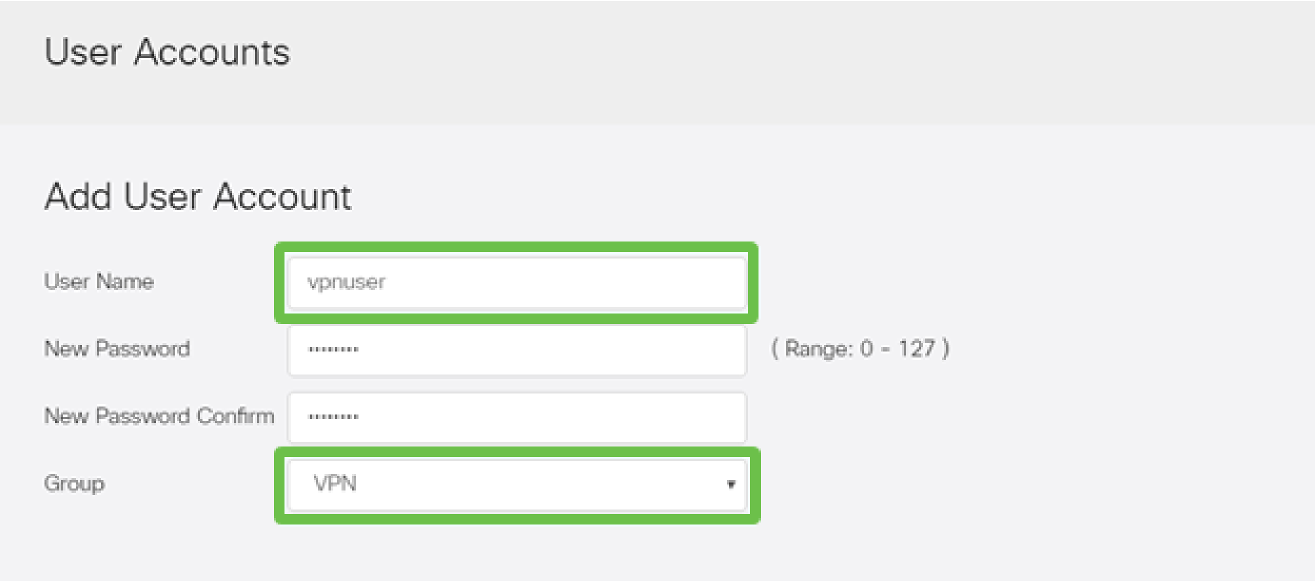
Local User Membership List

□	#	User Name	Group *
□	1	cisco	admin
□	2	guest	guest

* Should have at least one account in the " admin" group

Step 14

Enter the new **User Name** along with the **New Password**. Verify that the **Group** is set to the new **User Group** you just configured. Click **Apply** when finished.



User Accounts

Add User Account

User Name: vpnuser

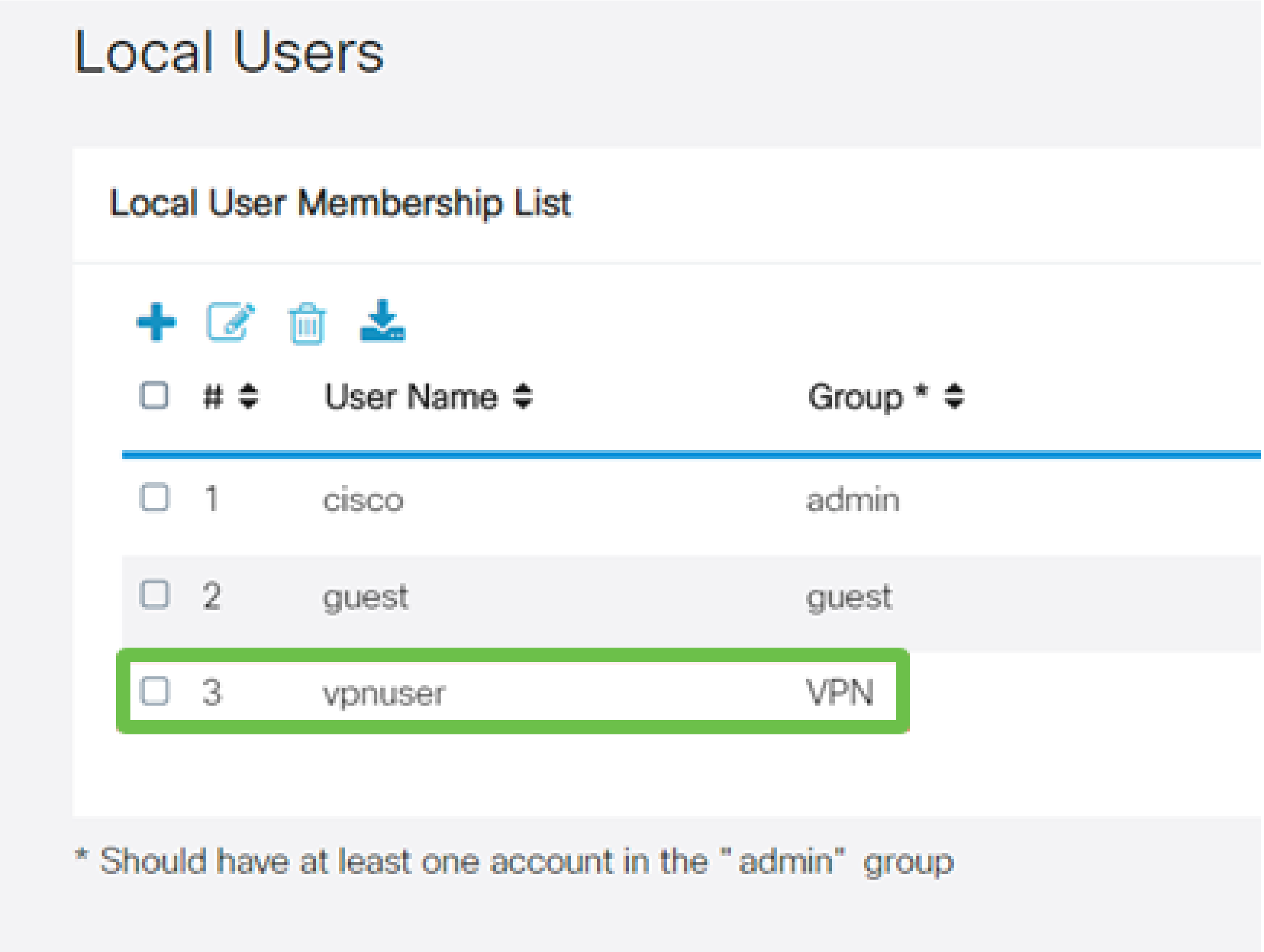
New Password: •••••••• (Range: 0 - 127)

New Password Confirm: ••••••••

Group: VPN

Step 15

The new **User** will show up in the list of **Local Users**.



Local Users

Local User Membership List

□	#	User Name	Group *
□	1	cisco	admin
□	2	guest	guest
□	3	vpnuser	VPN

* Should have at least one account in the "admin" group

This completes the configuration on the RV345P Series Router. Next, you will configure the Shrew Soft VPN client.

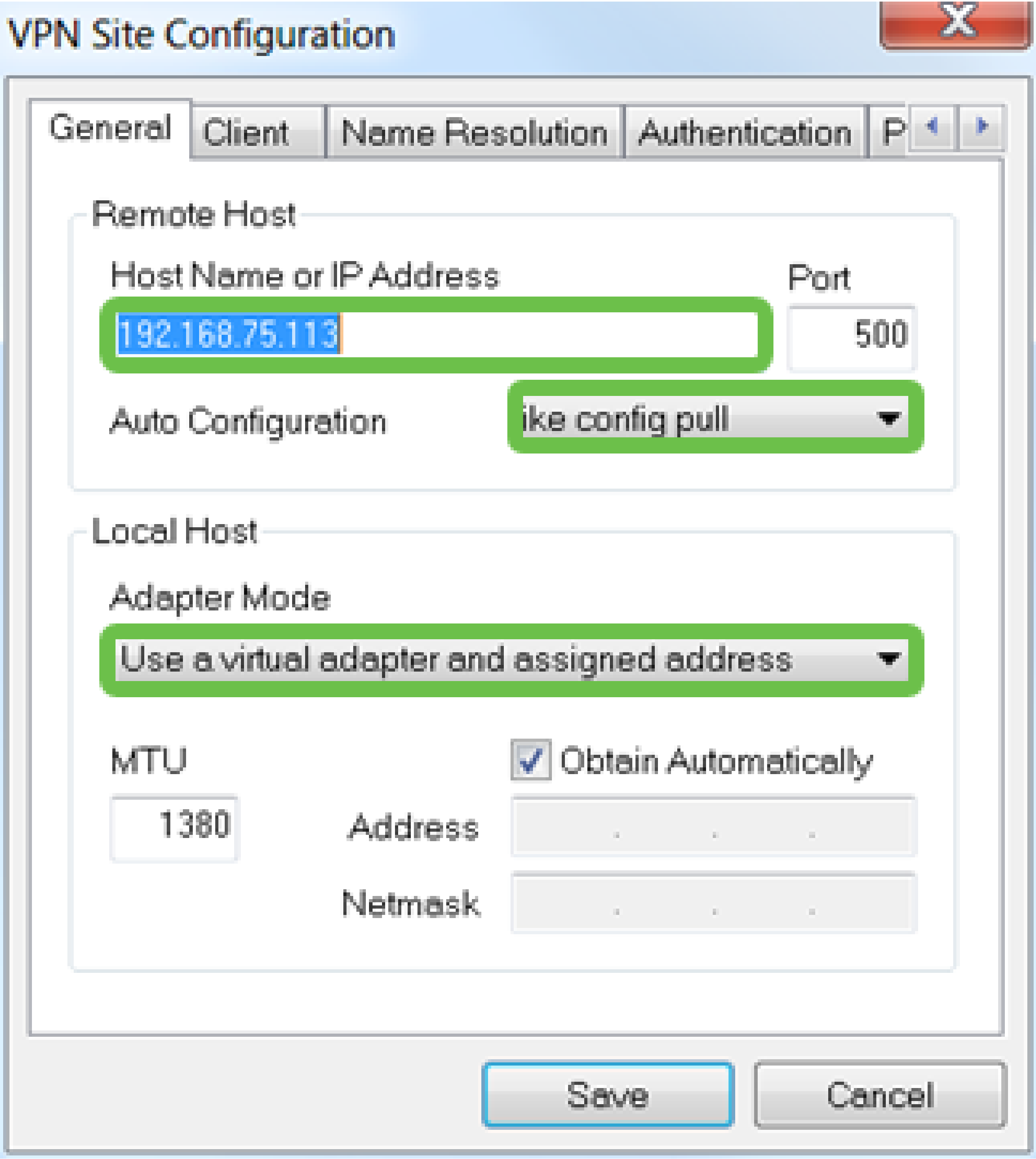
Configure the Shrew Soft VPN client

Perform the following steps.

Step 1

Open the Shrew Soft *VPN Access Manager* and click **Add** to add a Profile. In the *VPN Site Configuration* window that appears, configure the **General** tab:

- **Hostname or IP Address**: Use the WAN IP address (or hostname of the RV345P)
- **Auto Configuration**: Select **ike config pull**
- **Adapter Mode**: Select **Use a Virtual adapter and assigned address**



VPN Site Configuration

Remote Host

Host Name or IP Address: 192.168.75.113

Port: 500

Auto Configuration: ike config pull

Local Host

Adapter Mode: Use a virtual adapter and assigned address

MTU: 1380

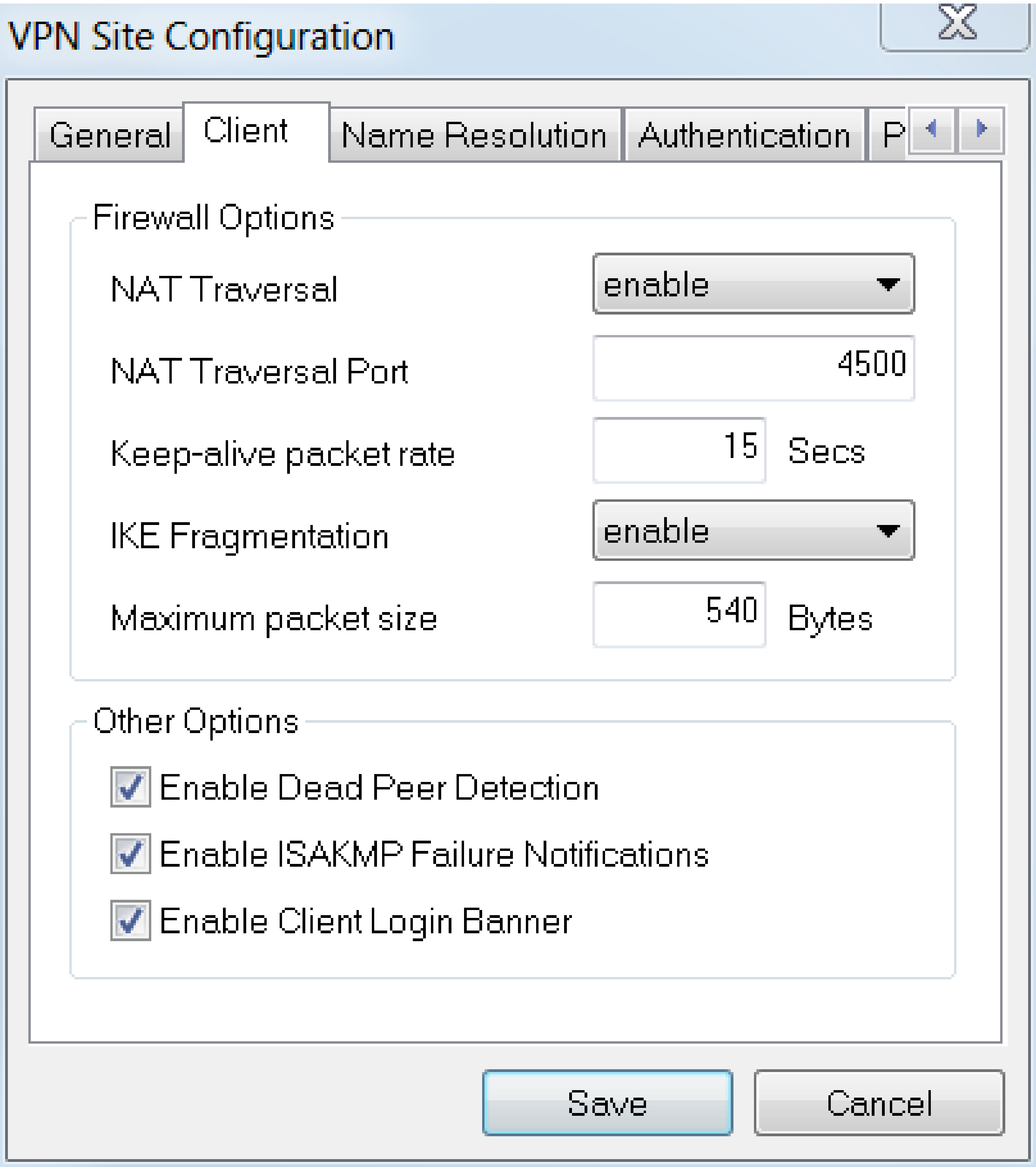
☑ Obtain Automatically

Address: . . .

Netmask: . . .

Step 2

Configure the **Client** tab. In this example, we kept the default settings.



VPN Site Configuration

Firewall Options

NAT Traversal: enable

NAT Traversal Port: 4500

Keep-alive packet rate: 15 Secs

IKE Fragmentation: enable

Maximum packet size: 540 Bytes

Other Options

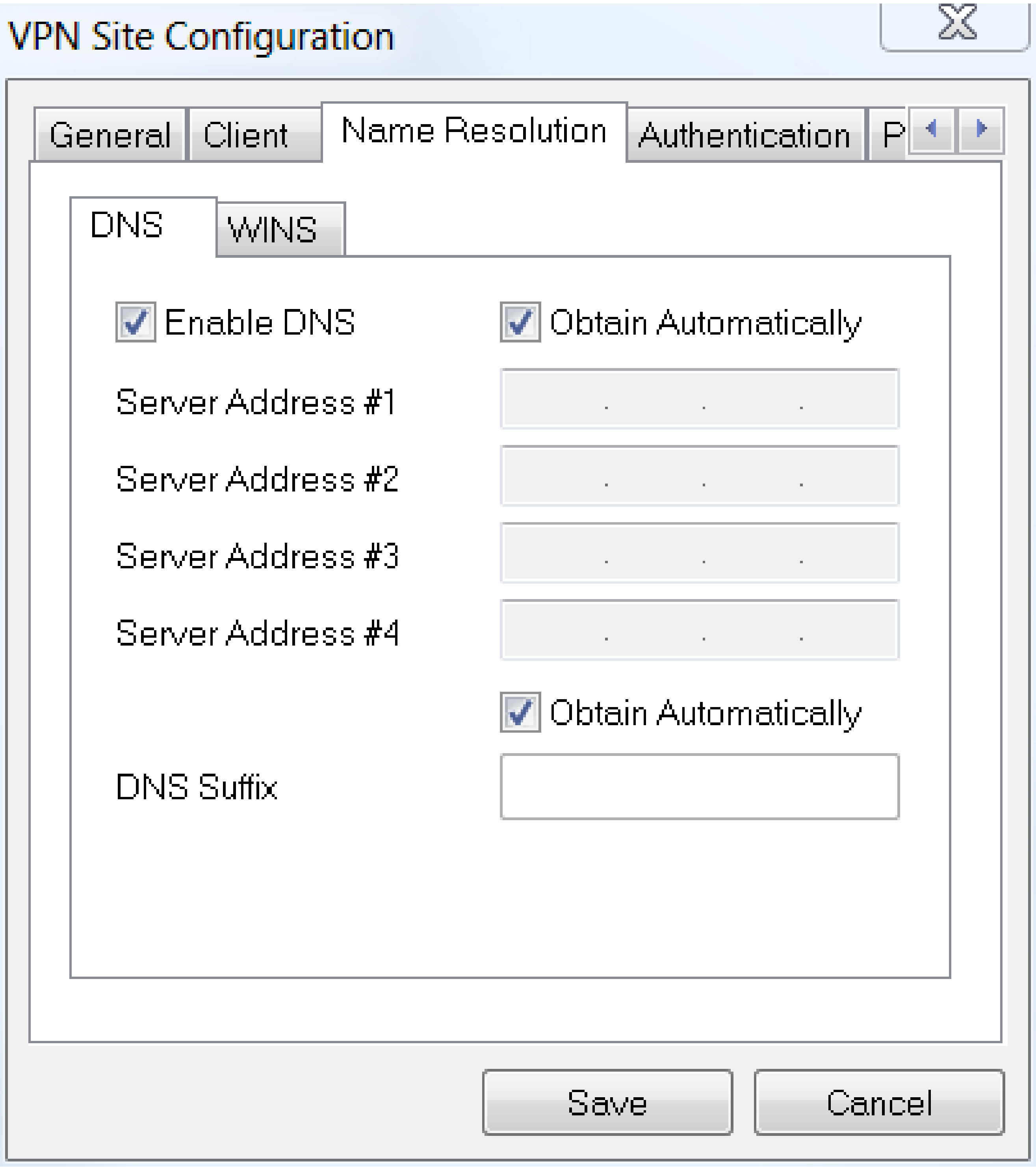
☑ Enable Dead Peer Detection

☑ Enable ISAKMP Failure Notifications

☑ Enable Client Login Banner

Step 3

Under **Name Resolution** > **DNS**, check the **Enable DNS** box and leave the **Obtain Automatically** boxes checked.



VPN Site Configuration

☑ Enable DNS ☑ Obtain Automatically

Server Address #1 . . .

Server Address #2 . . .

Server Address #3 . . .

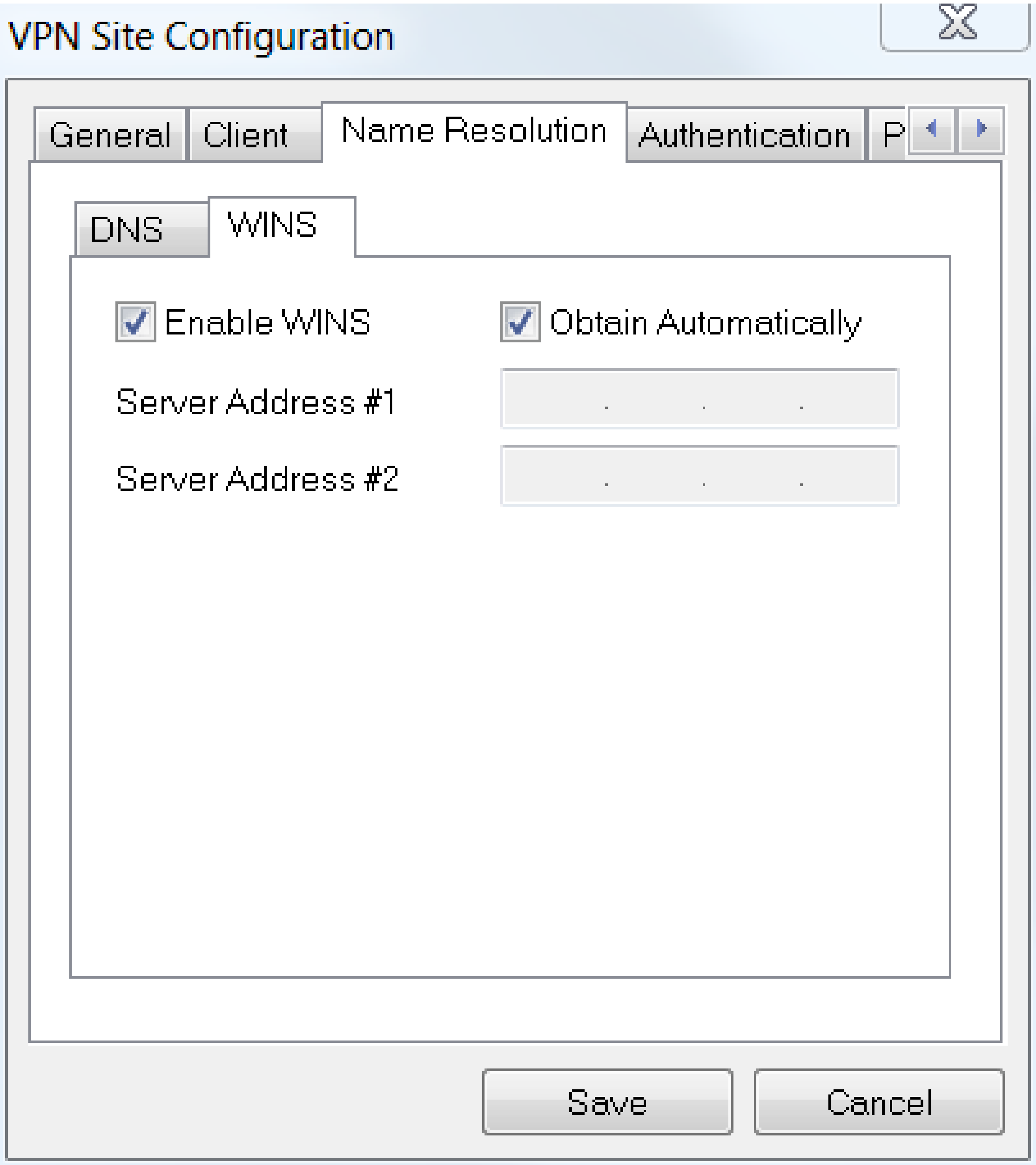
Server Address #4 . . .

☑ Obtain Automatically

DNS Suffix

Step 4

Under **Name Resolution** > **WINS** tab, check the **Enable WINS** box and leave the **Obtain Automatically** box checked.



☑ Enable WINS

☑ Obtain Automatically

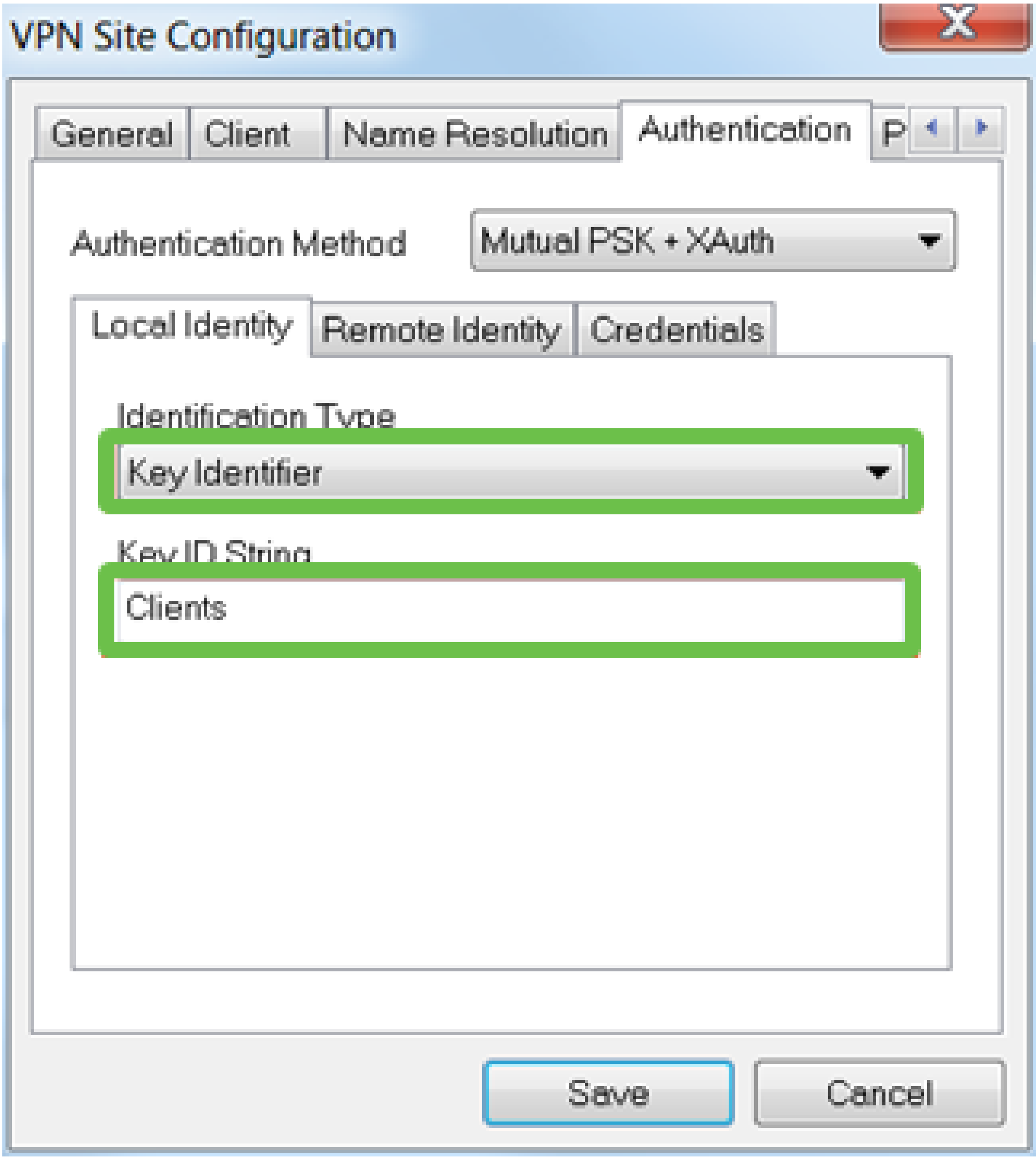
Server Address #1 . . .

Server Address #2 . . .

Step 5

Click **Authentication > Local Identity**.

- **Identification Type**: Select **Key Identifier**
- **Key ID String**: Enter the **Group Name** that was configured on the RV345P



Authentication Method: Mutual PSK + XAuth

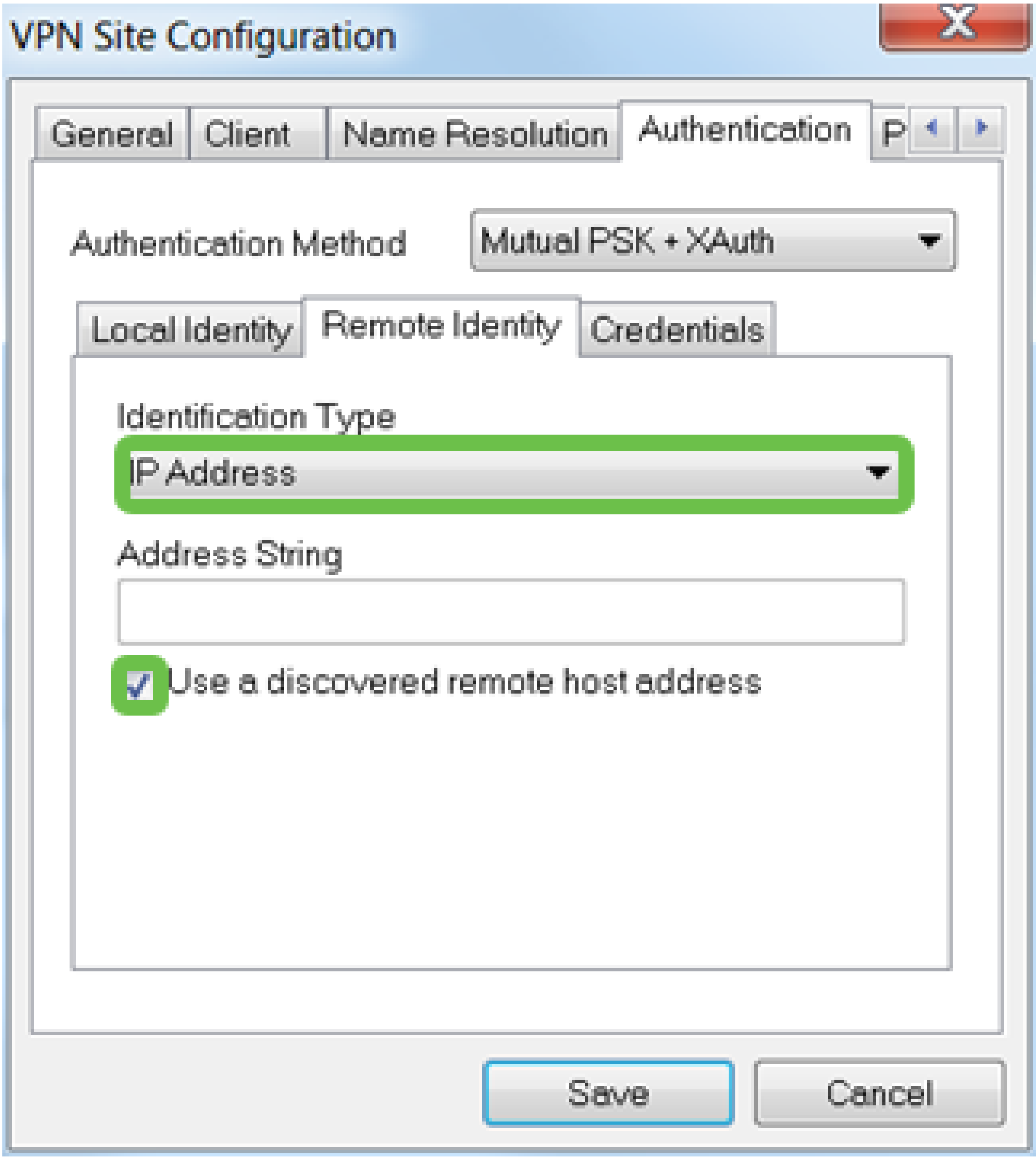
Identification Type: Key Identifier

Key ID String: Clients

Step 6

Under **Authentication > Remote Identity**. In this example, we kept the default settings.

- **Identification Type**: IP Address
- **Address String**: <blank>
- **Use a discovered remote host address** box: Checked



Authentication Method: Mutual PSK + XAuth

Identification Type: IP Address

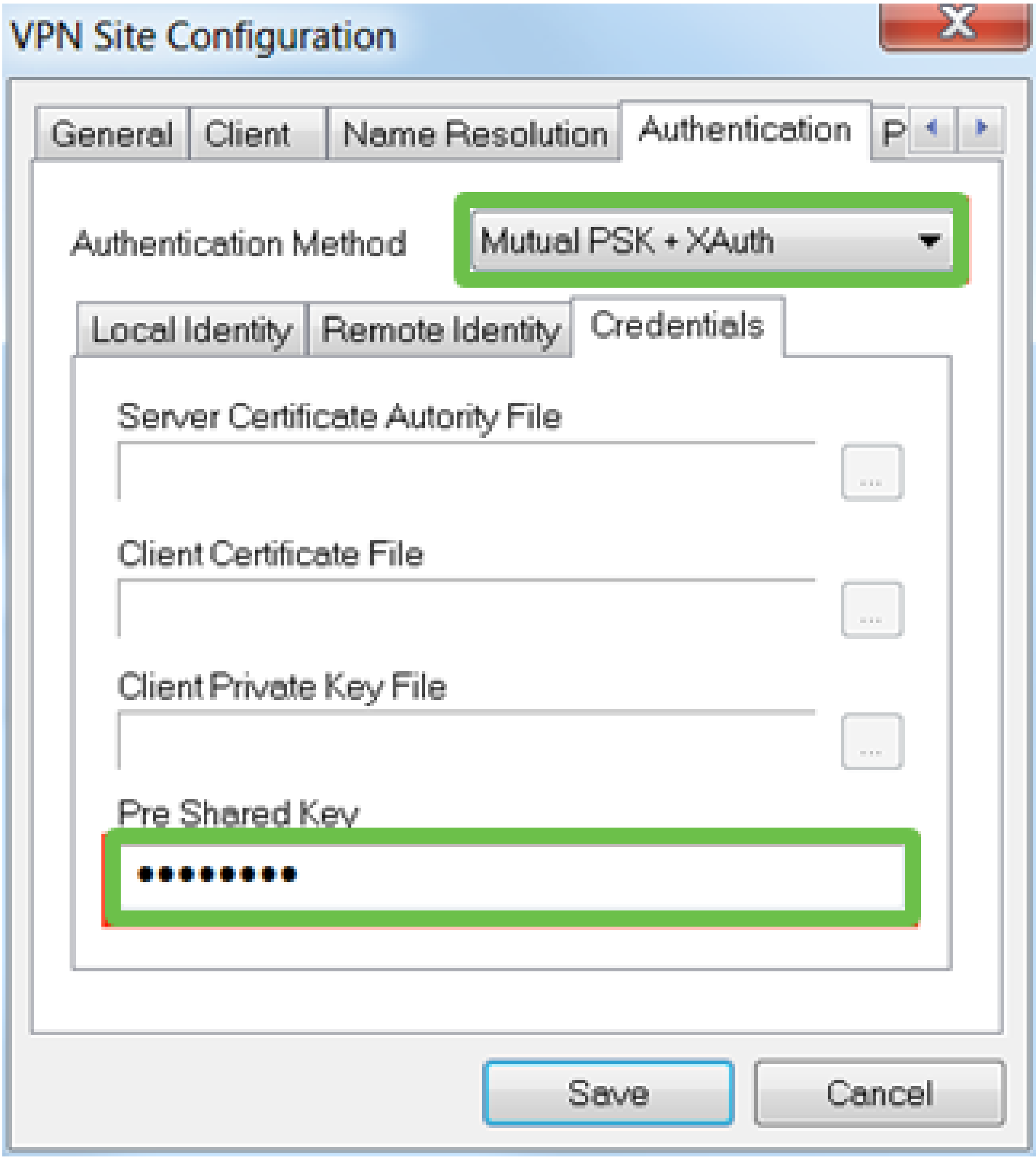
Address String:

☑ Use a discovered remote host address

Step 7

Under **Authentication** > **Credentials**, configure the following:

- **Authentication Method**: Select **Mutual PSK + XAuth**
- **Pre-Shared Key**: Enter the **Pre-shared Key** configured in the RV345P Client Profile



VPN Site Configuration

Authentication Method: Mutual PSK + XAuth

Server Certificate Autority File

Client Certificate File

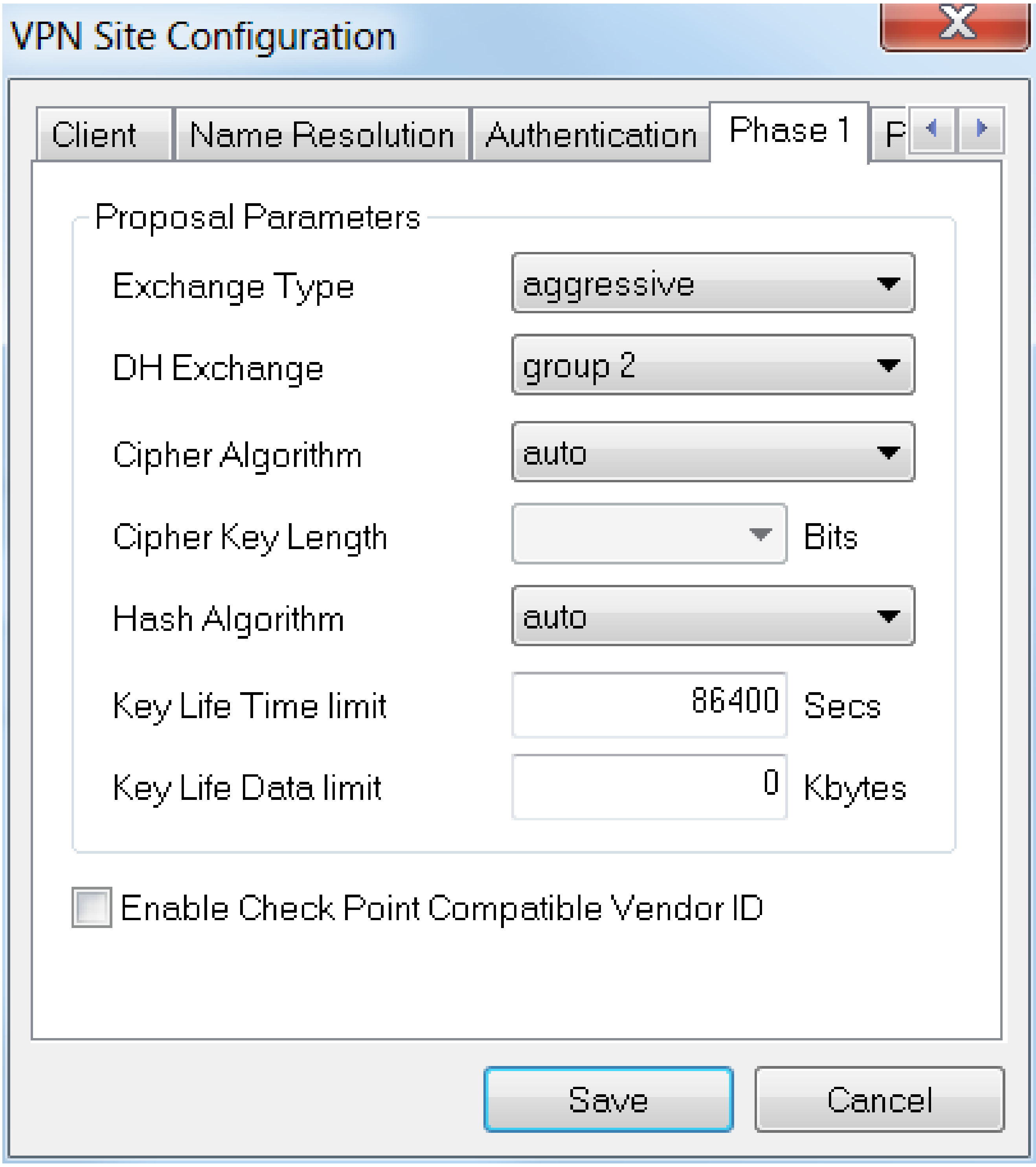
Client Private Key File

Pre Shared Key: •••••••••

Step 8

For the **Phase 1** tab. In this example, the default settings were kept:

- **Exchange Type:** Aggressive
- **DH Exchange:** group 2
- **Cipher Algorithm:** Auto
- **Hash Algorithm:** Auto



VPN Site Configuration

Proposal Parameters

Exchange Type: aggressive

DH Exchange: group 2

Cipher Algorithm: auto

Cipher Key Length: Bits

Hash Algorithm: auto

Key Life Time limit: 86400 Secs

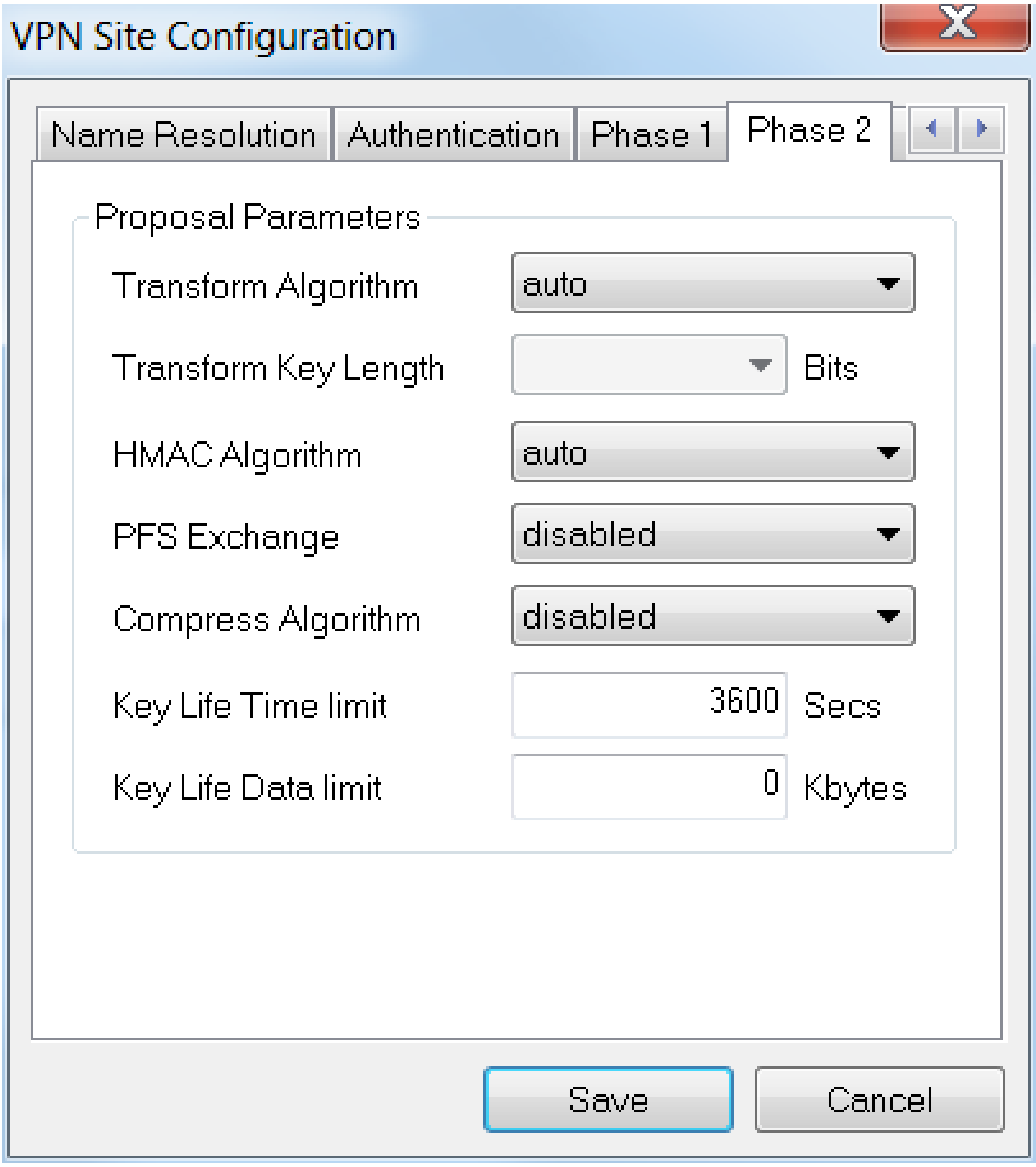
Key Life Data limit: 0 Kbytes

☐ Enable Check Point Compatible Vendor ID

Step 9

In this example, the defaults for the **Phase 2** tab were kept the same.

- **Transform Algorithm:** Auto
- **HMAC Algorithm:** Auto
- **PFS Exchange:** Disabled
- **Compress Algorithm:** Disabled



Proposal Parameters

Transform Algorithm: auto

Transform Key Length: Bits

HMAC Algorithm: auto

PFS Exchange: disabled

Compress Algorithm: disabled

Key Life Time limit: 3600 Secs

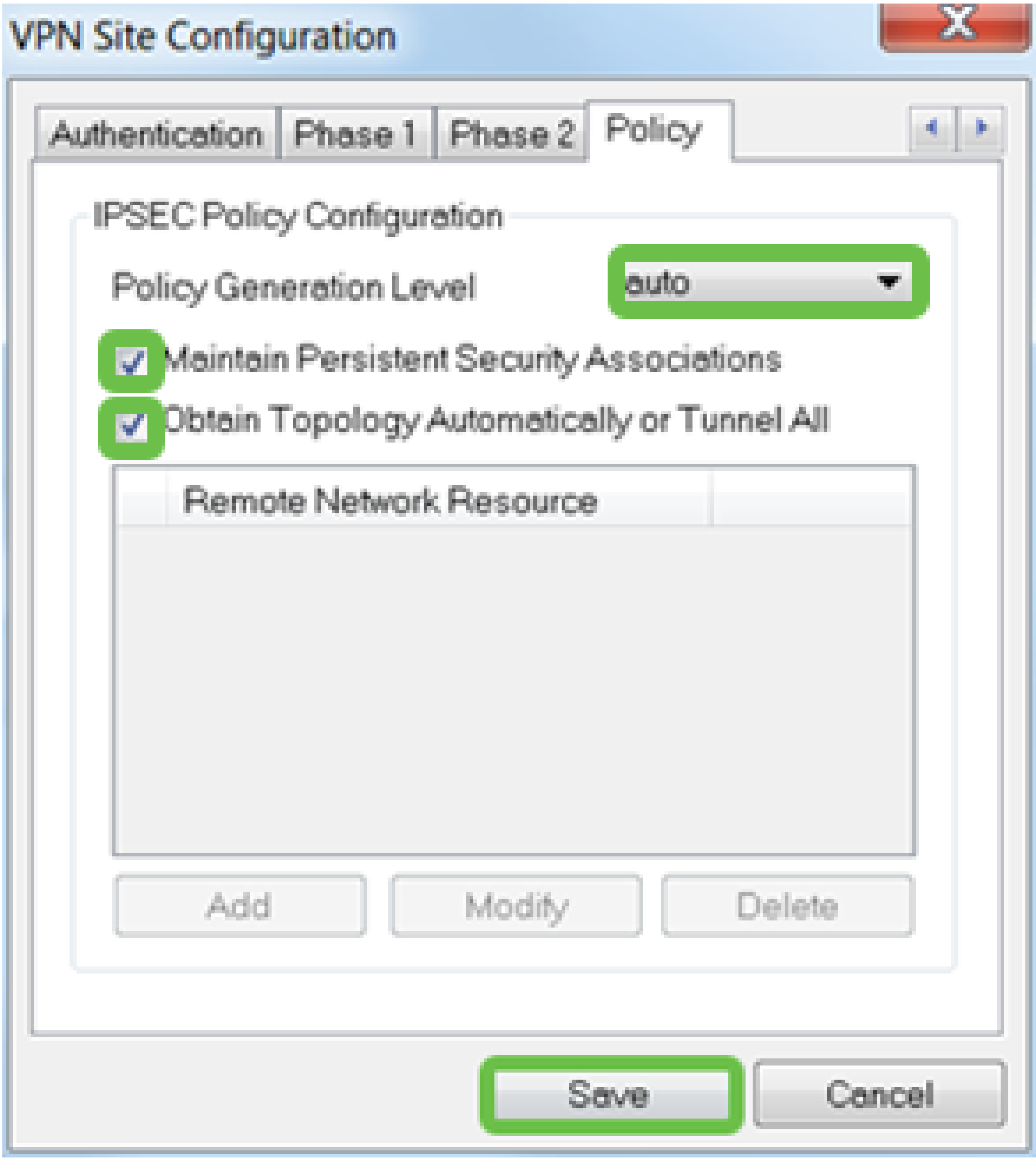
Key Life Data limit: 0 Kbytes

Step 10

For the **Policy** tab example, we used the following settings:

- **Policy Generation Level:** Auto
- **Maintain Persistent Security Associations:** Checked
- **Obtain Topology Automatically or Tunnel All:** Checked

Since we configured **Split-Tunneling** on the RV345P, we don’t need to configure it here.



VPN Site Configuration

Authentication | Phase 1 | Phase 2 | Policy

IPSEC Policy Configuration

Policy Generation Level: auto

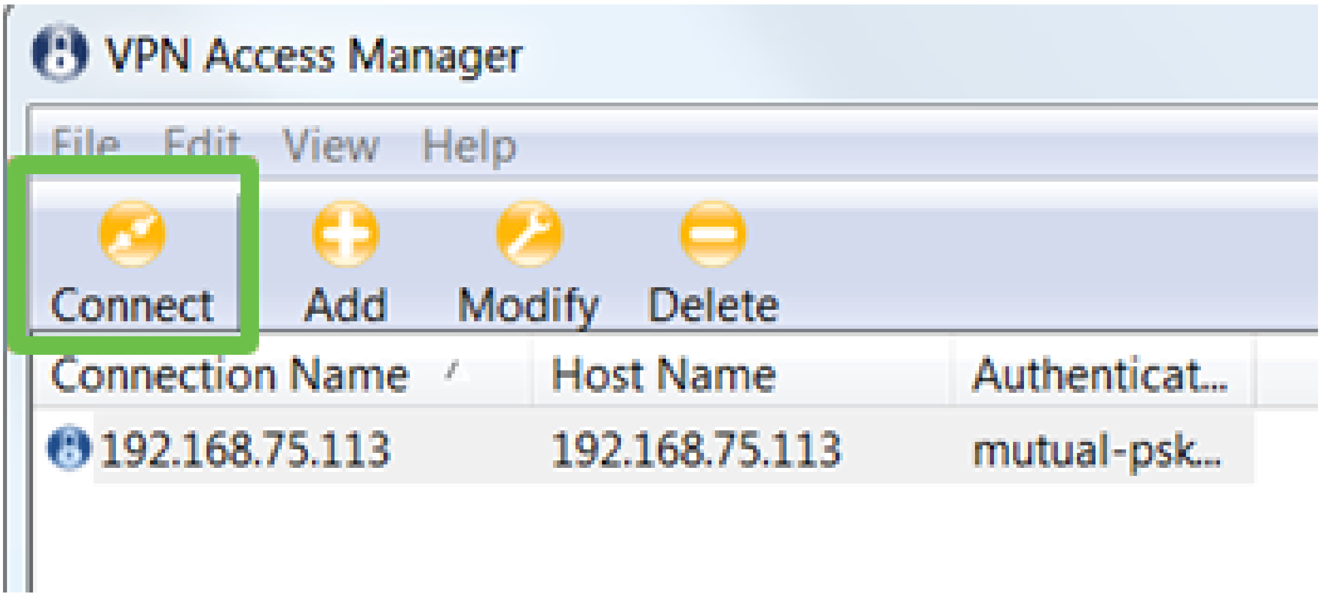
☑ Maintain Persistent Security Associations

☑ Obtain Topology Automatically or Tunnel All

When finished, click **Save**.

Step 11

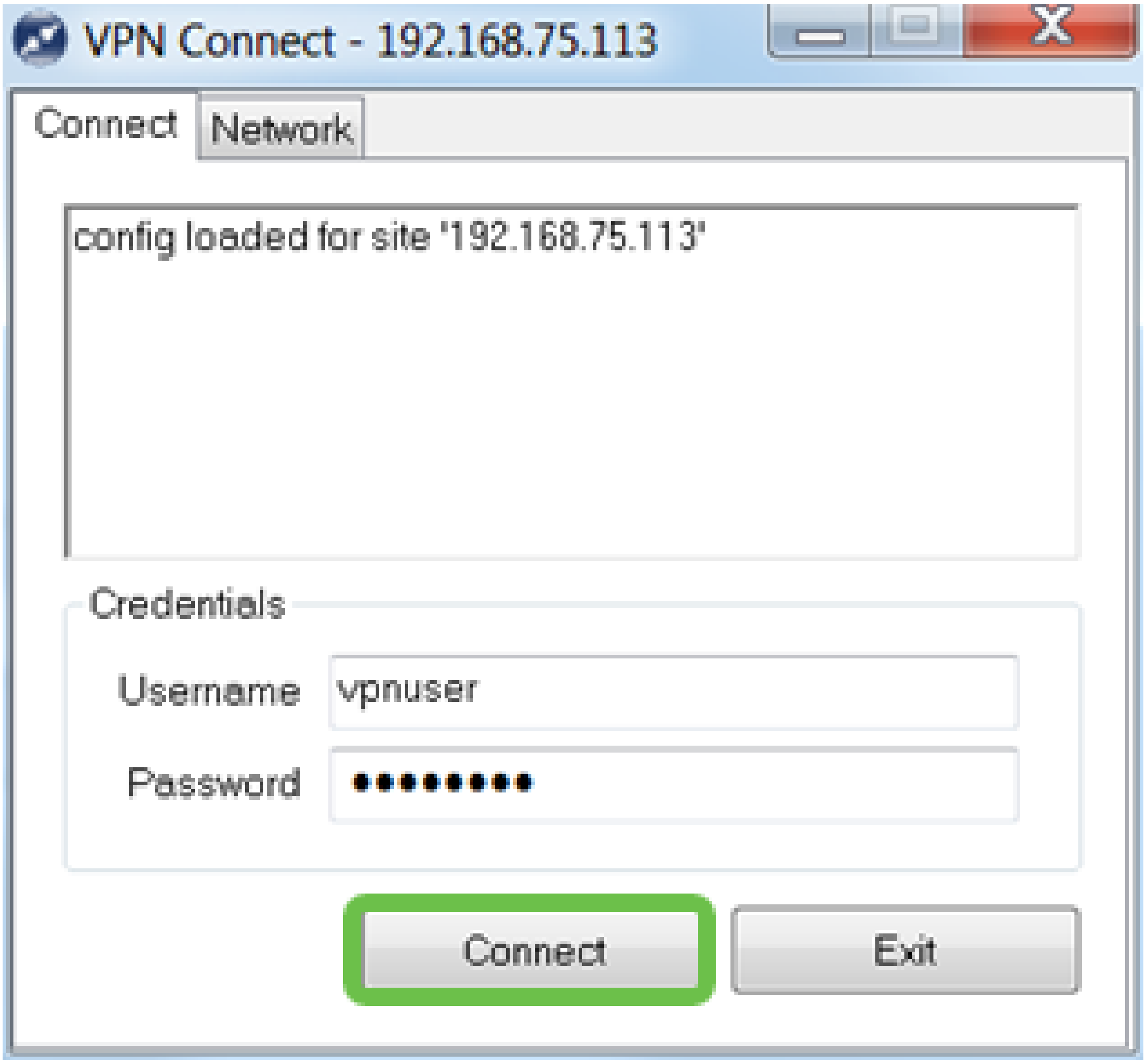
You are now ready to test the connection. In *VPN Access Manager*, highlight the connection profile and click on the **Connect** button.



Connection Name	Host Name	Authenticat...
192.168.75.113	192.168.75.113	mutual-psk...

Step 12

In the **VPN Connect** window that comes up, enter the **Username** and **Password** using the credentials for the **User Account** you created on the RV345P (step 13 & 14). When finished, click **Connect**.



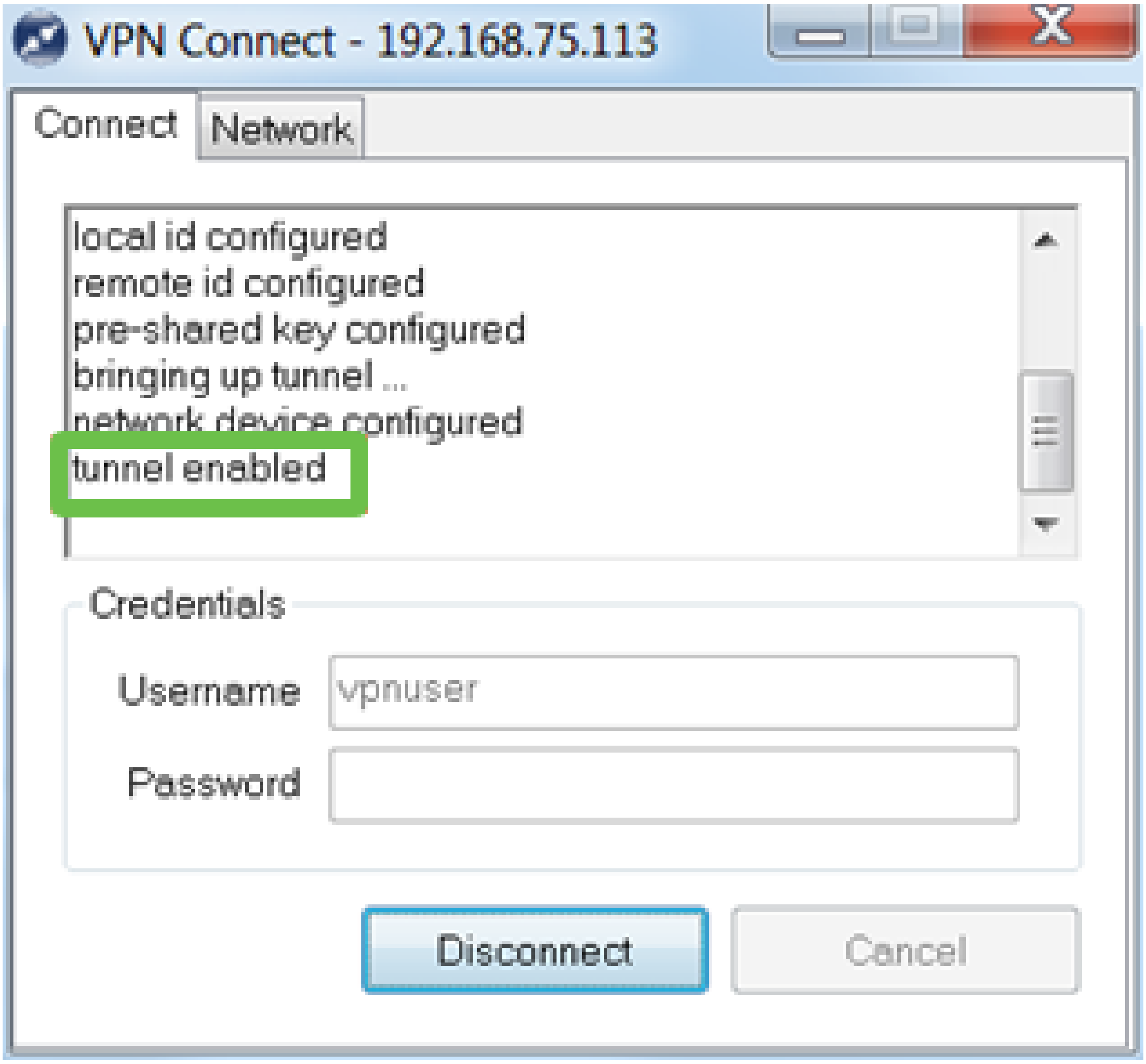
config loaded for site '192.168.75.113'

Username vpnuser

Password ●●●●●●●●●

Step 13

Verify the tunnel is connected. You should see **tunnel enabled**.



local id configured
remote id configured
pre-shared key configured
bringing up tunnel ...
network device configured
tunnel enabled

Username vpnuser

Password

Shrew Soft was used as an example in this configuration. Since Shrew Soft is not a Cisco product, please contact this third-party if you need technical assistance.

Other VPN Options

There are some other options for using a VPN. Click on the following links for more information:

- Use TheGreenBow VPN Client to Connect with RV34x Series Router
- Configure a Teleworker VPN Client on the RV34x Series Router
- Configure a Point-to-Point Tunneling Protocol (PPTP) Server on the Rv34x Series Router
- Configure an Internet Protocol Security (IPsec) Profile on an RV34x Series Router
- Configure L2TP WAN Settings on the RV34x Router
- Configuring Site-to-Site VPN on the RV34x

Supplemental Configurations on the RV345P Router

Configure VLANs (Optional)

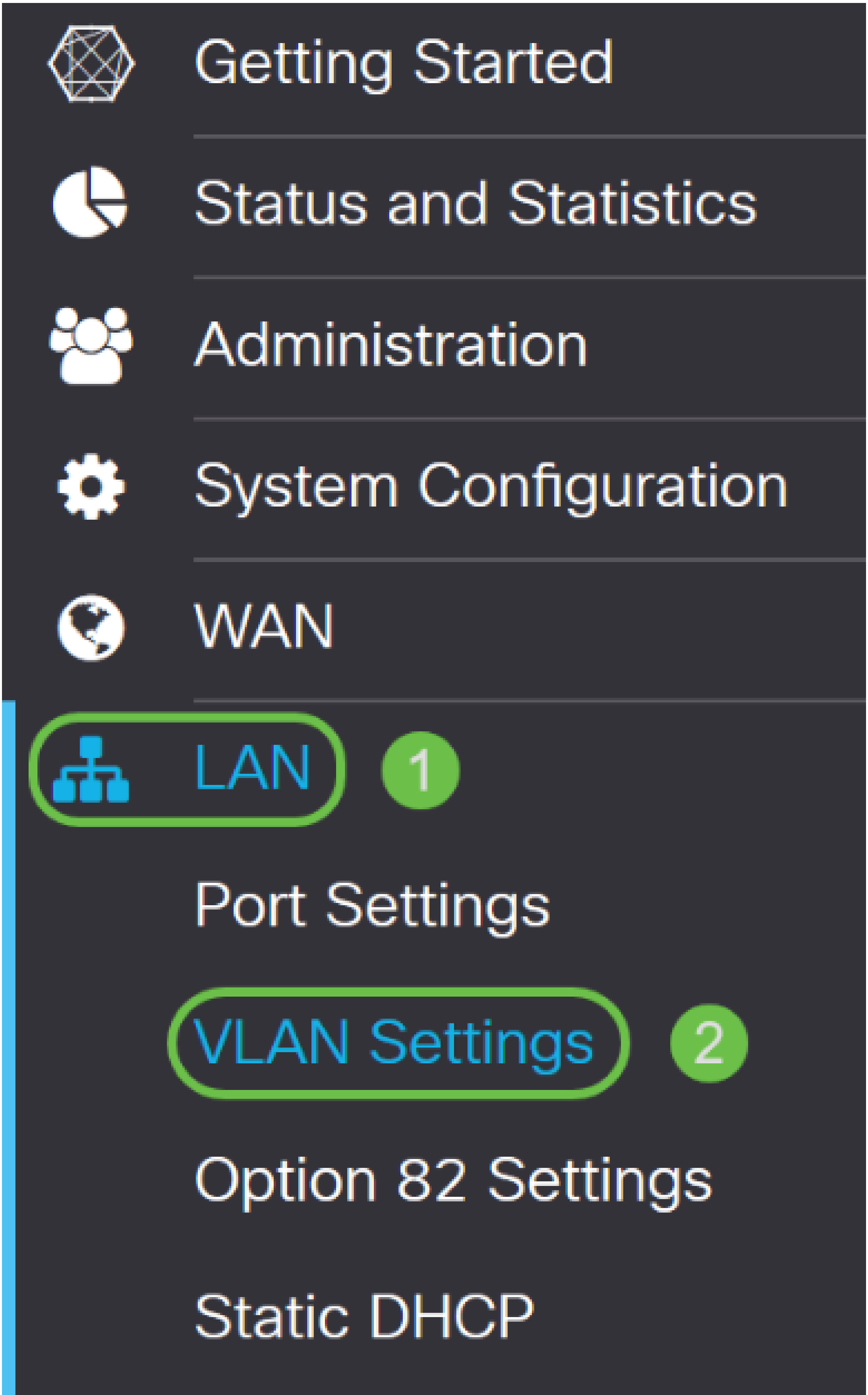
A Virtual Local Area Network (VLAN) allows you to logically segment a Local Area Network (LAN) into different broadcast domains. In scenarios where sensitive data may be broadcast on a network, VLANs can be created to enhance security by designating a broadcast to a specific VLAN. VLANs can also be used to enhance performance by reducing the need to send broadcasts and multicasts to unnecessary destinations. You can create a VLAN, but this has no effect until the VLAN is attached to at least one port, either manually or dynamically. Ports must always belong to one or more VLANs.

You may want to refer to VLAN Best Practices and Security Tips for additional guidance.

If you do not want to create VLANs, you can skip to the next section.

Step 1

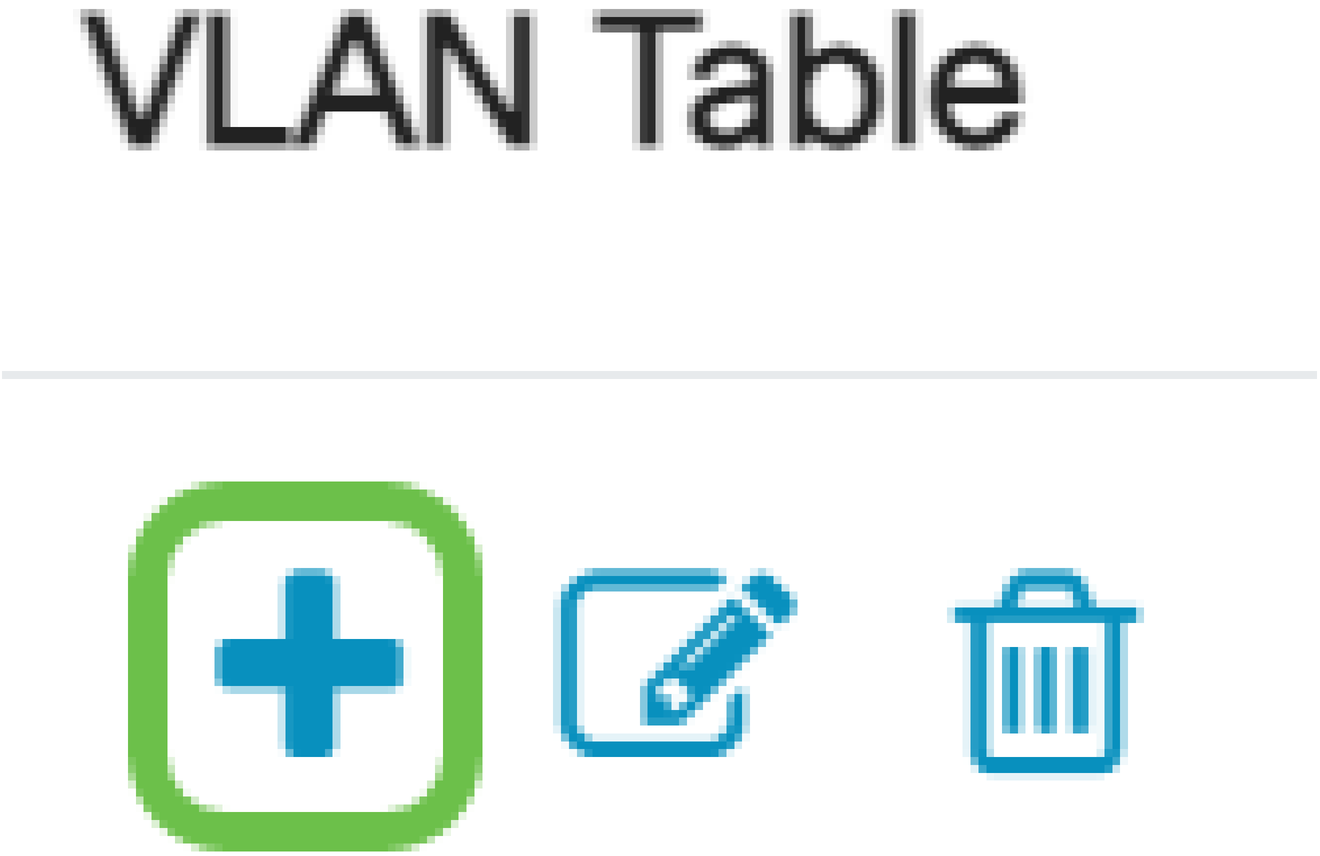
Navigate to **LAN > VLAN Settings**.



Getting Started
Status and Statistics
Administration
System Configuration
WAN
LAN
1
Port Settings
VLAN Settings
2
Option 82 Settings
Static DHCP

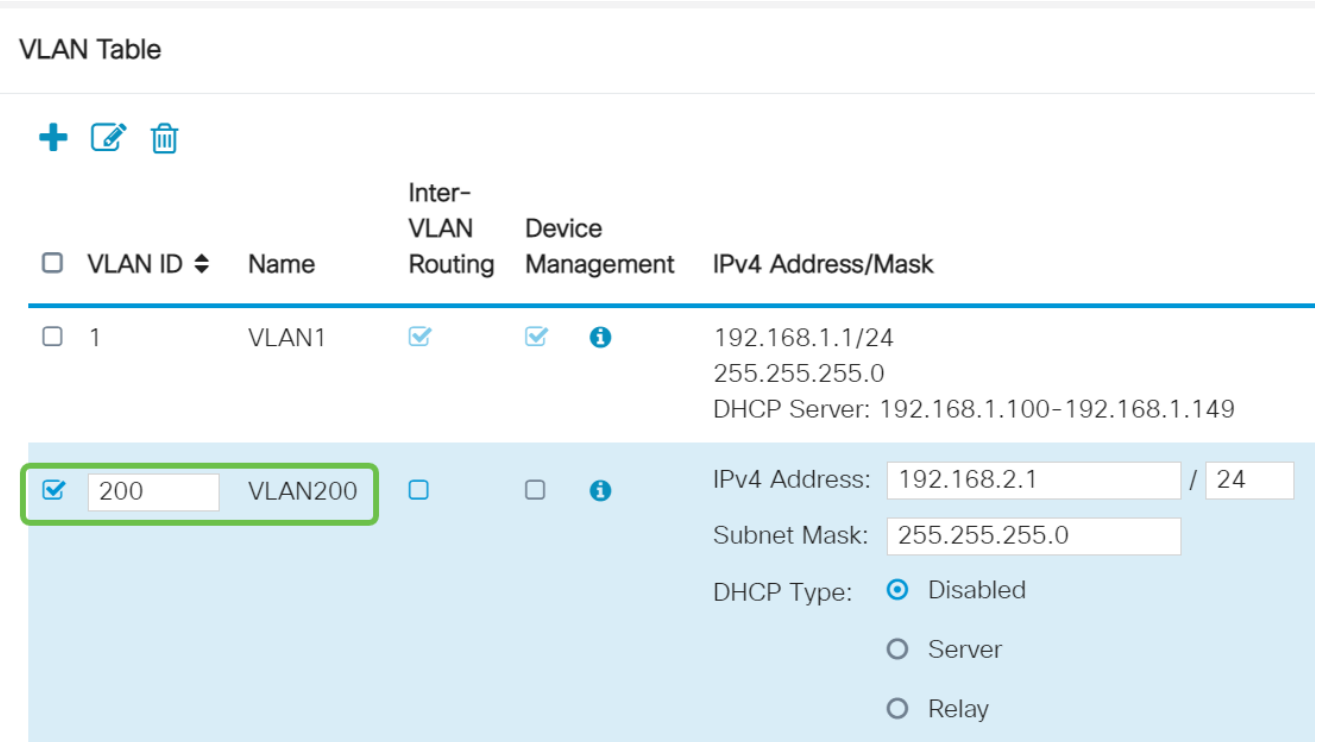
Step 2

Click the **add icon** to create a new VLAN.



Step 3

Enter the *VLAN ID* that you want to create and a *Name* for it. The *VLAN ID* range is from 1-4093.



VLAN Table

☐	VLAN ID	Name	Inter-VLAN Routing	Device Management		IPv4 Address/Mask
☐	1	VLAN1	☑	☑	ℹ	192.168.1.1/24 255.255.255.0 DHCP Server: 192.168.1.100-192.168.1.149
☑	200	VLAN200	☐	☐	ℹ	IPv4 Address: 192.168.2.1 / 24 Subnet Mask: 255.255.255.0 DHCP Type: ● Disabled ○ Server ○ Relay

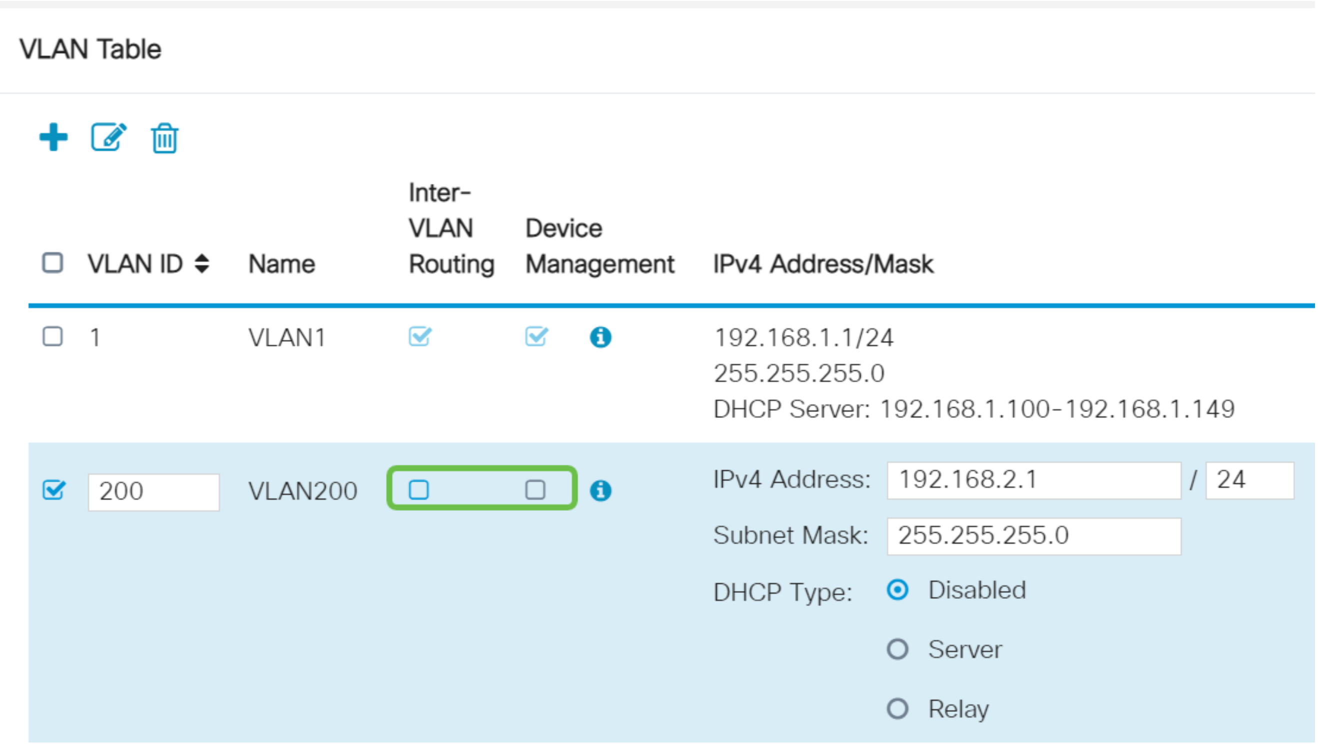
Step 4

Uncheck the *Enabled* box for both *Inter-VLAN Routing* and *Device Management* if desired. Inter-VLAN routing is used to route packets from one VLAN to another VLAN.

In general, this is not recommended for guest networks as you will want to isolate guest users it leaves VLANs less secure. There are times when it may be necessary for VLANs to route between each other. If this is the case, check out Inter-VLAN Routing on an RV34x Router with Targeted ACL Restrictions to configure specific traffic that you allow between VLANs.

Device Management is the software that allows you to use your browser to log into the Web UI of the RV345P, from the VLAN, and manage the RV345P. This should also be disabled on Guest networks.

In this example, we did not enable either the *Inter-VLAN Routing* or *Device Management* to keep the VLAN more secure.

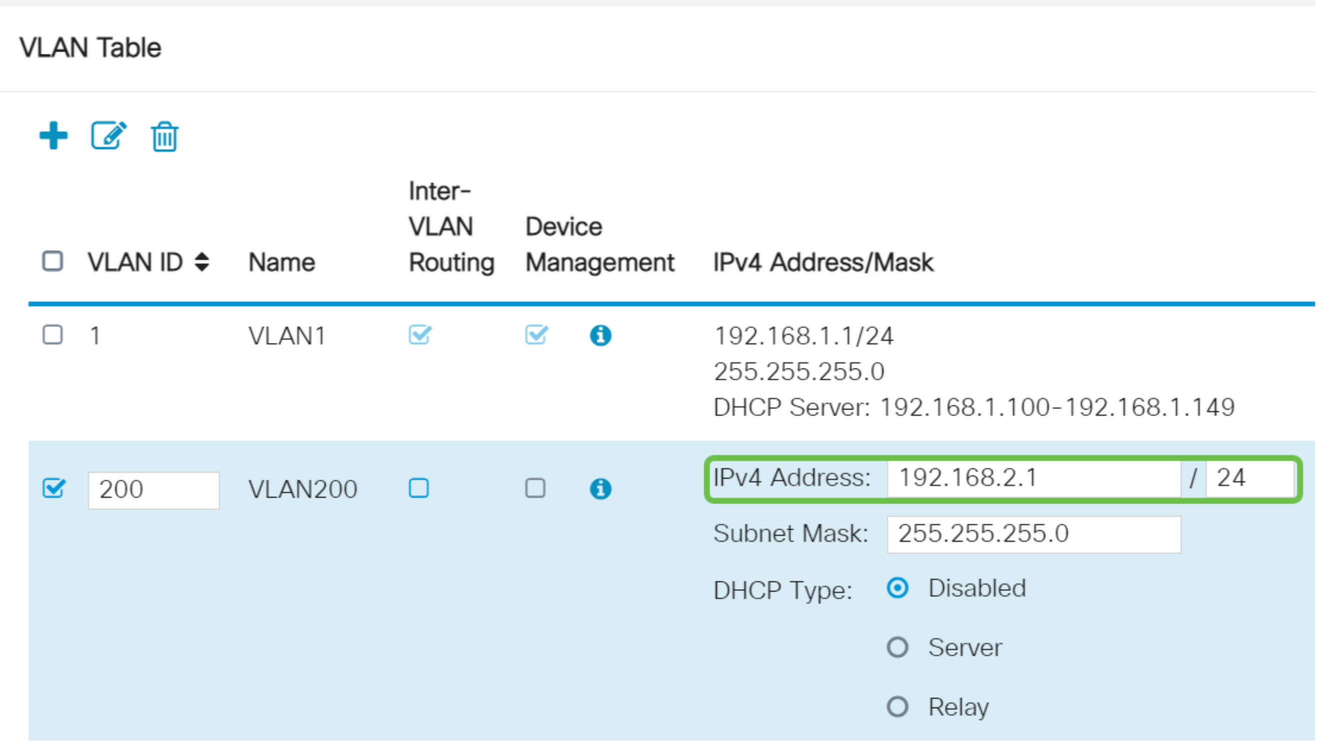


VLAN Table

☐	VLAN ID ⬍	Name	Inter-VLAN Routing	Device Management		IPv4 Address/Mask
☐	1	VLAN1	☑	☑	ℹ	192.168.1.1/24 255.255.255.0 DHCP Server: 192.168.1.100-192.168.1.149
☑	200	VLAN200	☐	☐	ℹ	IPv4 Address: 192.168.2.1 / 24 Subnet Mask: 255.255.255.0 DHCP Type: ● Disabled ○ Server ○ Relay

Step 5

The private IPv4 address will auto-populate in the *IP Address* field. You can adjust this if you choose. In this example, the subnet has 192.168.2.100-192.168.2.149 IP addresses available for DHCP. 192.168.2.1-192.168.2.99, and 192.168.2.150-192.168.2.254 are available for static IP addresses.



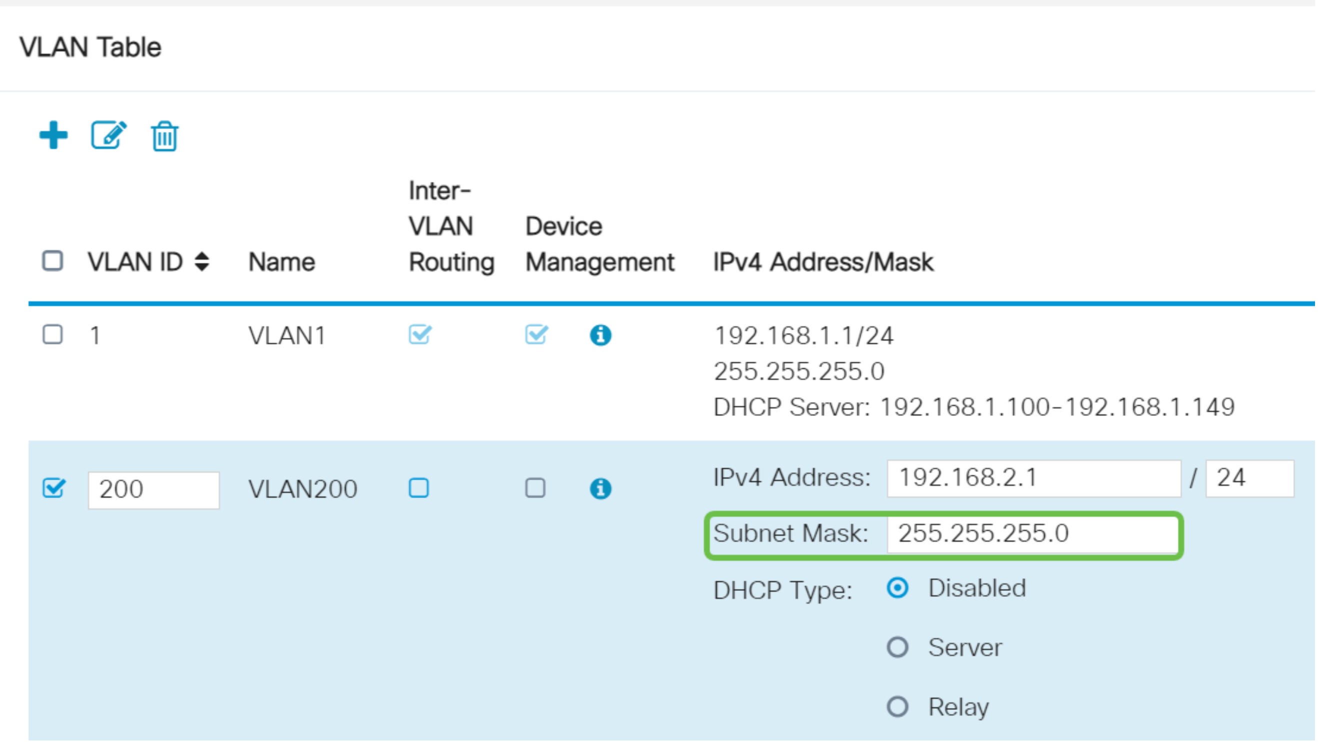
VLAN Table

☐	VLAN ID ⬍	Name	Inter-VLAN Routing	Device Management		IPv4 Address/Mask
☐	1	VLAN1	☑	☑	ℹ	192.168.1.1/24 255.255.255.0 DHCP Server: 192.168.1.100-192.168.1.149
☑	200	VLAN200	☐	☐	ℹ	IPv4 Address: 192.168.2.1 / 24 Subnet Mask: 255.255.255.0 DHCP Type: ● Disabled ○ Server ○ Relay

Step 6

The subnet mask under *Subnet Mask* will auto-populate. If you make changes, this will automatically adjust the field.

For this demonstration, we will be leaving the *Subnet Mask* as **255.255.255.0** or **/24**.



VLAN Table

☐	VLAN ID	Name	Inter-VLAN Routing	Device Management		IPv4 Address/Mask
☐	1	VLAN1	☑	☑	ℹ	192.168.1.1/24 255.255.255.0 DHCP Server: 192.168.1.100-192.168.1.149
☑	200	VLAN200	☐	☐	ℹ	IPv4 Address: 192.168.2.1 / 24 Subnet Mask: 255.255.255.0 DHCP Type: ● Disabled ○ Server ○ Relay

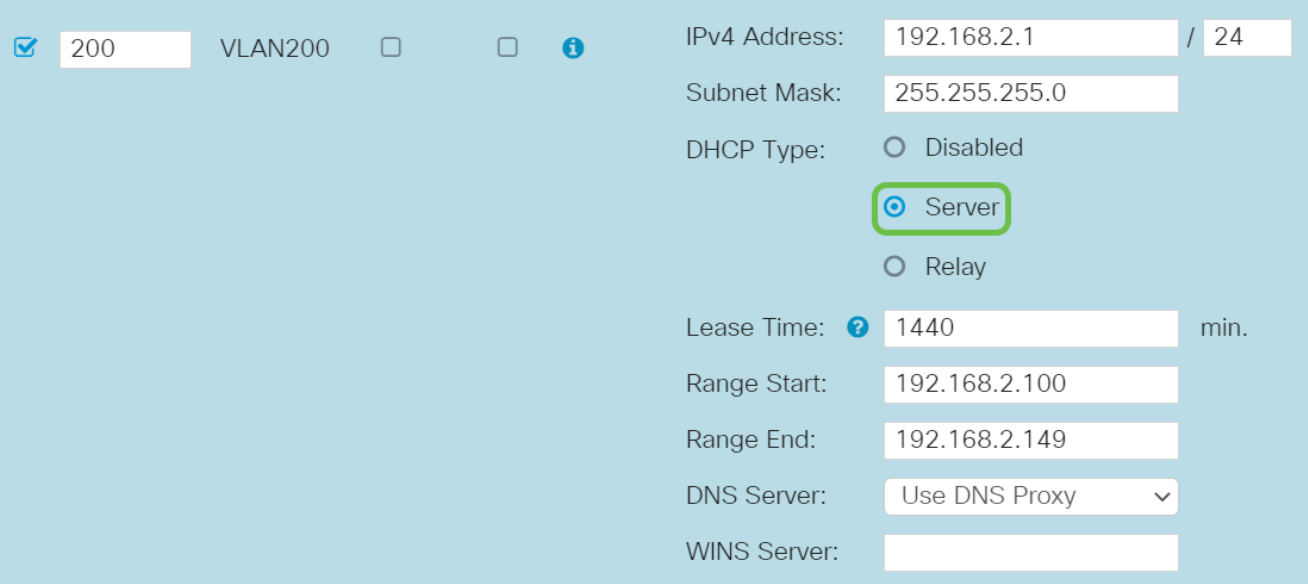
Step 7

Select a *Dynamic Host Configuration Protocol (DHCP) Type*. The following options are:

Disabled – Disables the DHCP IPv4 server on VLAN. This is recommended in a test environment. In this scenario, all IP addresses would need to be manually configured and all communication would be internal.

Server - This is the most often used option.

- Lease Time – Enter a time value of 5 to 43,200 minutes. The default is 1440 minutes (equal to 24 hours).
- Range Start and Range End – Enter the range start and end of IP addresses that can be assigned dynamically.
- DNS Server – Select to use the DNS server as a proxy, or from ISP from the drop-down list.
- WINS Server – Enter the WINS server name.
- DHCP Options:
  - Option 66 – Enter the IP address of the TFTP server.
  - Option 150 – Enter the IP address of a list of TFTP servers.
  - Option 67 – Enter the configuration filename.
- Relay – Enter the remote DHCP server IPv4 address to configure the DHCP relay agent. This is a more advanced configuration.



☑ 200 VLAN200 □ □

IPv4 Address: 192.168.2.1 / 24

Subnet Mask: 255.255.255.0

DHCP Type: ○ Disabled [✓ ● Server] ○ Relay

Lease Time: 1440 min.

Range Start: 192.168.2.100

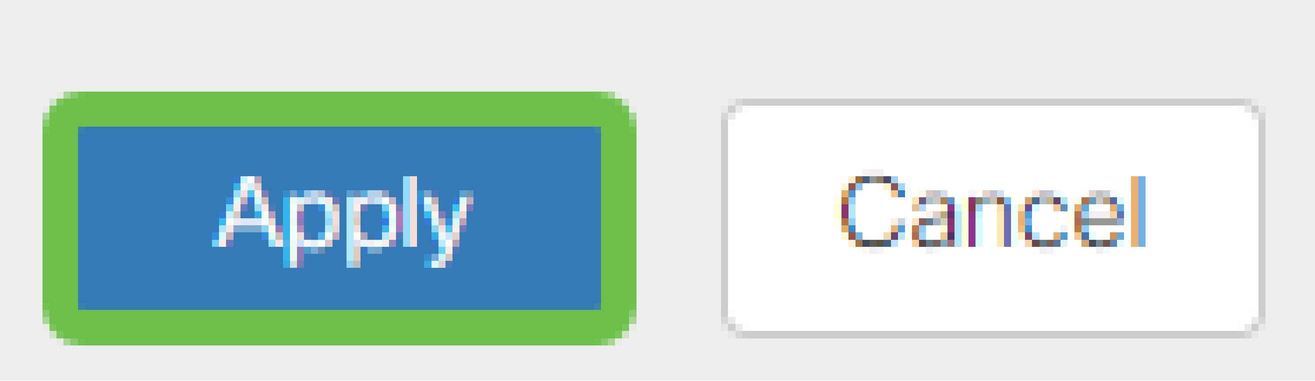
Range End: 192.168.2.149

DNS Server: Use DNS Proxy

WINS Server:

Step 8

Click **Apply** to create the new VLAN.



Assign VLANs to Ports (Optional)

16 VLANs can be configured on the RV345P, with one VLAN for the Wide Area Network (WAN). VLANs that are not on a port should be *Excluded*. This keeps the traffic on that port exclusively for the VLAN/VLANs the user specifically assigned. It is considered a best practice.

Ports can be set to be an Access Port or a Trunk Port:

- Access Port - Assigned one VLAN. Untagged frames are passed.
- Trunk Port - Can carry more than one VLAN. 802.1q. trunking allows for a native VLAN to be Untagged. VLANs that you don't want on the trunk should be Excluded.

One VLAN assigned its own port:

- Considered an Access port.
- The VLAN that is assigned to this port should be labeled Untagged.
- All other VLANs should be labeled Excluded for that port.

Two or more VLANs that share one port:

- Considered a Trunk Port.

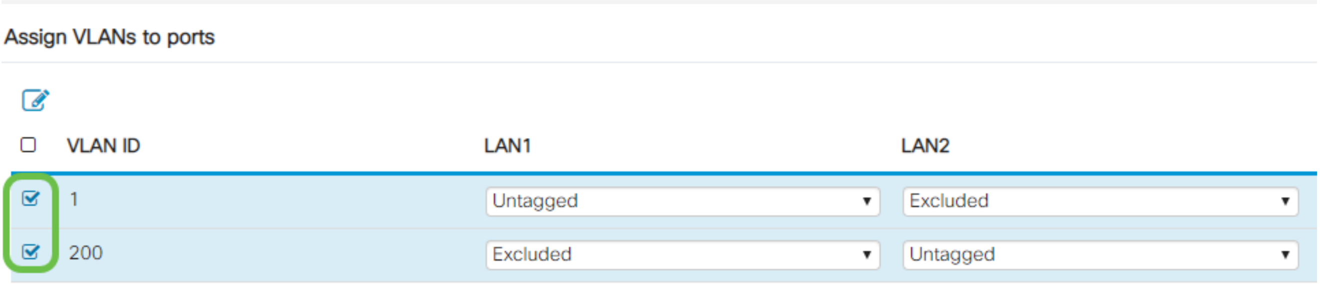
- One of the VLANs can be labeled Untagged.
- The rest of the VLANs that are part of the Trunk Port should be labeled Tagged.
- The VLANs that are not part of the Trunk Port should be labeled Excluded for that port.

In this example, there are no trunks.

Step 1

Select the *VLAN IDs* to edit.

In this example, we have selected *VLAN 1* and *VLAN 200*.



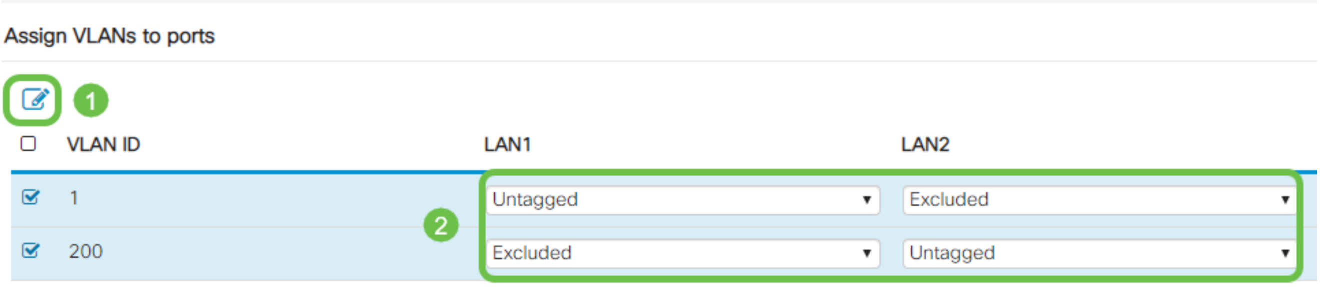
Assign VLANs to ports

☐	VLAN ID	LAN1	LAN2
☑	1	Untagged	Excluded
☑	200	Excluded	Untagged

Step 2

Click **Edit** to assign a VLAN to a LAN port and specify each setting as *Tagged*, *Untagged*, or *Excluded*.

In this example, on LAN1 we assigned VLAN 1 as **Untagged** and VLAN 200 as **Excluded**. For LAN2 we assigned VLAN 1 as **Excluded** and VLAN 200 as **Untagged**.

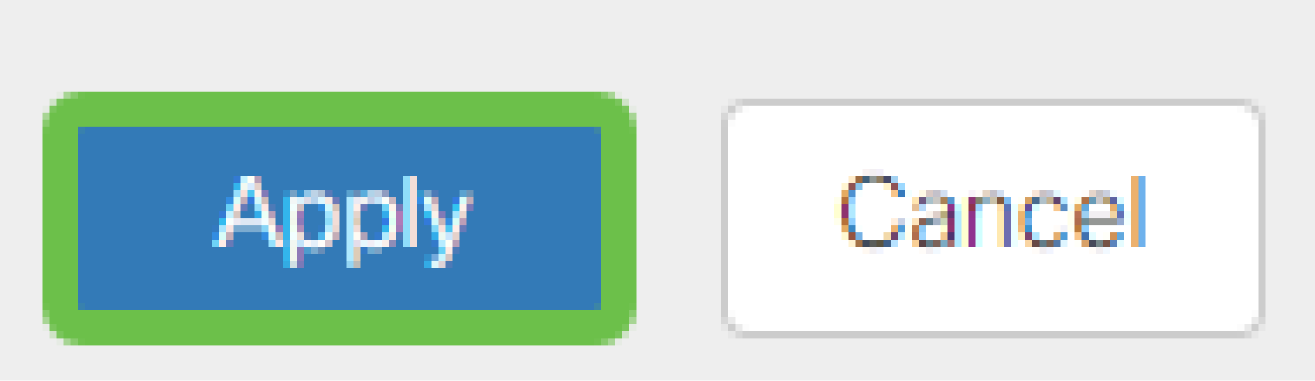


Assign VLANs to ports

☐	VLAN ID	LAN1	LAN2
☑	1	Untagged	Excluded
☑	200	Excluded	Untagged

Step 3

Click **Apply** to save the configuration.



You should now have successfully created a new VLAN and configured VLANs to ports on the

RV345P. Repeat the process to create the other VLANs. For example, VLAN300 would be created for Marketing with a subnet of 192.168.3.x and VLAN400 would be created for Accounting with a subnet of 192.168.4.x.

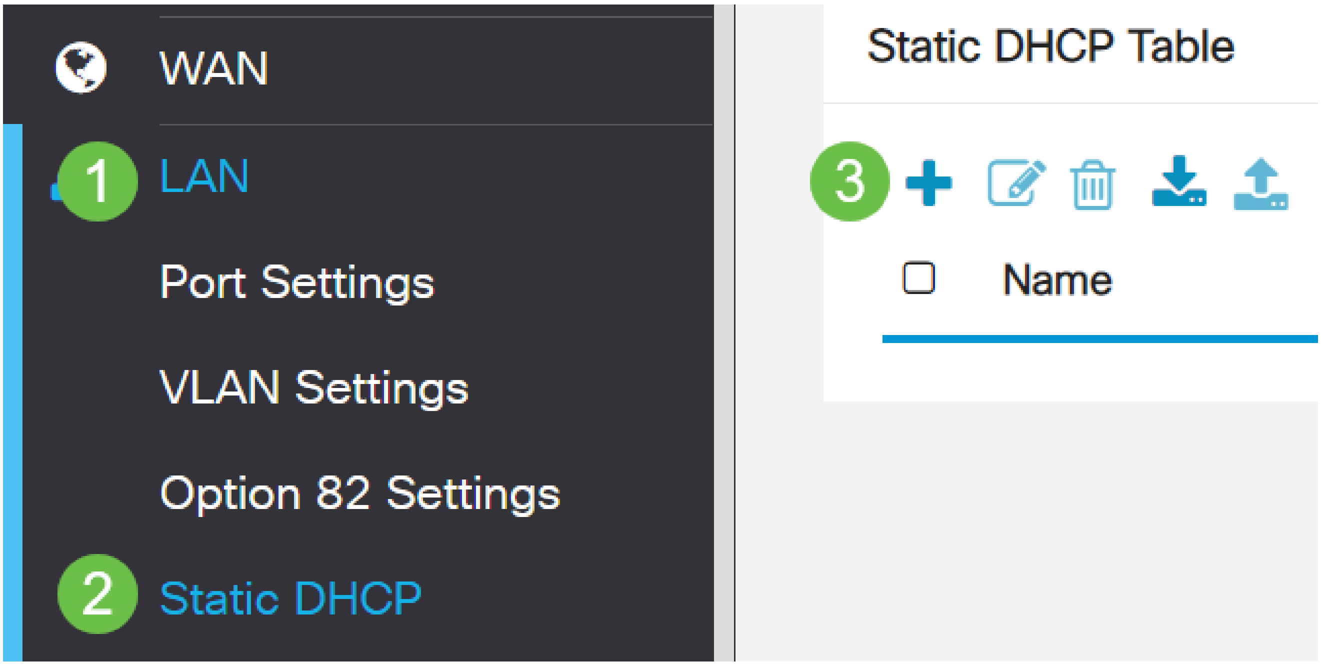
Add a Static IP (Optional)

If you would like a certain device to be reachable to other VLANs, you can give that device a static local IP address and create an access rule to make it accessible. This only works if Inter-VLAN routing is enabled. There are other situations where a static IP may be useful. For more information on setting static IP addresses, check out Best Practices for Setting Static IP Addresses on Cisco Business Hardware.

If you don’t need to add a static IP address, you can move to the next section of this article.

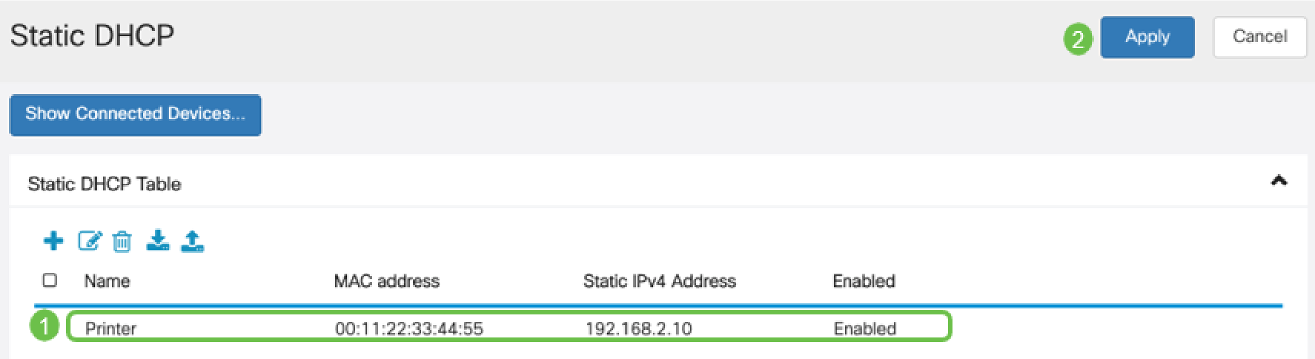
Step 1

Navigate to **LAN** > **Static DHCP.** Click on the **plus icon**.



Step 2

Add the **Static DHCP** information for the device. In this example, the device is a printer.



□	Name	MAC address	Static IPv4 Address	Enabled
	Printer	00:11:22:33:44:55	192.168.2.10	Enabled

Managing Certificates (Optional)

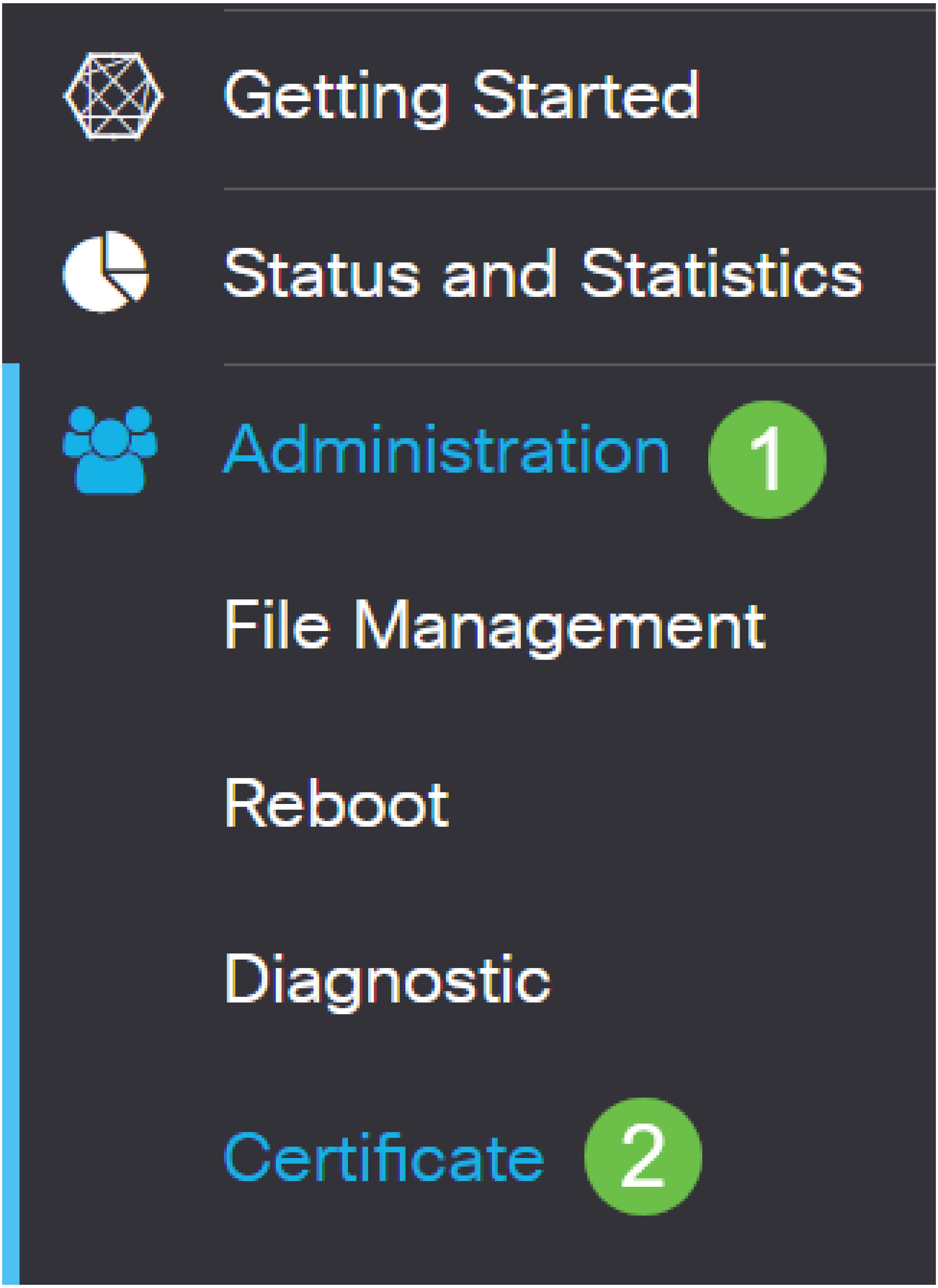
A digital certificate certifies the ownership of a public key by the named subject of the certificate. This allows relying parties to depend upon signatures or assertions made by the private key that corresponds to the public key that is certified. A router can generate a self-signed certificate, a certificate created by a network administrator. It can also send out requests to Certificate Authorities (CA) to apply for a digital identity certificate. It is important to have legitimate certificates from third party applications.

A Certificate Authority (CA) is used for authentication. Certificates can be purchased from any number of third-party sites. It is an official way to prove that your site is secure. Essentially, the CA is a trusted source that verifies that you are a legitimate business and can be trusted. Depending on your needs, a certificate at a minimal cost. You get checked out by the CA, and once they verify your information, they will issue the certificate to you. This certificate can be downloaded as a file on your computer. You can then go into your router (or VPN server) and upload it there.

Generate CSR/Certificate

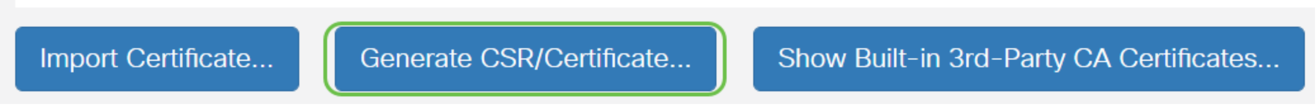
Step 1

Log in to the web-based utility of the router and choose **Administration > Certificate**.



Step 2

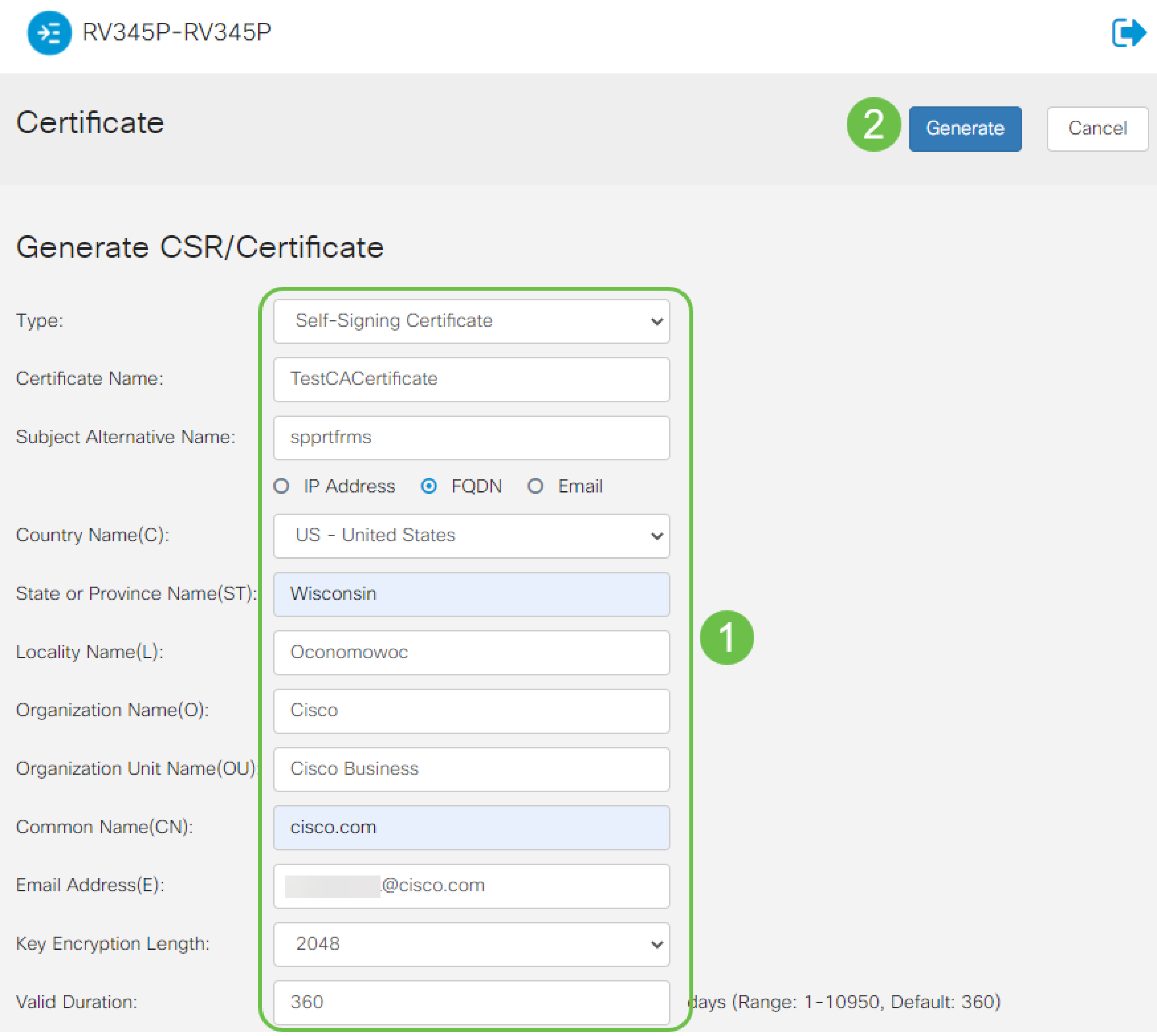
Click **Generate CSR/Certificate**. You will be brought to the Generate CSR/Certificate page.


Import Certificate...
Generate CSR/Certificate...
Show Built-in 3rd-Party CA Certificates...

Step 3

Fill in the boxes with the following:

- Choose the appropriate certificate type
  - Self-Signing Certificate — This is a Secure Socket Layer (SSL) certificate which is signed by its own creator. This certificate is less trusted, as it cannot be cancelled if the private key is compromised somehow by an attacker.
  - Certified Signing Request — This is a Public Key Infrastructure (PKI) which is sent to the certificate authority to apply for a digital identity certificate. It is more secure than self-signed as the private key is kept secret.
- Enter a name for your certificate in the Certificate Name field to identify the request. This field cannot be blank nor contain spaces and special characters.
- (Optional) Under the Subject Alternative Name area, click a radio button. The options are:
  - IP Address — Enter an Internet Protocol (IP) address
  - FQDN — Enter a Fully Qualified Domain Name (FQDN)
  - Email — Enter an email address
- In the Subject Alternative Name field, enter the FQDN.
- Choose a country name in which your organization is legally registered from the Country Name drop-down list.
- Enter a name or abbreviation of the state, province, region, or territory where your organization is located in the State or Province Name(ST) field.
- Enter a name of the locality or city in which your organization is registered or located in the Locality Name field.
- Enter a name under which your business is legally registered. If you are enrolling as a small business or sole proprietor, enter the name of the certificate requester in the Organization Name field. Special characters cannot be used.
- Enter a name in the Organization Unit Name field to differentiate between divisions within an organization.
- Enter a name in the Common Name field. This name must be the fully-qualified domain name of the website for which you use the certificate for.
- Enter the Email Address of person who wants to generate the certificate.
- From the Key Encryption Length drop-down list, choose a key length. The options are 512, 1024, and 2048. The greater the key length, the more secure the certificate.
- In the Valid Duration field, enter the number of days the certificate will be valid. The default is 360.
- Click **Generate**.

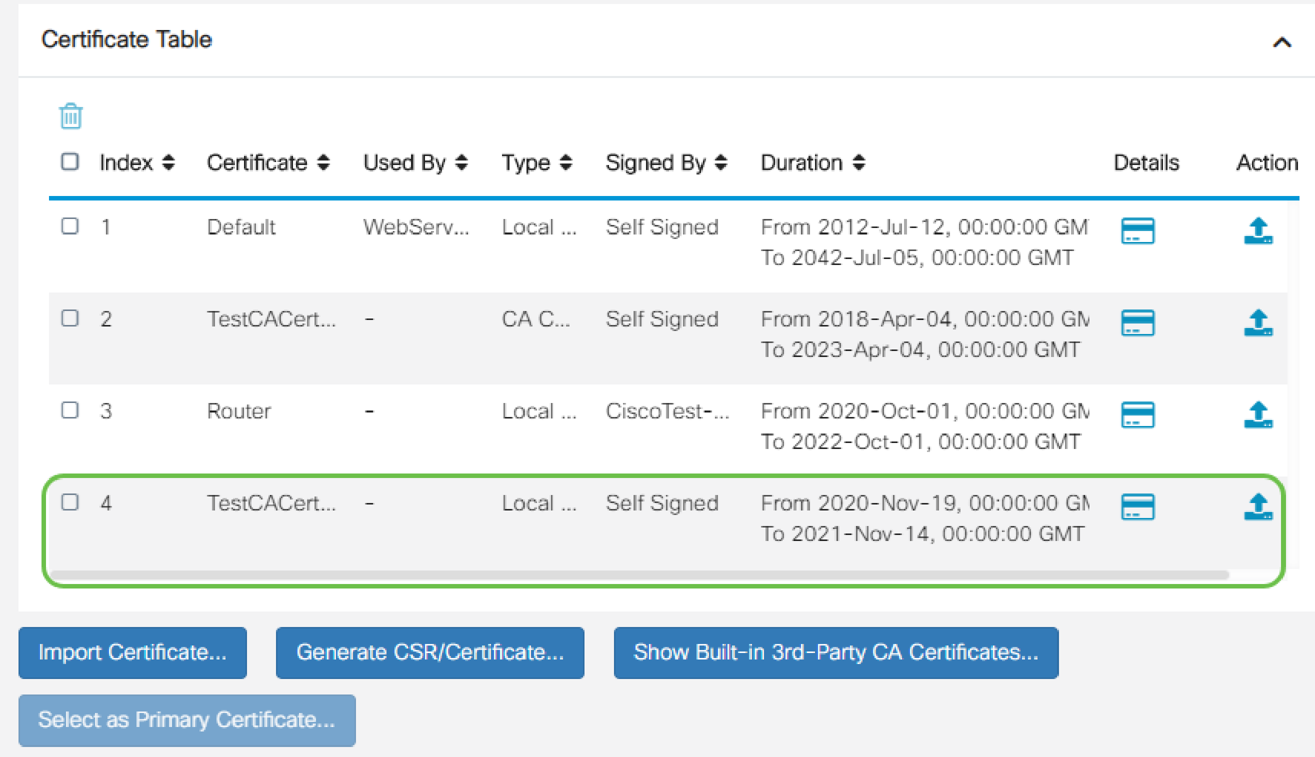


Certificate

Generate CSR/Certificate

Type:	Self-Signing Certificate
Certificate Name:	TestCACertificate
Subject Alternative Name:	spprtfrms ○ IP Address ● FQDN ○ Email
Country Name(C):	US - United States
State or Province Name(ST):	Wisconsin
Locality Name(L):	Oconomowoc
Organization Name(O):	Cisco
Organization Unit Name(OU):	Cisco Business
Common Name(CN):	cisco.com
Email Address(E):	[redacted]@cisco.com
Key Encryption Length:	2048
Valid Duration:	360 days (Range: 1-10950, Default: 360)

The generated certificate should now appear in the Certificate Table.



Certificate Table

□	Index	Certificate	Used By	Type	Signed By	Duration	Details	Action
□	1	Default	WebServ...	Local ...	Self Signed	From 2012-Jul-12, 00:00:00 GM To 2042-Jul-05, 00:00:00 GMT		
□	2	TestCACert...	-	CA C...	Self Signed	From 2018-Apr-04, 00:00:00 GN To 2023-Apr-04, 00:00:00 GMT		
□	3	Router	-	Local ...	CiscoTest-...	From 2020-Oct-01, 00:00:00 GN To 2022-Oct-01, 00:00:00 GMT		
□	4	TestCACert...	-	Local ...	Self Signed	From 2020-Nov-19, 00:00:00 GN To 2021-Nov-14, 00:00:00 GMT		

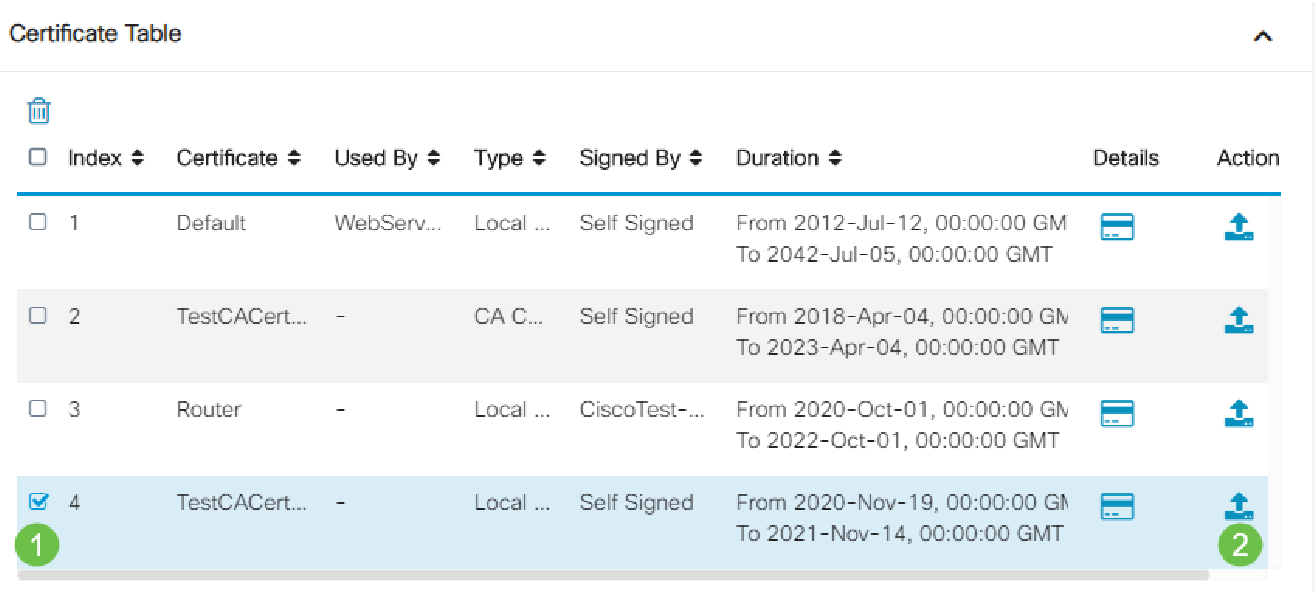
Import Certificate...
Generate CSR/Certificate...
Show Built-in 3rd-Party CA Certificates...
Select as Primary Certificate...

You should now have successfully created a certificate on the RV345P router.

Export a Certificate

Step 1

In the Certificate Table, check the checkbox of the certificate you want to export and click the **export icon**.

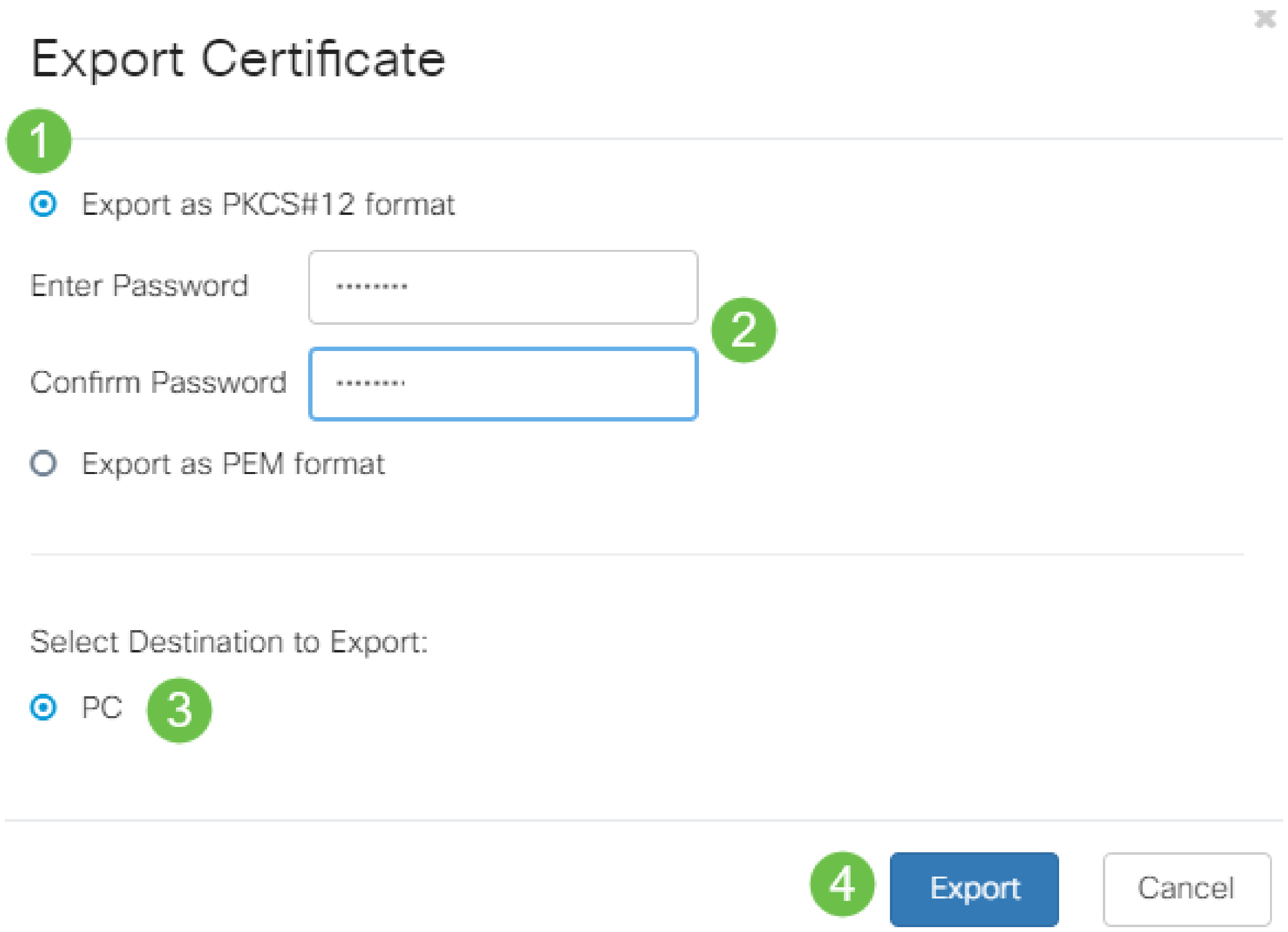


Certificate Table

□	Index	Certificate	Used By	Type	Signed By	Duration	Details	Action
□	1	Default	WebServ...	Local ...	Self Signed	From 2012-Jul-12, 00:00:00 GM To 2042-Jul-05, 00:00:00 GMT	▤	⬆
□	2	TestCACert...	-	CA C...	Self Signed	From 2018-Apr-04, 00:00:00 GM To 2023-Apr-04, 00:00:00 GMT	▤	⬆
□	3	Router	-	Local ...	CiscoTest-...	From 2020-Oct-01, 00:00:00 GM To 2022-Oct-01, 00:00:00 GMT	▤	⬆
☑	4	TestCACert...	-	Local ...	Self Signed	From 2020-Nov-19, 00:00:00 GM To 2021-Nov-14, 00:00:00 GMT	▤	⬆

Step 2

- Click a format to export the certificate. The options are:
    - PKCS #12 — Public Key Cryptography Standards (PKCS) #12 is an exported certificate that comes in a .p12 extension. A password will be required in order to encrypt the file to protect it as it is exported, imported, and deleted.
    - PEM — Privacy Enhanced Mail (PEM) is often used for web servers for their ability to be easily translated into readable data by using a simple text editor such as notepad.
- If you chose PEM, just click **Export**.
- Enter a password to secure the file to be exported in the Enter Password field.
- Re-enter the password in the Confirm Password field.
- In the Select Destination area, PC has been chosen and is the only option currently available.
- Click **Export**.



Export Certificate

1

● Export as PKCS#12 format

Enter Password ·········

Confirm Password ·········

2

○ Export as PEM format

Select Destination to Export:

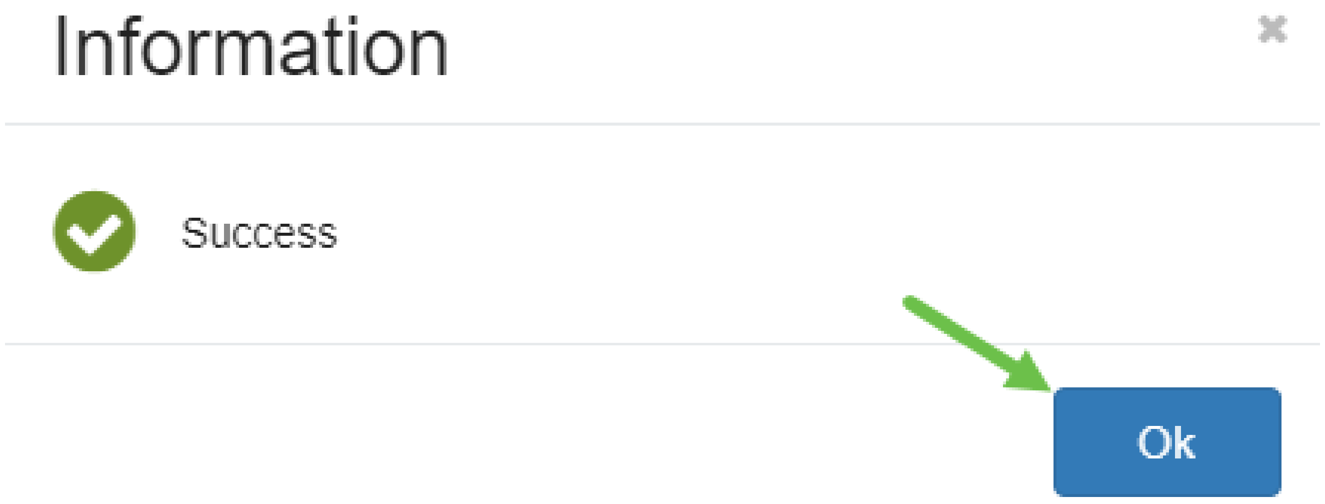
● PC

3

4

Step 3

A message indicating the success of the download will appear below the Download button. A file will begin to download in your browser. Click **Ok**.



Information

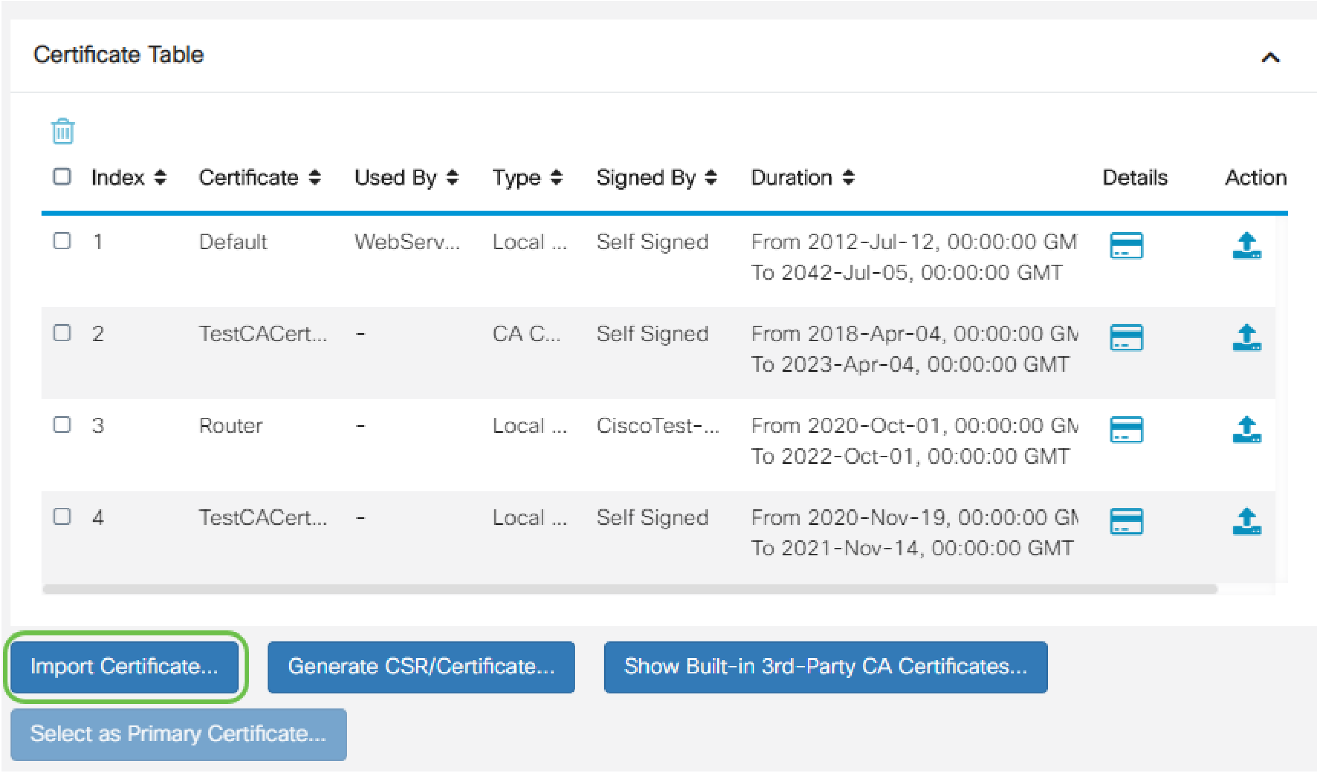
✓ Success

You should now have successfully exported a certificate on the RV345P Series Router.

Import a Certificate

Step 1

Click on **Import Certificate...**.



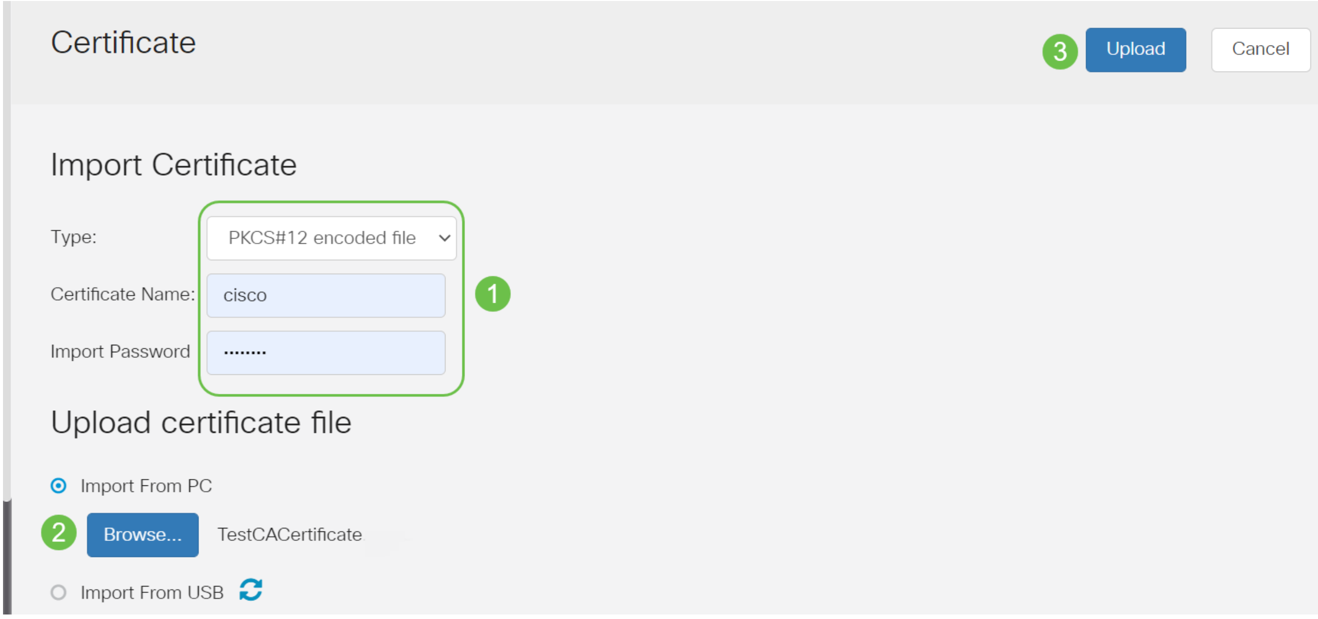
Certificate Table

□	Index	Certificate	Used By	Type	Signed By	Duration	Details	Action
□	1	Default	WebServ...	Local ...	Self Signed	From 2012-Jul-12, 00:00:00 GM To 2042-Jul-05, 00:00:00 GMT	▭	⬆
□	2	TestCACert...	-	CA C...	Self Signed	From 2018-Apr-04, 00:00:00 GN To 2023-Apr-04, 00:00:00 GMT	▭	⬆
□	3	Router	-	Local ...	CiscoTest-...	From 2020-Oct-01, 00:00:00 GN To 2022-Oct-01, 00:00:00 GMT	▭	⬆
□	4	TestCACert...	-	Local ...	Self Signed	From 2020-Nov-19, 00:00:00 GN To 2021-Nov-14, 00:00:00 GMT	▭	⬆

Import Certificate...
Generate CSR/Certificate...
Show Built-in 3rd-Party CA Certificates...
Select as Primary Certificate...

Step 2

- Choose the type of certificate to import from the drop-down list. The options are:
  - Local Certificate — A certificate generated on the router.
  - CA Certificate — A certificate that is certified by a trusted third-party authority that has confirmed that the information contained in the certificate is accurate.
  - PKCS #12 Encoded file — Public Key Cryptography Standards (PKCS) #12 is a format of storing a server certificate.
- Enter a name for the certificate in the Certificate Name field.
- If PKCS #12 was chosen, enter a password for the file in the Import Password field. Otherwise, skip to Step 3.
- Click a source to import the certificate. The options are:
  - Import from PC
  - Import from USB
- If the router does not detect a USB drive, the Import from USB option will be grayed out.
- If you chose Import From USB and your USB is not being recognized by the router, click Refresh.
- Click on the Choose File button and choose the appropriate file.
- Click **Upload**.



Certificate

3 Upload Cancel

Import Certificate

Type: PKCS#12 encoded file

Certificate Name: cisco

Import Password ········

1

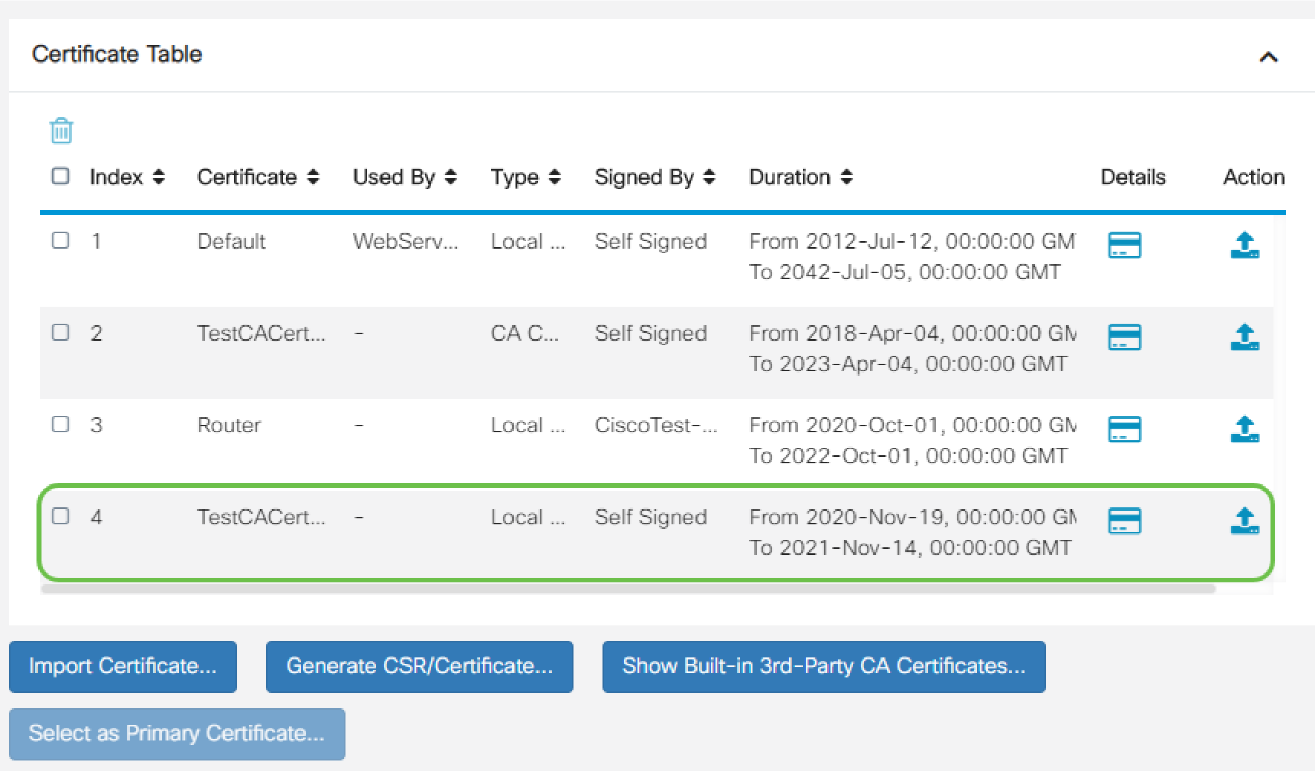
Upload certificate file

● Import From PC

2 Browse... TestCACertificate

○ Import From USB

Once successful, you will automatically be taken to the main Certificate page. The Certificate Table will populate with the recently imported certificate.



Certificate Table

□	Index	Certificate	Used By	Type	Signed By	Duration	Details	Action
□	1	Default	WebServ...	Local ...	Self Signed	From 2012-Jul-12, 00:00:00 GM To 2042-Jul-05, 00:00:00 GMT		
□	2	TestCACert...	-	CA C...	Self Signed	From 2018-Apr-04, 00:00:00 GN To 2023-Apr-04, 00:00:00 GMT		
□	3	Router	-	Local ...	CiscoTest-...	From 2020-Oct-01, 00:00:00 GN To 2022-Oct-01, 00:00:00 GMT		
□	4	TestCACert...	-	Local ...	Self Signed	From 2020-Nov-19, 00:00:00 GN To 2021-Nov-14, 00:00:00 GMT		

Import Certificate... Generate CSR/Certificate... Show Built-in 3rd-Party CA Certificates...

Select as Primary Certificate...

You should now have successfully imported a certificate on your RV345P router.

Configure a Mobile Network Using a Dongle and an RV345P Series Router (Optional)

Perhaps you want to configure a backup mobile network using a dongle and your RV345P router. If this is the case, you should read Configure a Mobile Network Using a Dongle and an RV34x Series Router.

Congratulations, you have completed the configuration of your RV345P router! You will now configure your Cisco Business Wireless devices.

Configure the Wireless Mesh Network

CBW140AC Out of the Box

Start by plugging an Ethernet cable from the PoE port on your CBW140AC to a PoE port on the RV345P. Half of the ports on the RV345P can supply PoE, so any of them can be used.

Check the status of the indicator lights. The access point will take about 10 minutes to boot. The LED will blink green in multiple patterns, alternating rapidly through green, red, and amber before turning green again. There may be small variations in the LED color intensity and hue from unit to unit. When the LED light is blinking green, proceed to the next step.

The PoE Ethernet uplink port on the Mobile Application AP can ONLY be used to provide an uplink to the LAN, and NOT to connect to any other Mobile Application capable or mesh extender devices.

If your access point isn't new, out of the box, make sure it is reset to factory default settings for the *CiscoBusiness-Setup* SSID to show up in your Wi-Fi options. For assistance with this, check out How to Reboot and Reset to Factory Default Settings on RV345x Routers.

Set Up the 140AC Mobile Application Wireless Access Point

In this section, you will be using the mobile application to set up the Mobile Application Wireless Access point.

Keep in mind that the application has frequent updates and the look/layout may change over time.

On the back of the 140AC, plug the cable that came with the AP into the yellow PoE plug your 140 AC. Plug the other end into one of the RV345P LAN ports.

If you have trouble connecting, refer to the Wireless Troubleshooting Tips section of this article.

Step 1

Download the Cisco Business Wireless App available on Google Play or the Apple App Store on your mobile device. You will need one of the following Operating Systems:

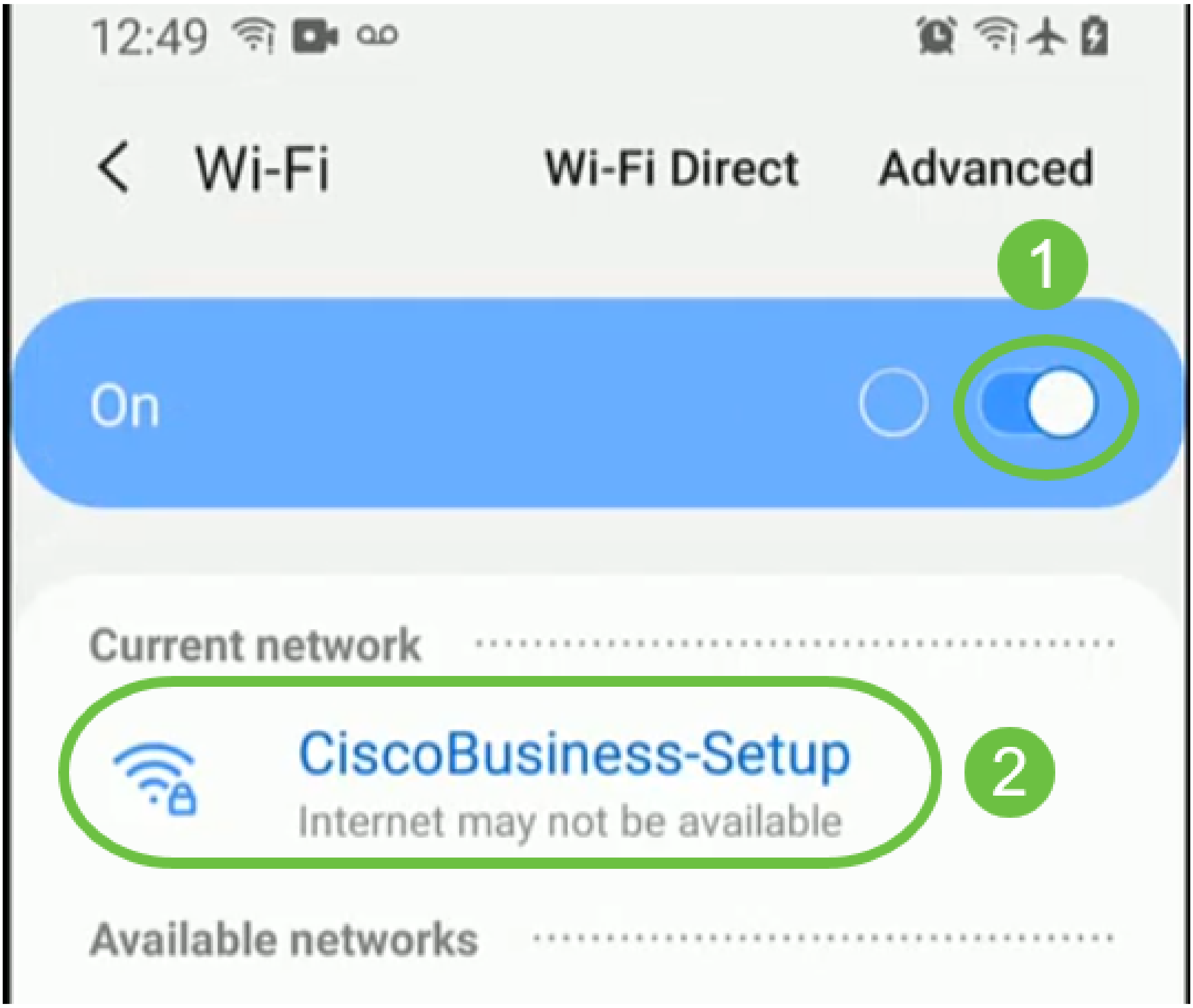
- Android version 5.0 or above
- iOS version 8.0 or above

Step 2

Open the **Cisco Business** Application on your mobile device.

Step 3

Connect to the **CiscoBusiness-Setup** wireless network on your mobile device. The passphrase is **cisco123.**


12:49

Wi-Fi

Wi-Fi Direct

Advanced

On

Current network

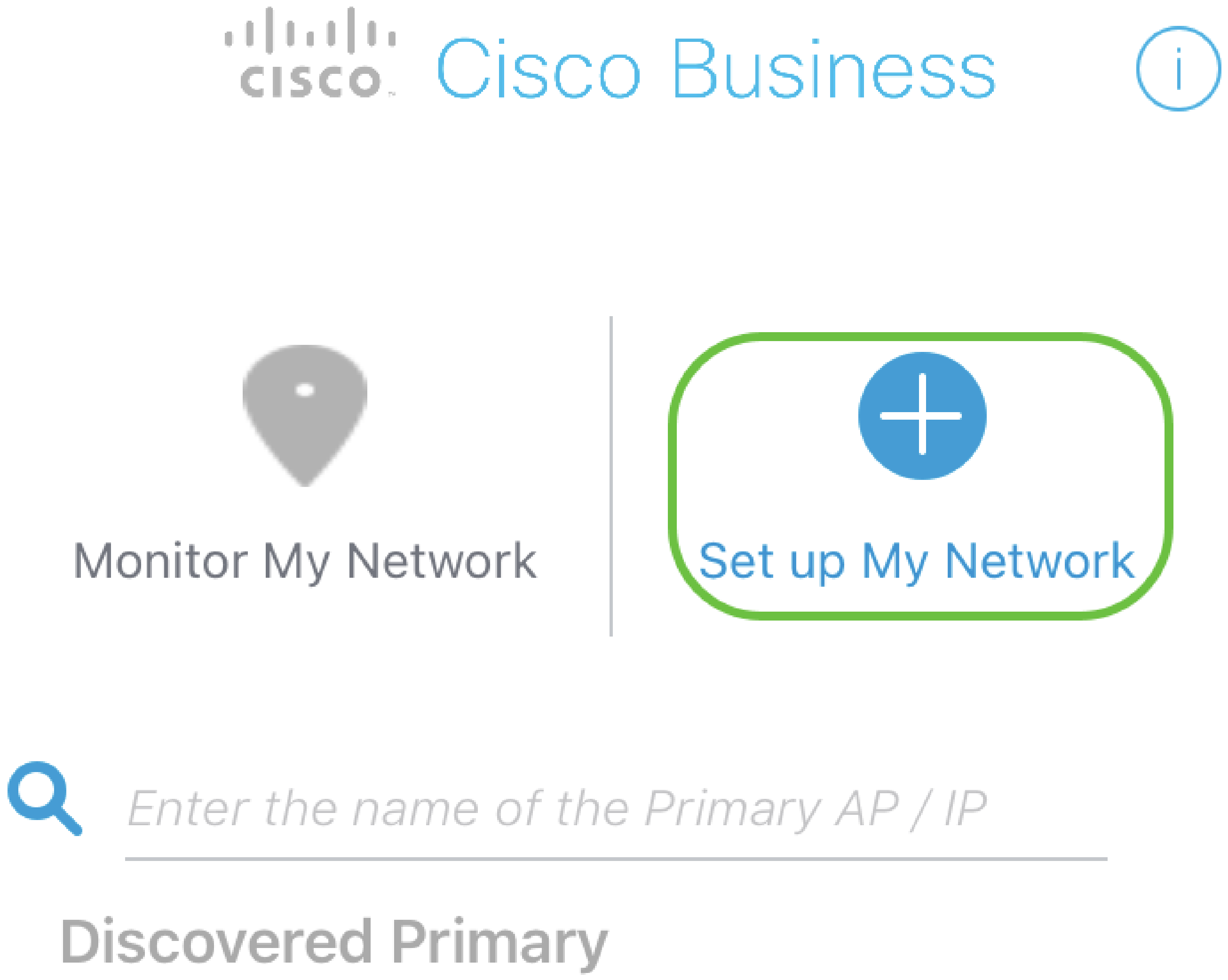
CiscoBusiness-Setup

Internet may not be available

Available networks

Step 4

The app automatically detects the mobile network. Select **Set up My Network**.

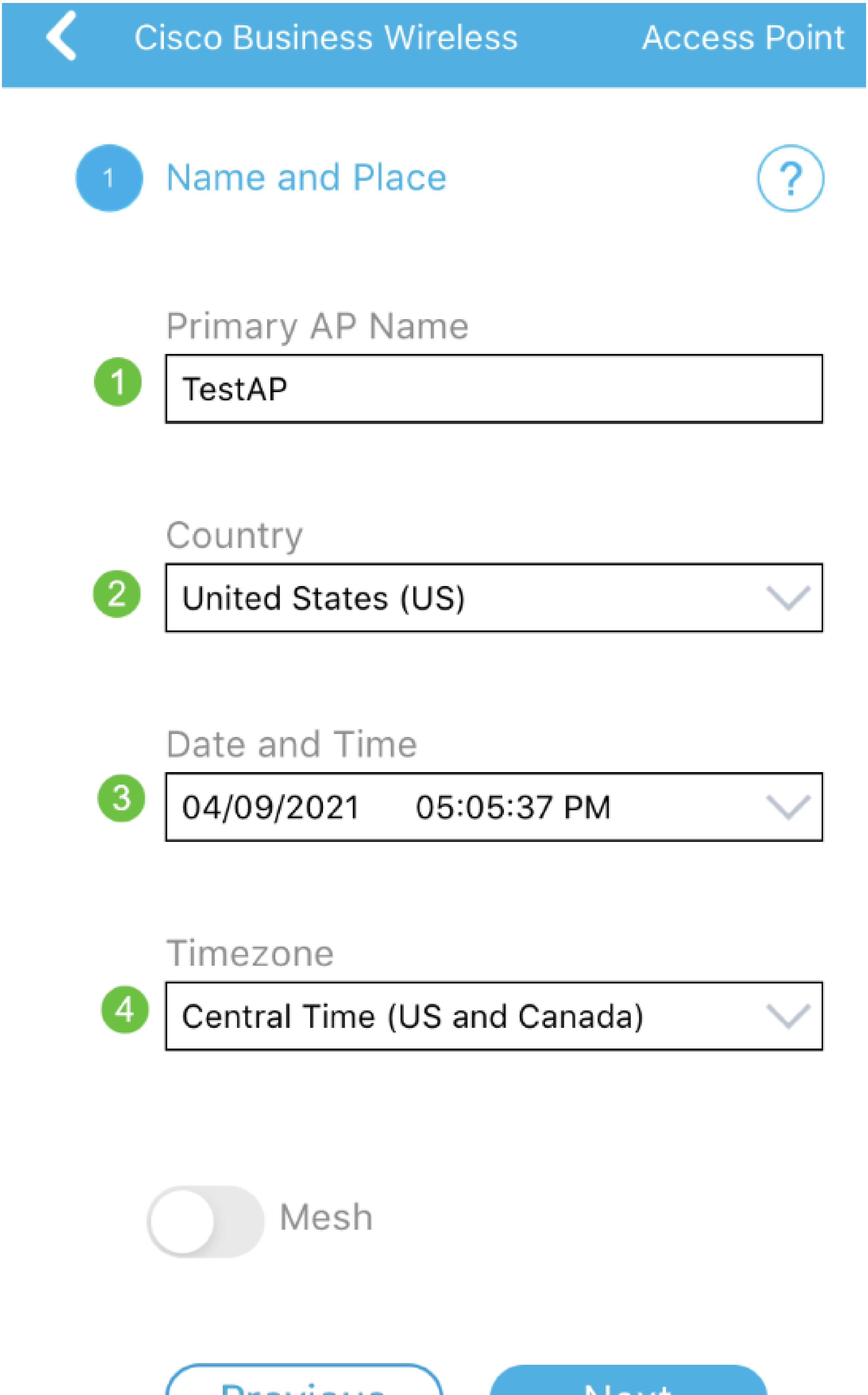


Step 5

To set up the network enter the following:

- *Create admin username*
- *Create admin password*
- *Confirm admin password* by reentering it
- (Optional) Check the checkbox to *Show Password*.

Select **Get Started**.



Primary AP Name: TestAP

Country: United States (US)

Date and Time: 04/09/2021 05:05:37 PM

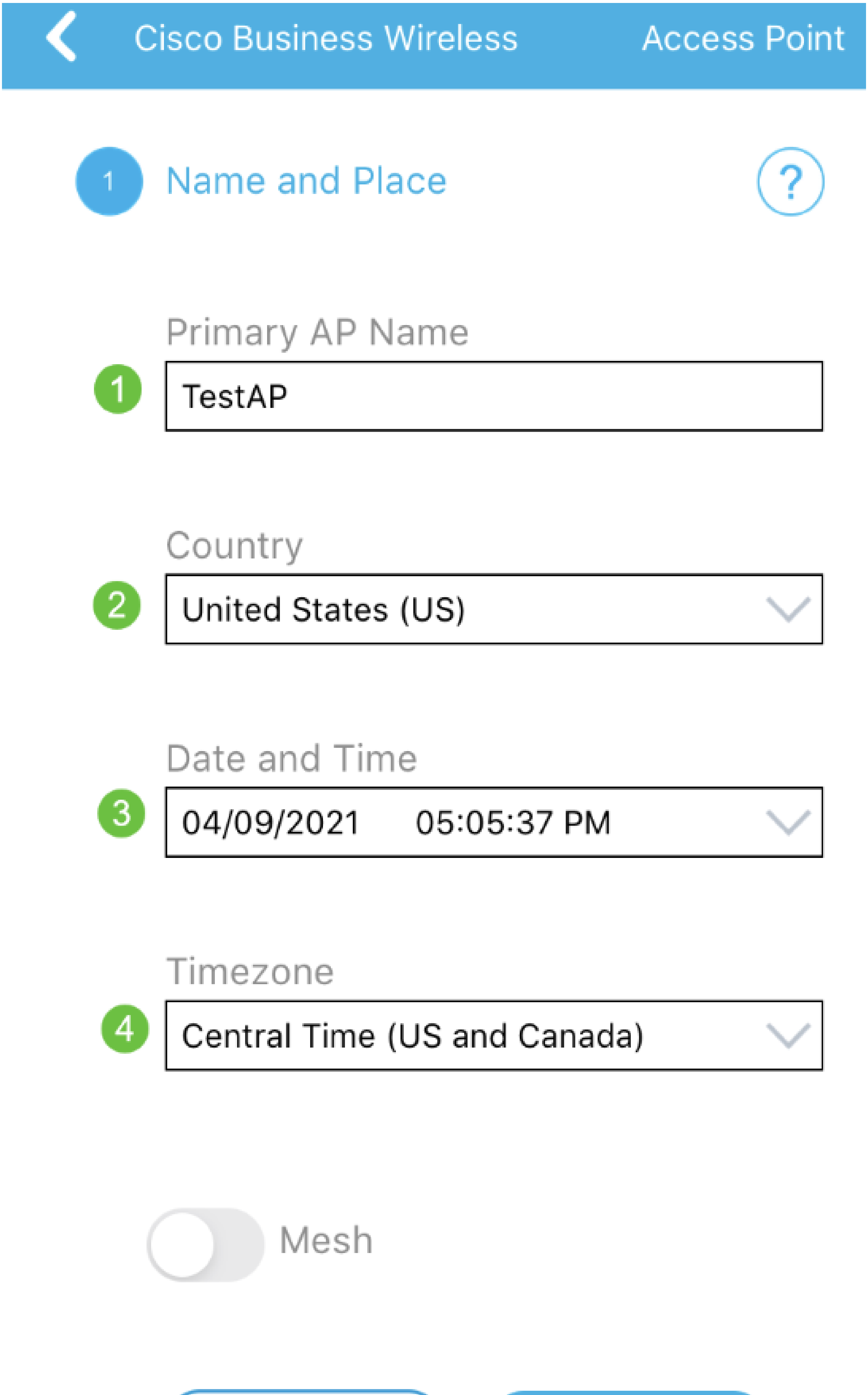
Timezone: Central Time (US and Canada)

○ Mesh

Step 6

To configure *Name and Place*, accurately enter the following information. If you enter conflicting information, it can lead to unpredictable behavior.

- *Mobile Application AP Name* for your wireless network.
- *Country*
- *Date*
- *Time*
- *Timezone*



Name and Place

1 Primary AP Name: TestAP

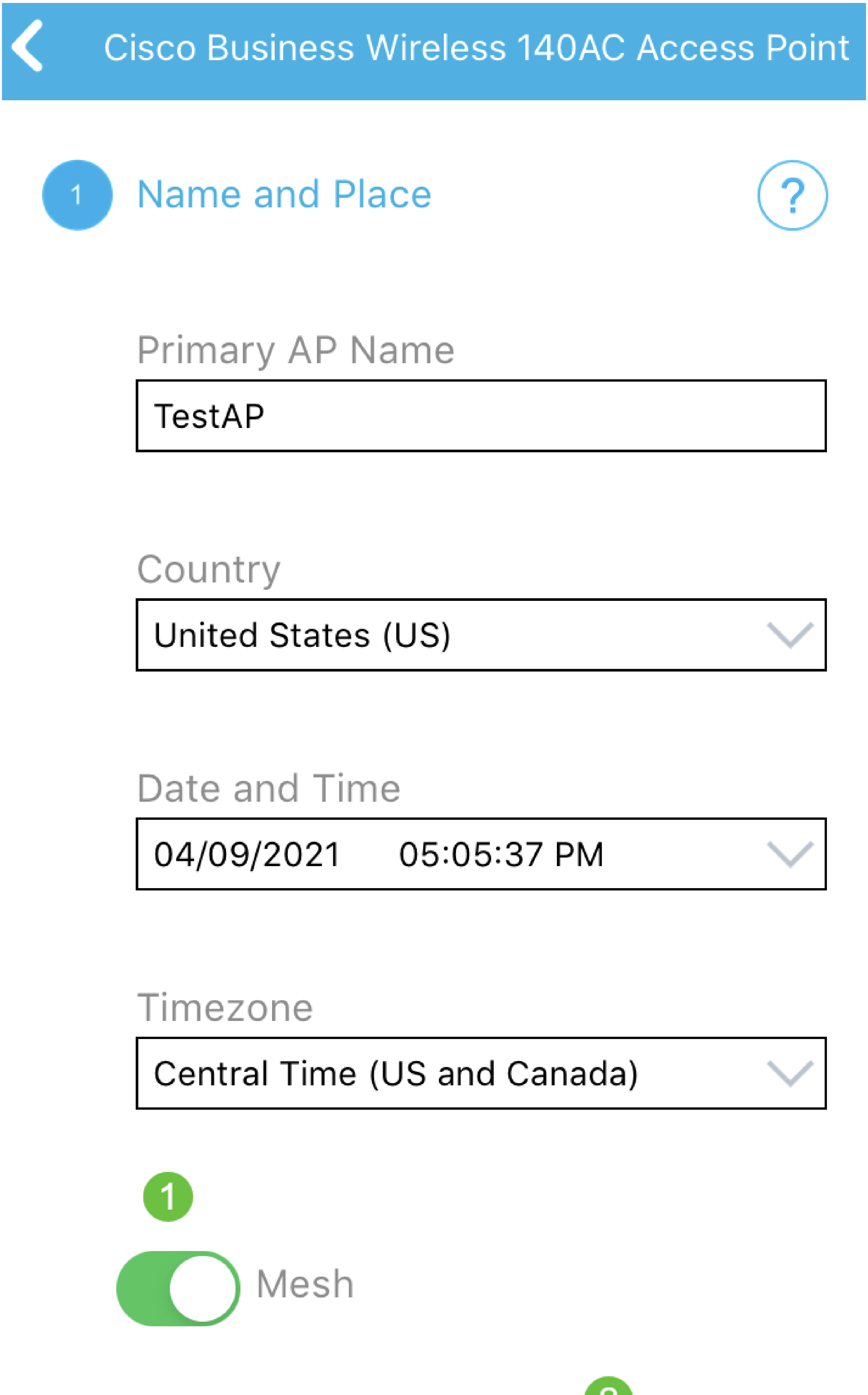
2 Country: United States (US)

3 Date and Time: 04/09/2021 05:05:37 PM

4 Timezone: Central Time (US and Canada)

Step 7

Turn on the toggle for *Mesh*. Click **Next**.



Cisco Business Wireless 140AC Access Point

1 Name and Place

Primary AP Name: TestAP

Country: United States (US)

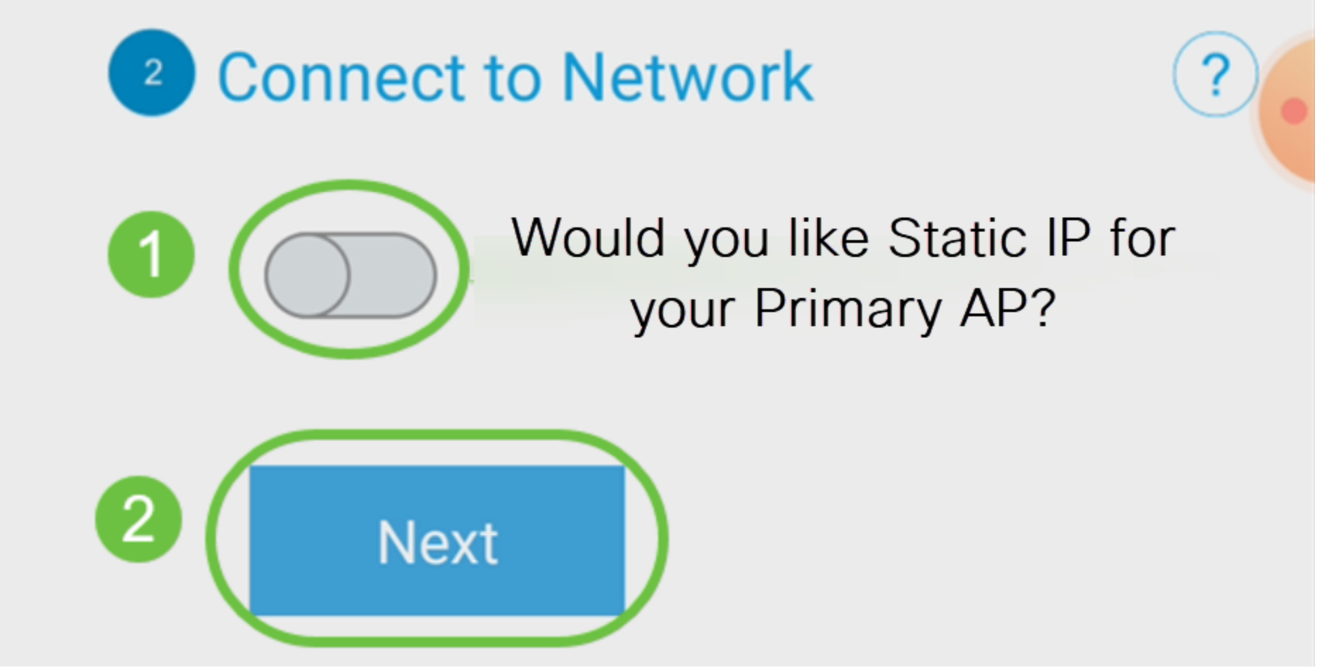
Date and Time: 04/09/2021 05:05:37 PM

Timezone: Central Time (US and Canada)

Mesh

Step 8

(Optional) You can choose to enable *Static IP for your Mobile Application AP* for management purposes. If not, your DHCP server will assign an IP address. If you do not wish to configure static IP for your access point, click **Next**.

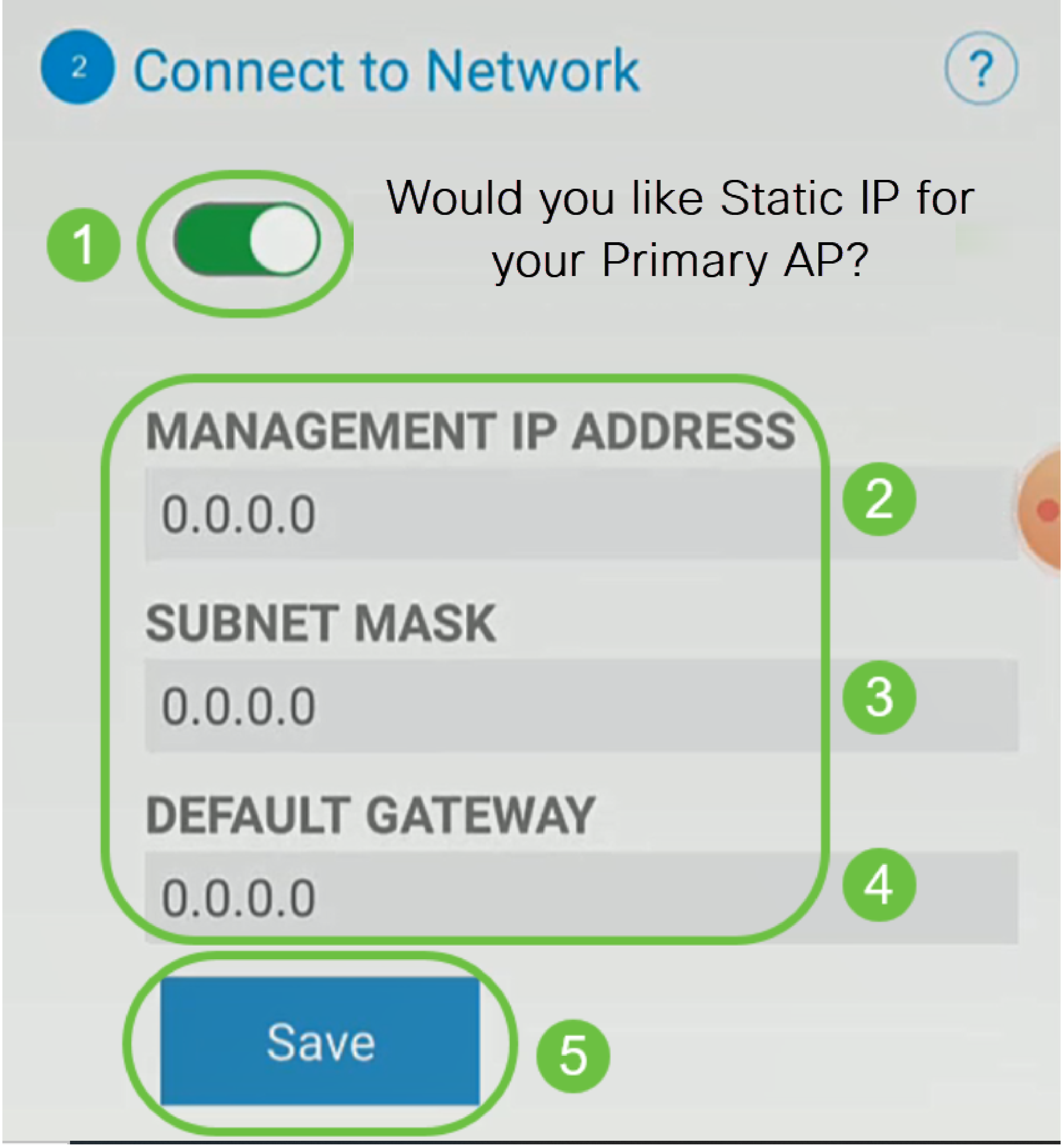


Alternatively, to *Connect to Network*:

Select *Static IP for your Mobile Application AP*. By default, this option is **disabled**.

- Enter the *Management IP Address*
- *Subnet Mask*
- *Default Gateway*

Click **Save**.

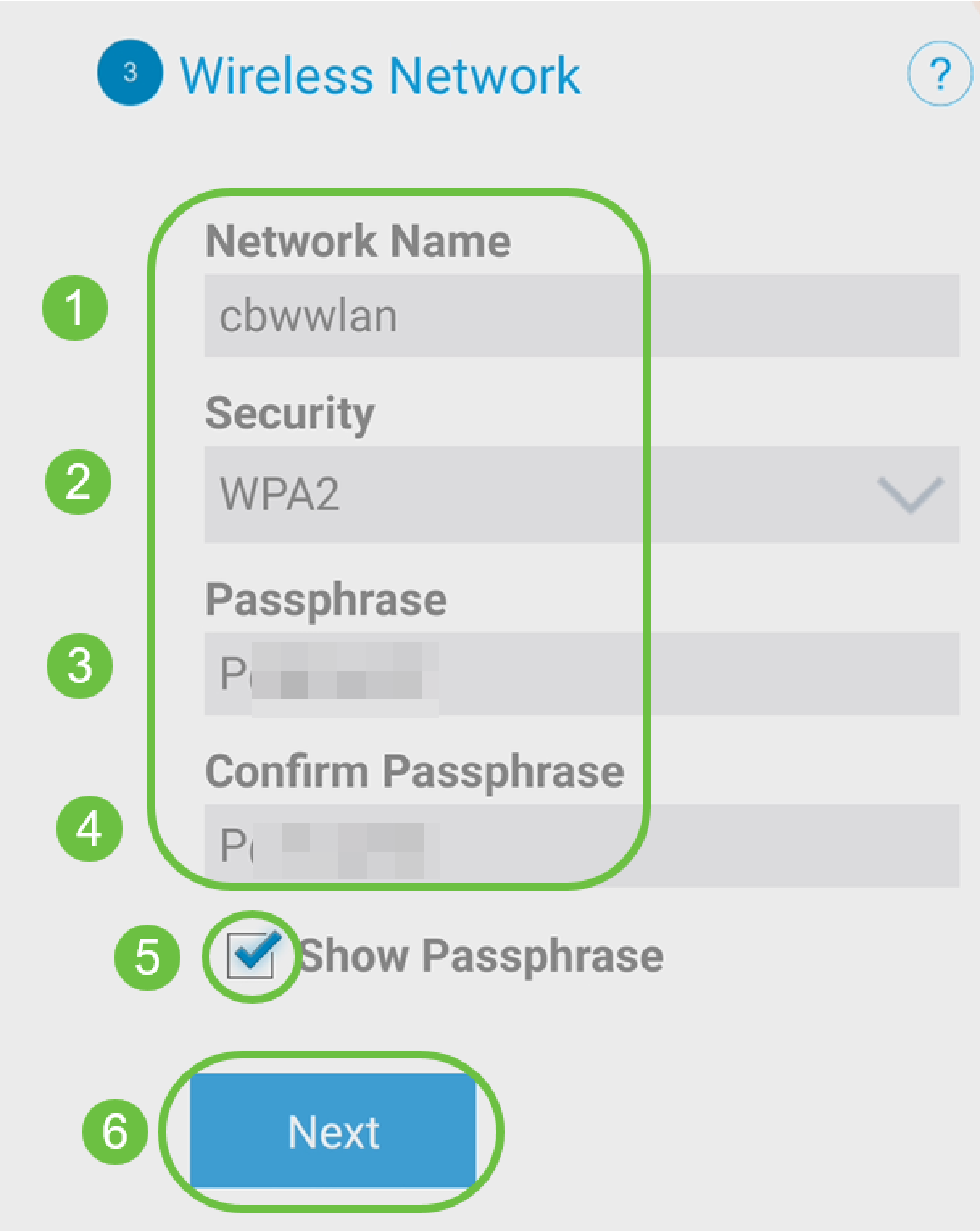


Step 9

Configure the *Wireless Network* by entering the following:

- *Network Name*/SSID
- *Security*
- *Passphrase*
- *Confirm passphrase*
- (Optional) *Check Show Passphrase*

Click **Next**.



Network Name: cbwwlan

Security: WPA2

Passphrase: P

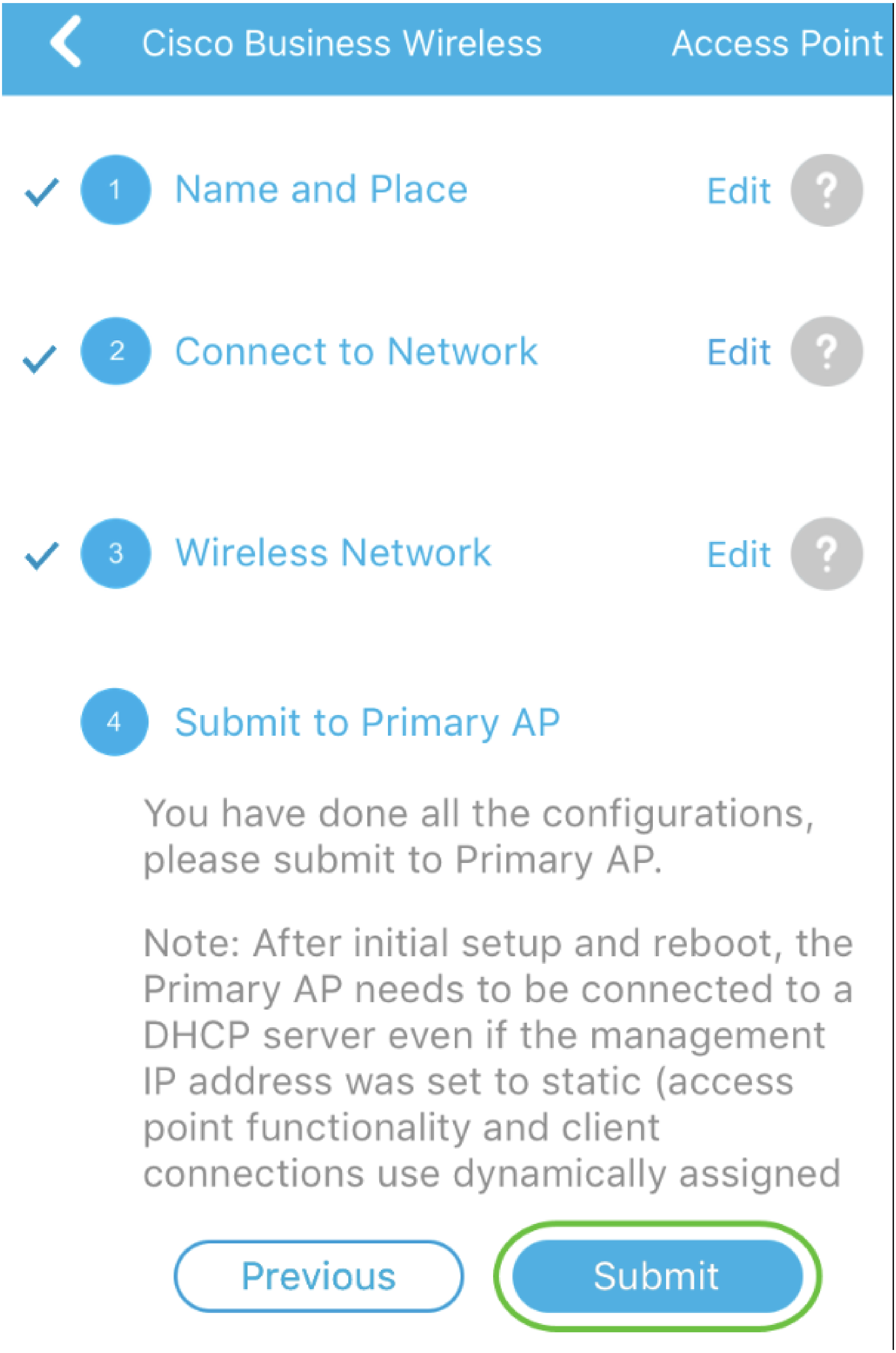
Confirm Passphrase: P

☑ Show Passphrase

Wi-Fi protected Access (WPA) version 2 (WPA2), is the current standard for Wi-Fi security.

Step 10

To confirm settings on the *Submit to Mobile Application AP* screen, click **Submit**.



✓ 1 Name and Place

✓ 2 Connect to Network

✓ 3 Wireless Network

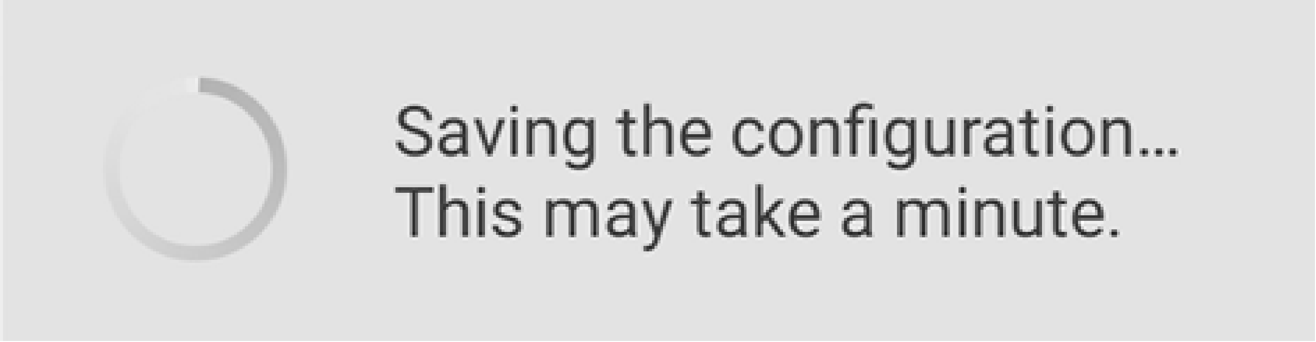
4 Submit to Primary AP

You have done all the configurations, please submit to Primary AP.

Note: After initial setup and reboot, the Primary AP needs to be connected to a DHCP server even if the management IP address was set to static (access point functionality and client connections use dynamically assigned

Step 11

Wait for the reboot to complete.

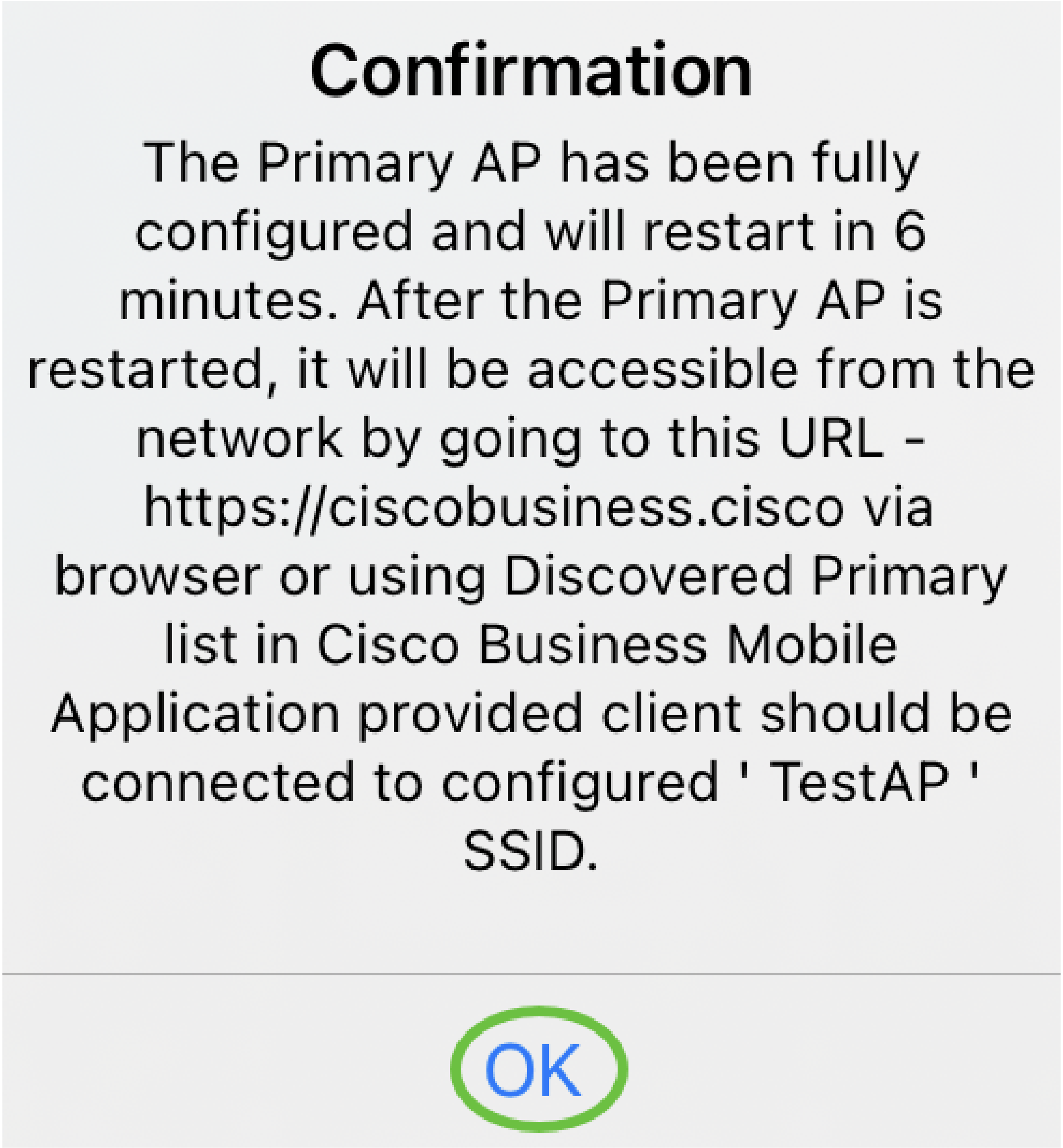


Saving the configuration...
This may take a minute.

The reboot can take up to 10 minutes. During a reboot, the LED in the access point will go through multiple color patterns. When the LED is blinking green, proceed to the next step. If the LED does not get past the red flashing pattern, it indicates that there is no DHCP server in your network. Ensure that the AP is connected to a switch or a router with a DHCP server.

Step 12

You will see the following *Confirmation* screen. Click **OK**.



Confirmation

The Primary AP has been fully configured and will restart in 6 minutes. After the Primary AP is restarted, it will be accessible from the network by going to this URL - https://ciscobusiness.cisco via browser or using Discovered Primary list in Cisco Business Mobile Application provided client should be connected to configured ' TestAP ' SSID.

Step 13

Close the app, connect to your newly created wireless network, and relaunch it to successfully complete the first part of your wireless network.

Wireless Troubleshooting Tips

If you have any issues, check out the following tips:

- Make sure the correct Service Set Identifier (SSID) is selected. This is the name that you created for the wireless network.
- Disconnect any VPN for either the mobile app or on a laptop. You might even be connected to a VPN that your mobile service provider uses that you might not even know. For example, an

Android (Pixel 3) phone with Google Fi as a service provider there is a built-in VPN that auto-connects without notification. This would need to be disabled to find the Mobile Application AP.

- Log into the Mobile Application AP with https://<IP address of the Mobile Application AP>.
- Once you do the initial setup, be sure https:// is being used whether you are logging into *ciscobusiness.cisco* or by entering the IP address into your web browser. Depending on your settings, your computer may have auto-populated with http:// since that is what you used the very first time you logged in.
- To help with problems related to accessing the Web UI or browser issues during the use of the AP, in the web browser (Firefox in this case) click on the *Open* menu, go to *Help > Troubleshooting Information* and click on *Refresh Firefox*.

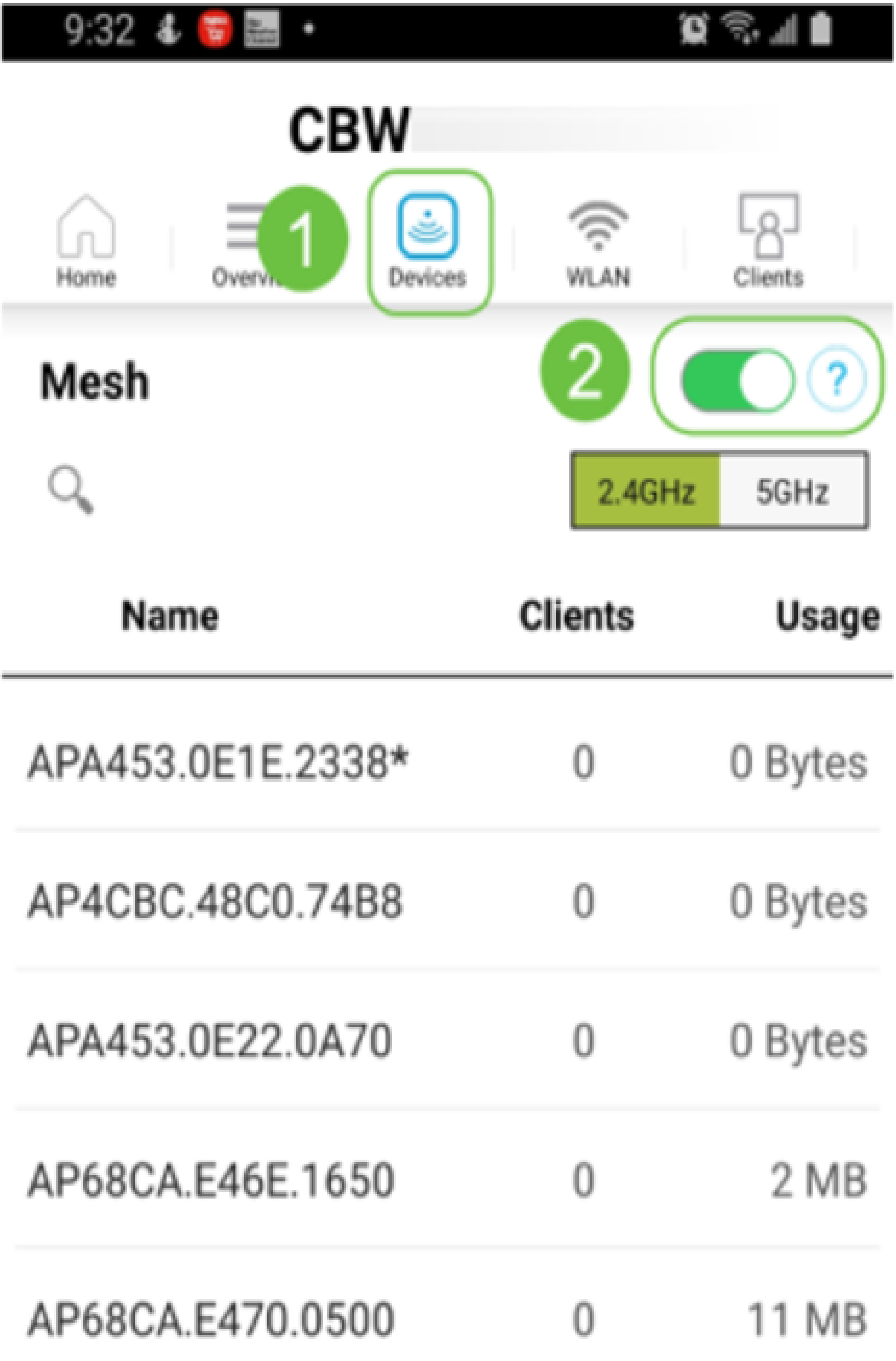
Configure the CBW142ACM Mesh Extenders

You are in the home stretch of setting up this network, you just need to add your mesh extenders!

Log into the Cisco Business app on your mobile device.

Step 1

Navigate to **Devices**. Double-check that *Mesh* is enabled.

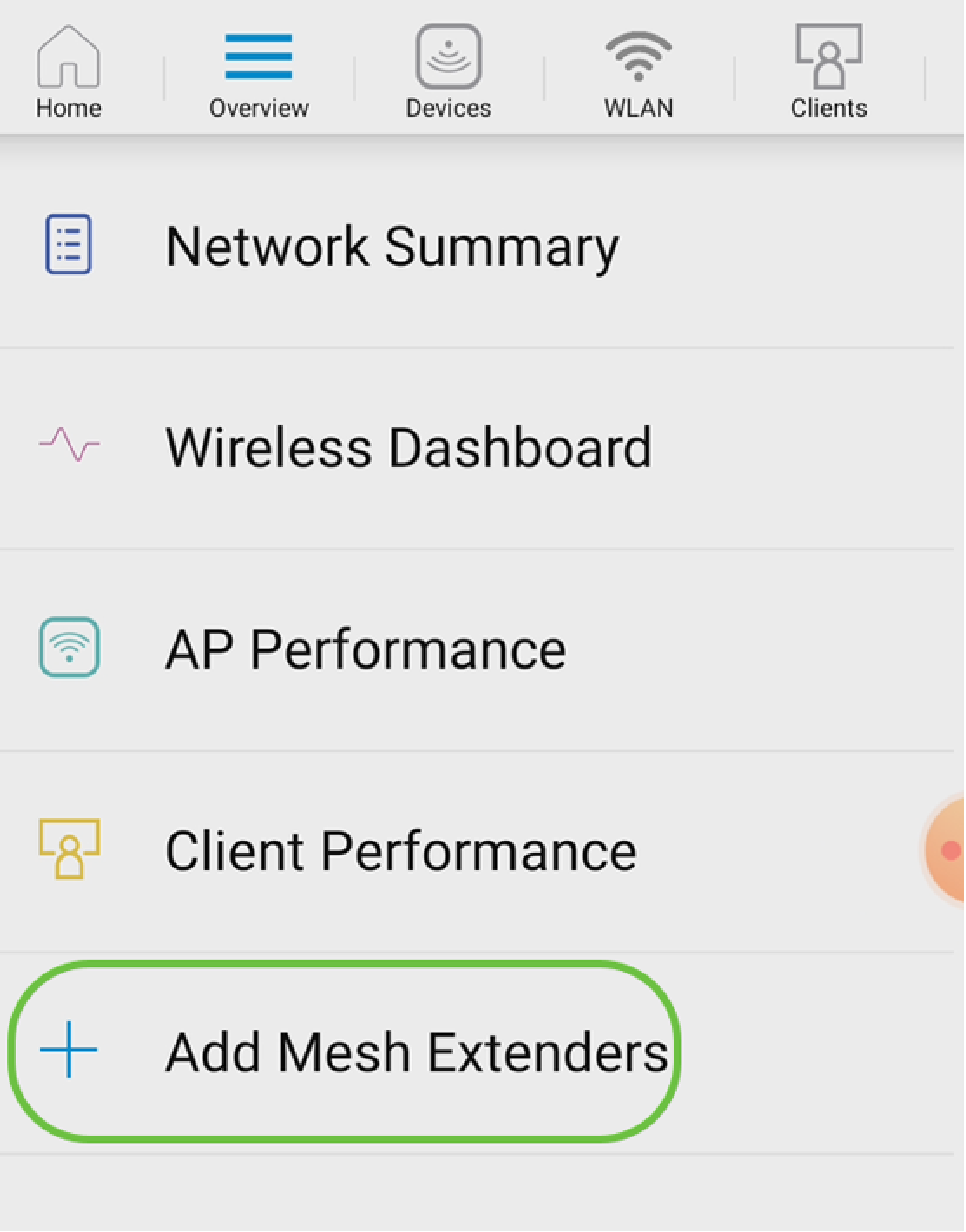


Mesh

Name	Clients	Usage
APA453.0E1E.2338*	0	0 Bytes
AP4CBC.48C0.74B8	0	0 Bytes
APA453.0E22.0A70	0	0 Bytes
AP68CA.E46E.1650	0	2 MB
AP68CA.E470.0500	0	11 MB

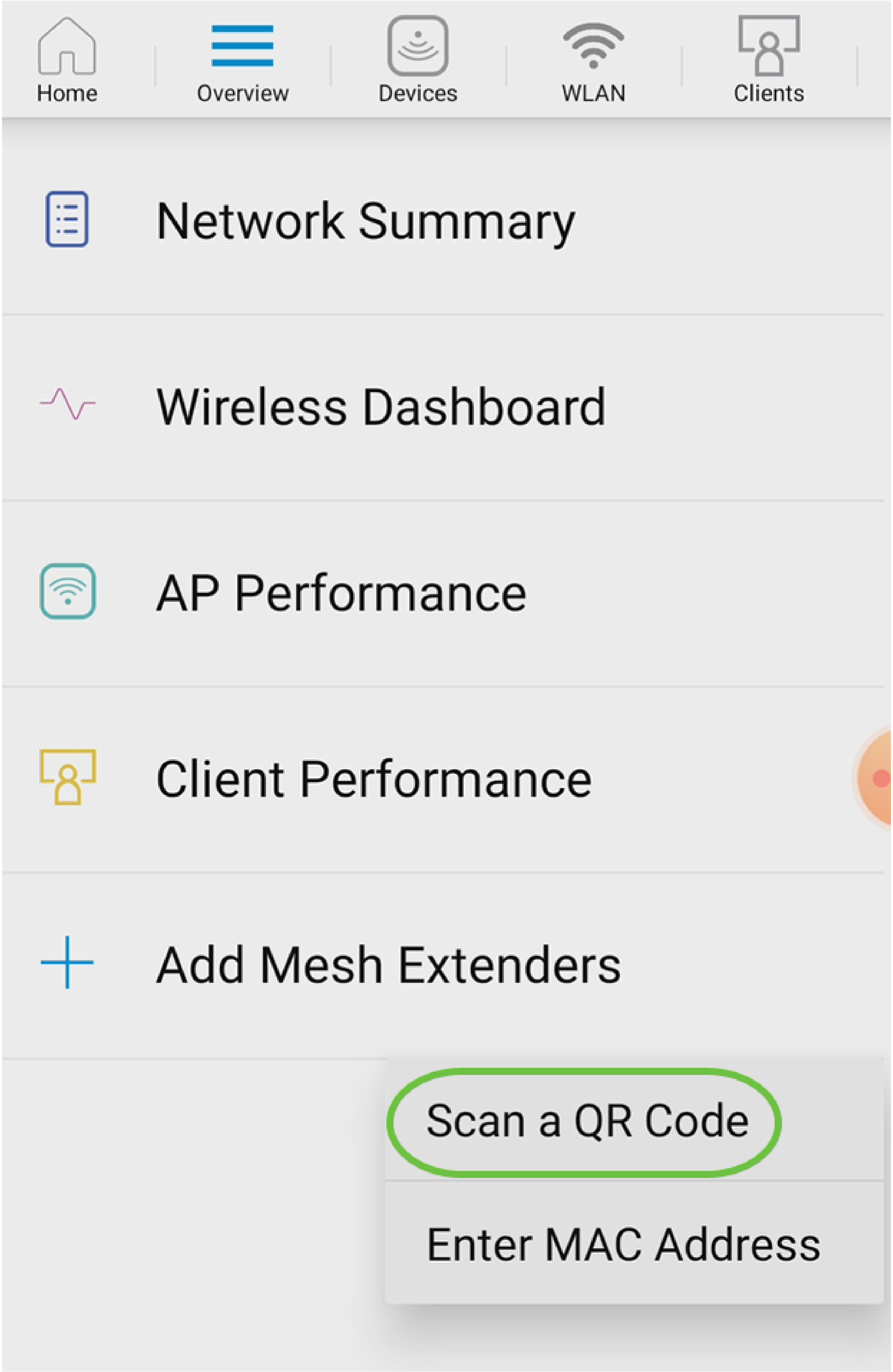
Step 2

You must enter the MAC address of all Mesh Extenders that you want to use in the mesh network with the Mobile Application AP. To add the MAC address, click on **Add Mesh Extenders** from the menu.



Step 3

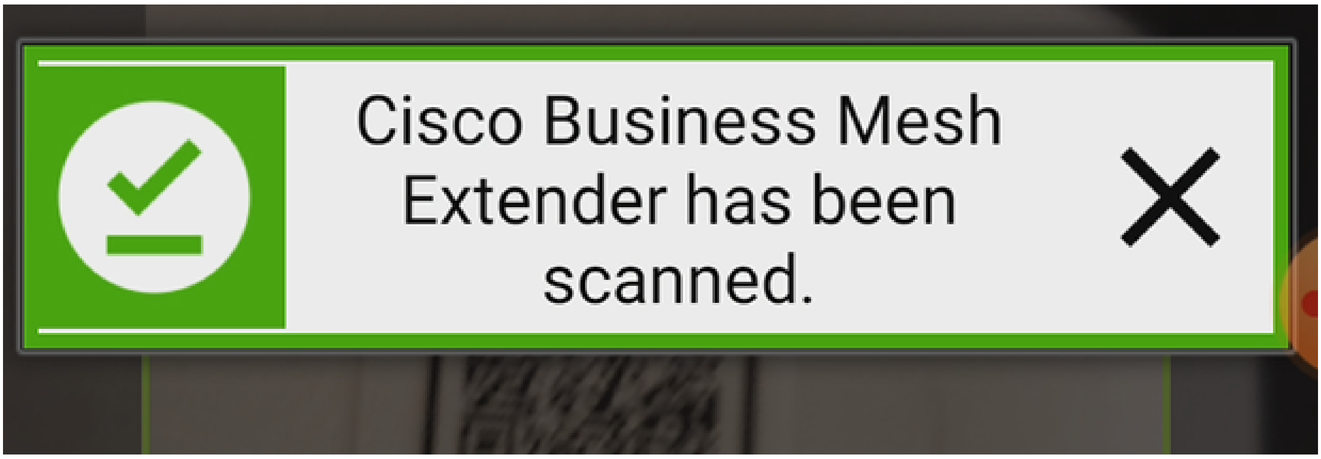
You can add the MAC address by either scanning a QR code or by manually entering the MAC address. In this example, **Scan a QR code** is selected.


Home
Overview
Devices
WLAN
Clients
Network Summary
Wireless Dashboard
AP Performance
Client Performance
Add Mesh Extenders
Scan a QR Code
Enter MAC Address

Step 4

A QR code reader will appear to scan the QR code.

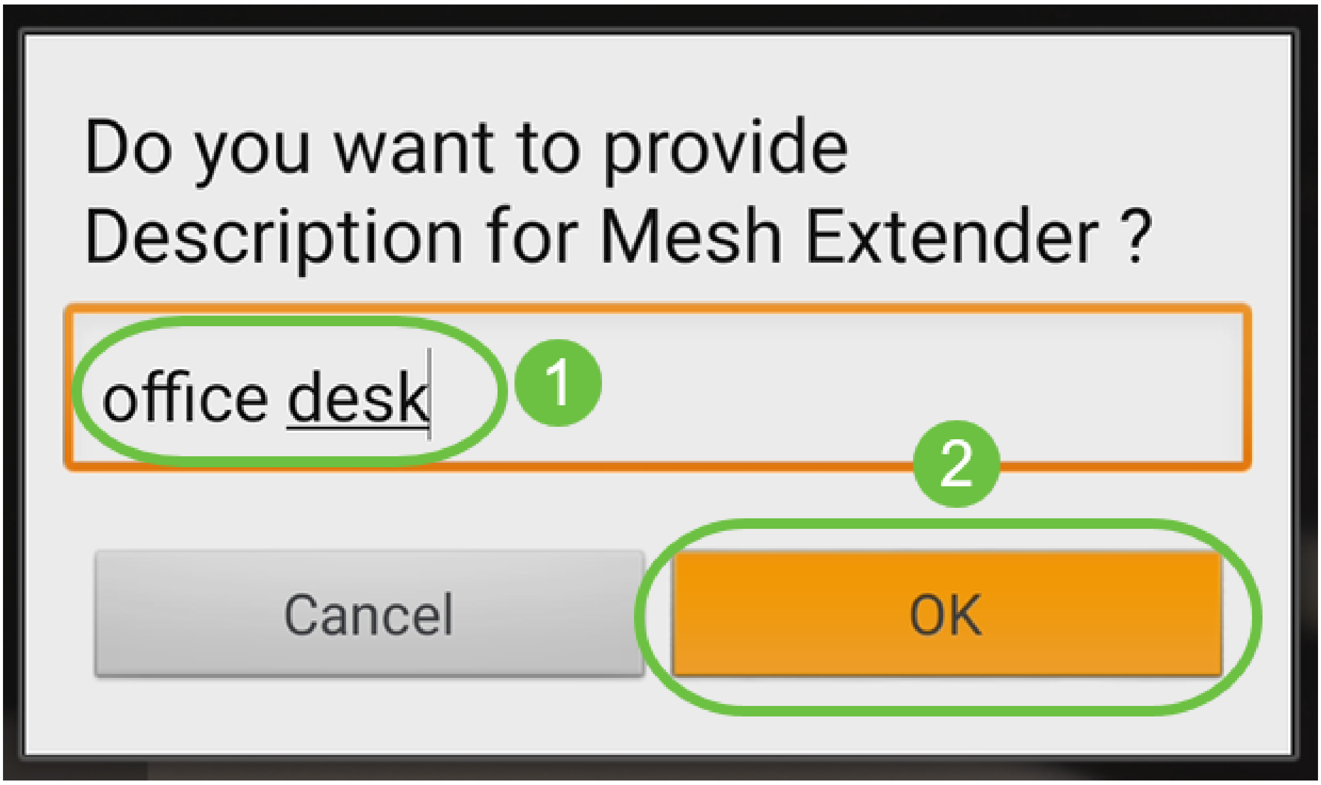
You will see the following screen once the QR code of the Mesh Extender has been scanned.



Cisco Business Mesh Extender has been scanned.

Step 5 (Optional)

If you prefer, enter a *Description for Mesh Extender*. Click **OK**.

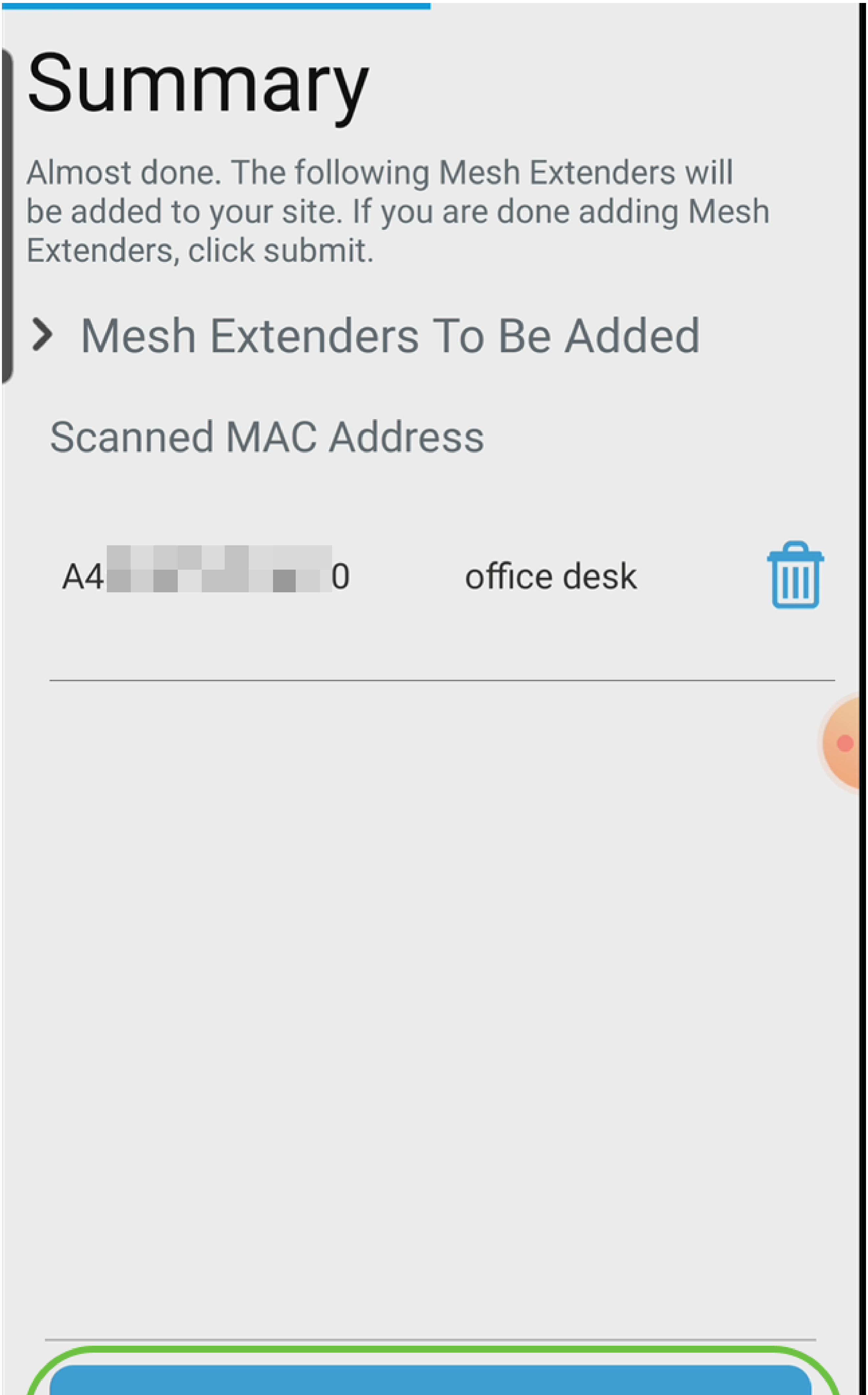


Do you want to provide Description for Mesh Extender ?

office desk

Step 6

Review the *Summary* and click **Submit**.



Summary

Almost done. The following Mesh Extenders will be added to your site. If you are done adding Mesh Extenders, click submit.

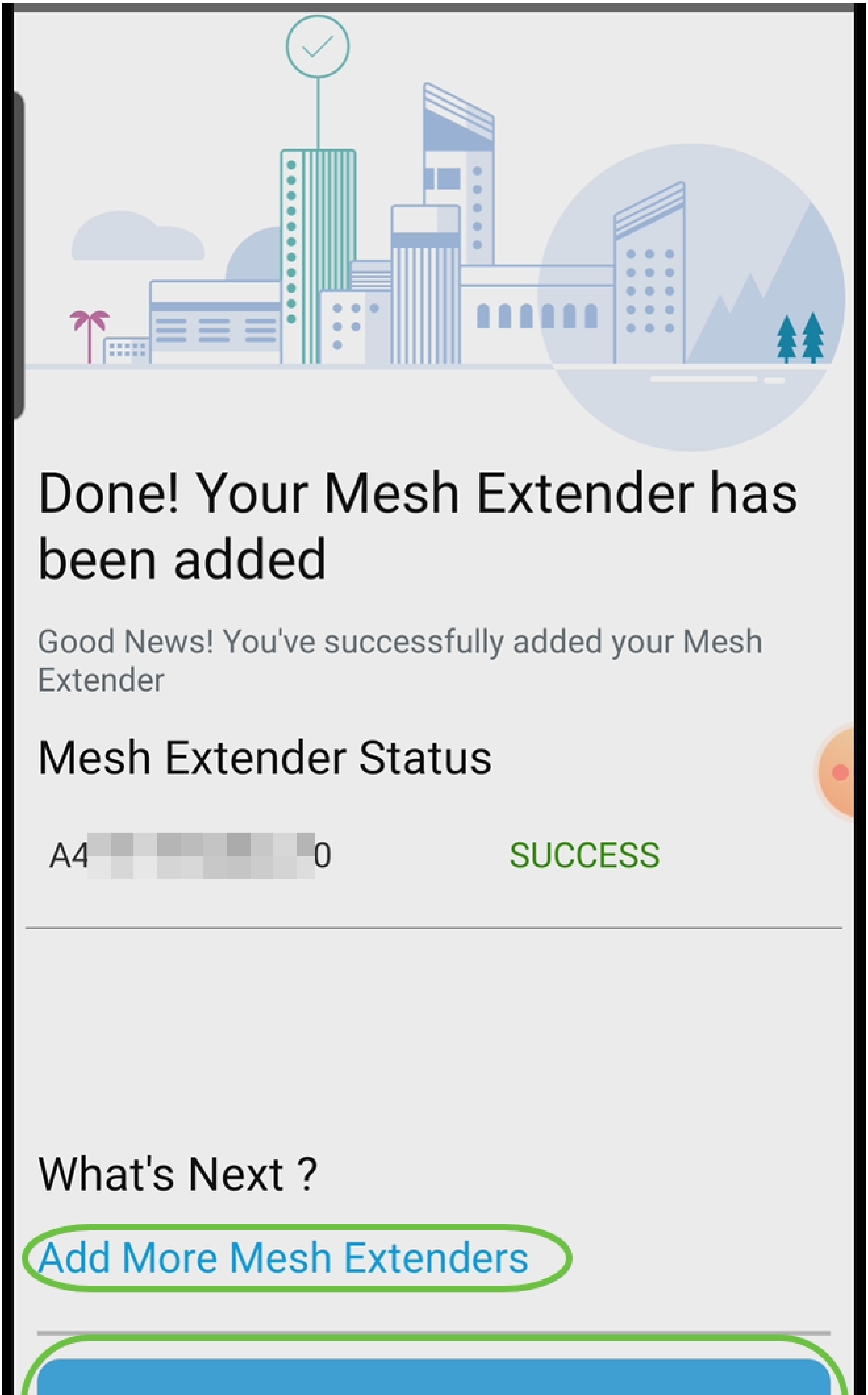
› Mesh Extenders To Be Added

Scanned MAC Address

A4[redacted]0 office desk

Step 7

Click on *Add More Mesh Extenders* to add other mesh extenders to your network. Once your mesh extenders have all been added, click **Done**.



Done! Your Mesh Extender has been added

Good News! You've successfully added your Mesh Extender

Mesh Extender Status

A4[redacted]0 SUCCESS

What's Next ?

Repeat for each mesh extender.

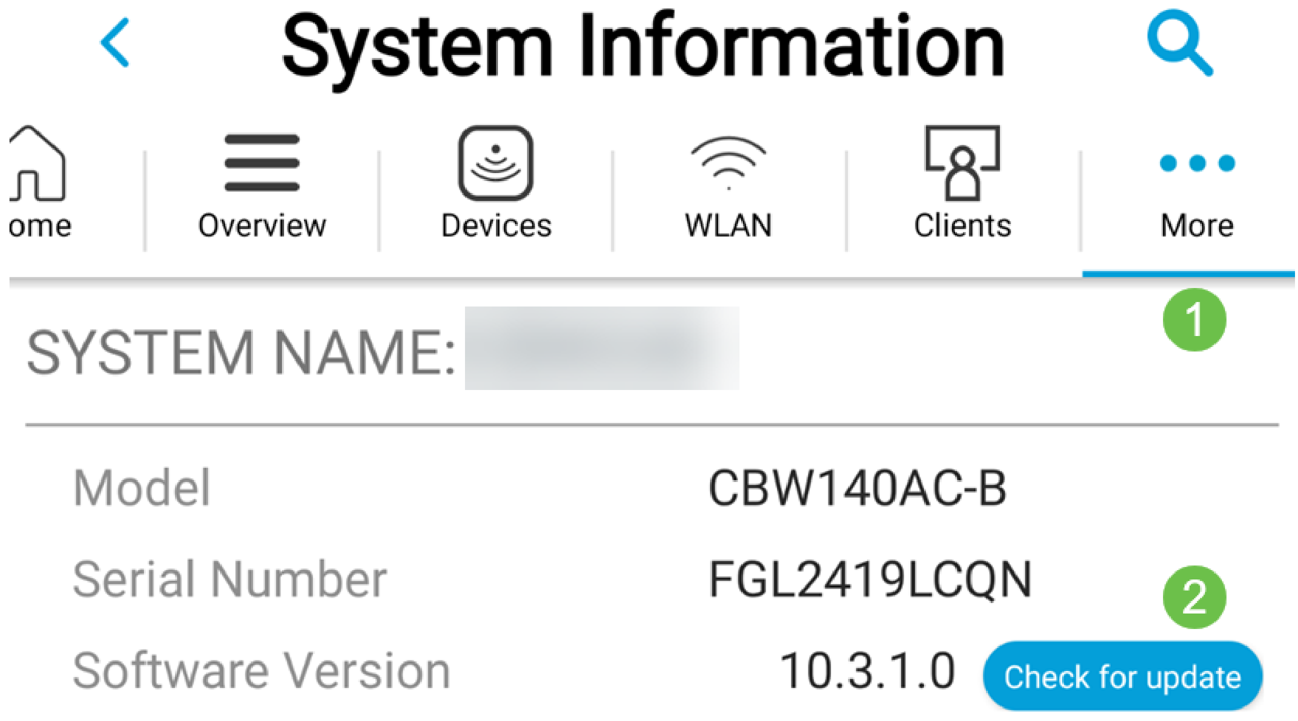
You now have the basic settings ready to roll. Before you move on, make sure you check and update software if needed.

Check and Update Software on the Mobile App

Updating software is extremely important, so don't skip this part!

Step 1

On your mobile app, under the **More** tab, click the **Check for update** button. Follow the prompts to update the software to the latest version.



SYSTEM NAME: [redacted]

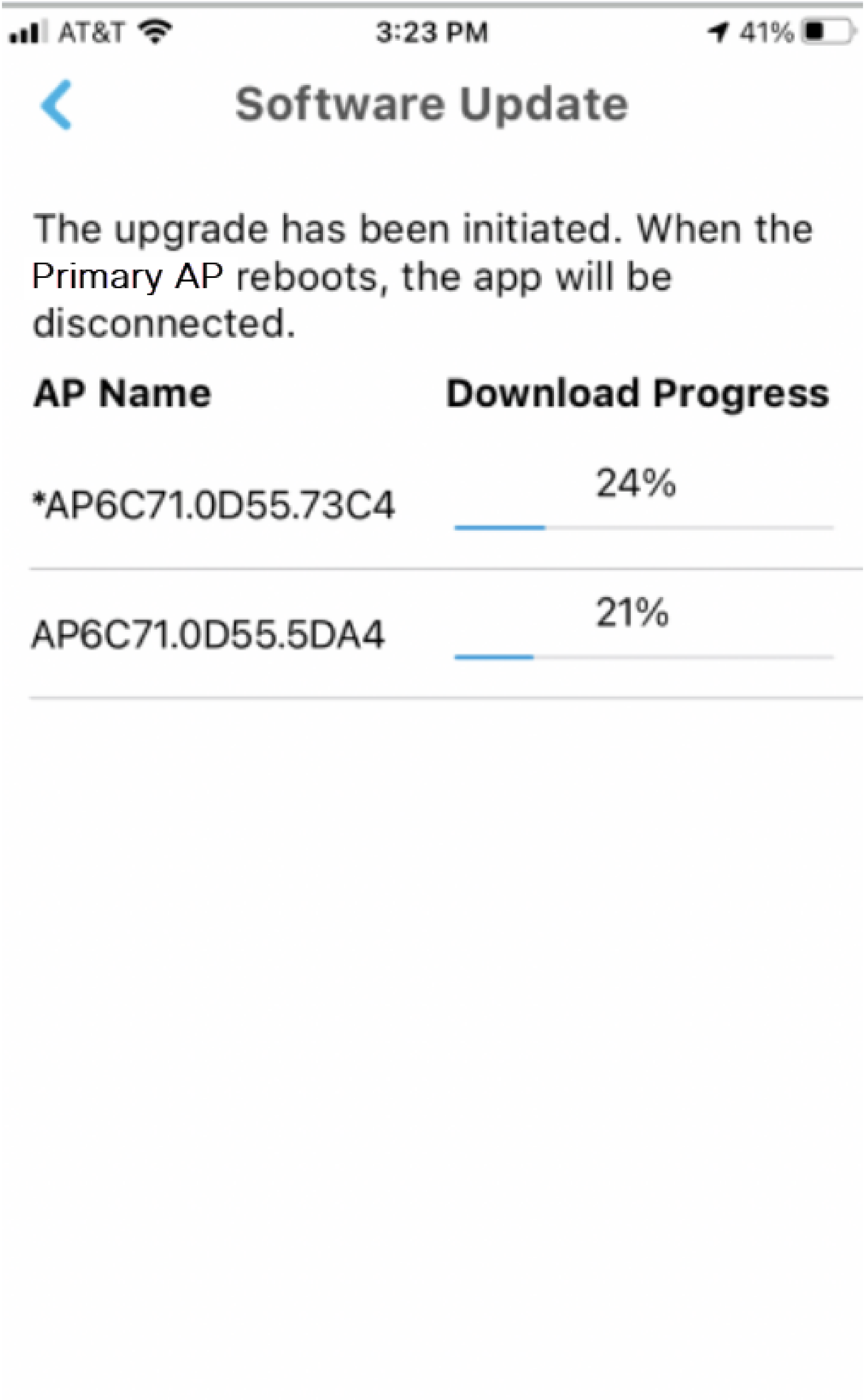
Model CBW140AC-B

Serial Number FGL2419LCQN

Software Version 10.3.1.0

Step 2

You will see the download progress as it loads.



Software Update

The upgrade has been initiated. When the Primary AP reboots, the app will be disconnected.

AP Name	Download Progress
*AP6C71.0D55.73C4	24%
AP6C71.0D55.5DA4	21%

Step 3

A pop-up confirmation will notify you of the conclusion of the software upgrade. Click **OK**.

Create WLANs using the Mobile App

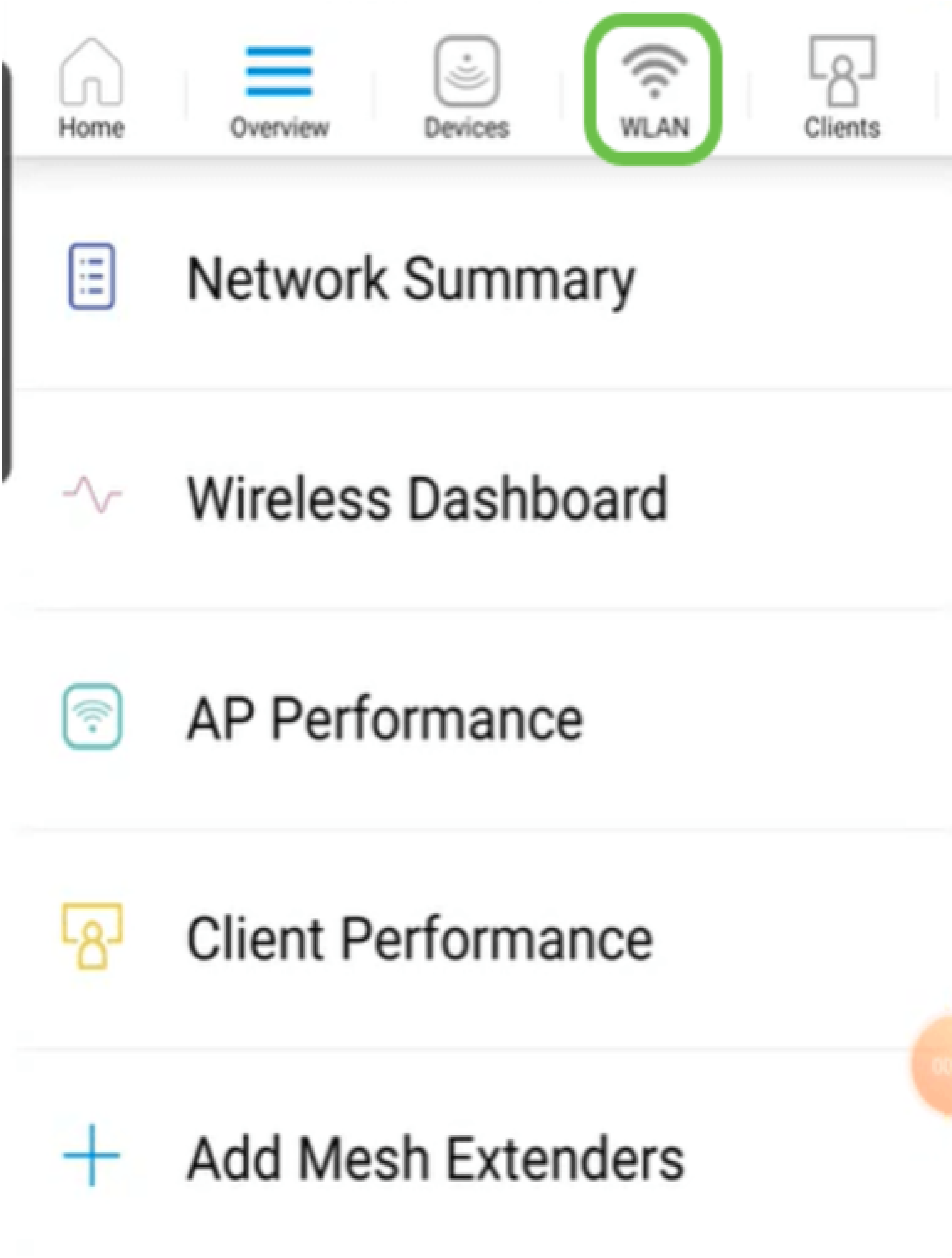
This section allows you to create Wireless Local Area Networks (WLANs).

Step 1

Open the Cisco Business Wireless App.

Step 2

Connect to your Cisco Business wireless network on your mobile. Log into the application. Click on the **WLAN icon** at the top of the page.



Network Summary

Wireless Dashboard

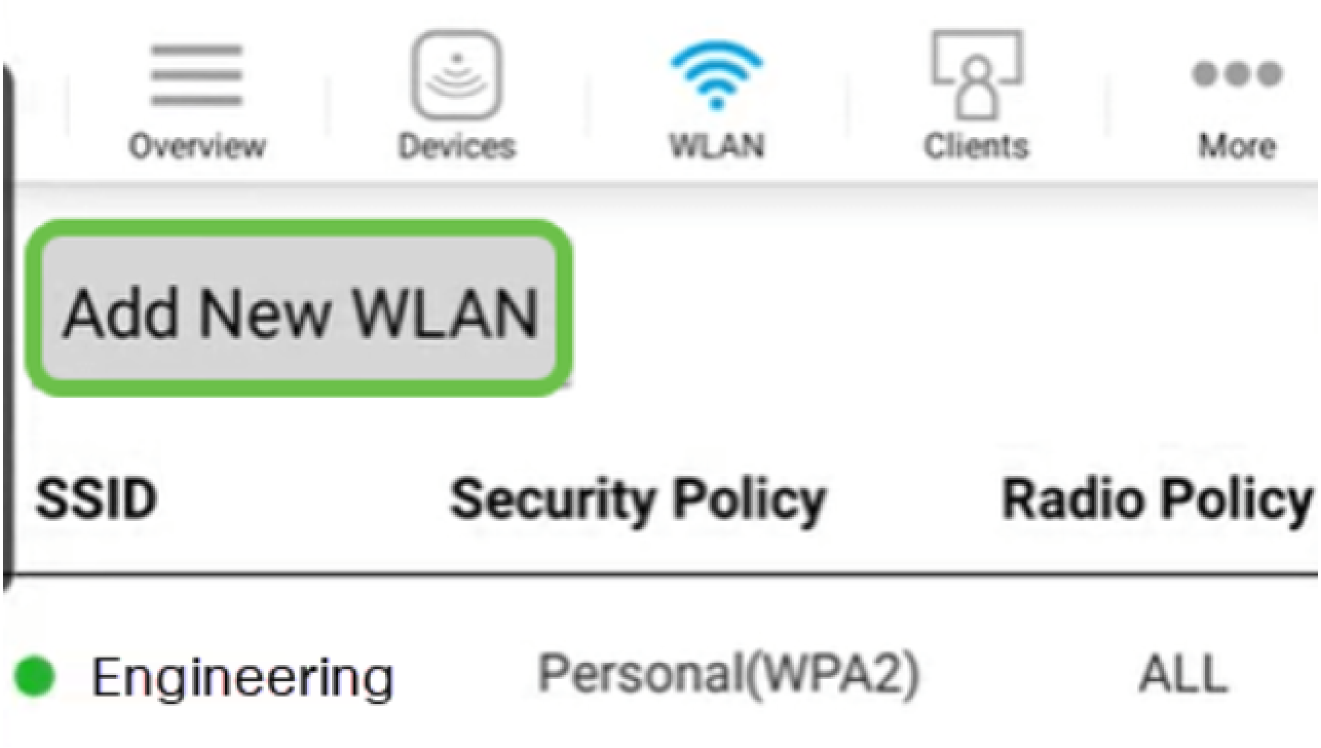
AP Performance

Client Performance

Add Mesh Extenders

Step 3

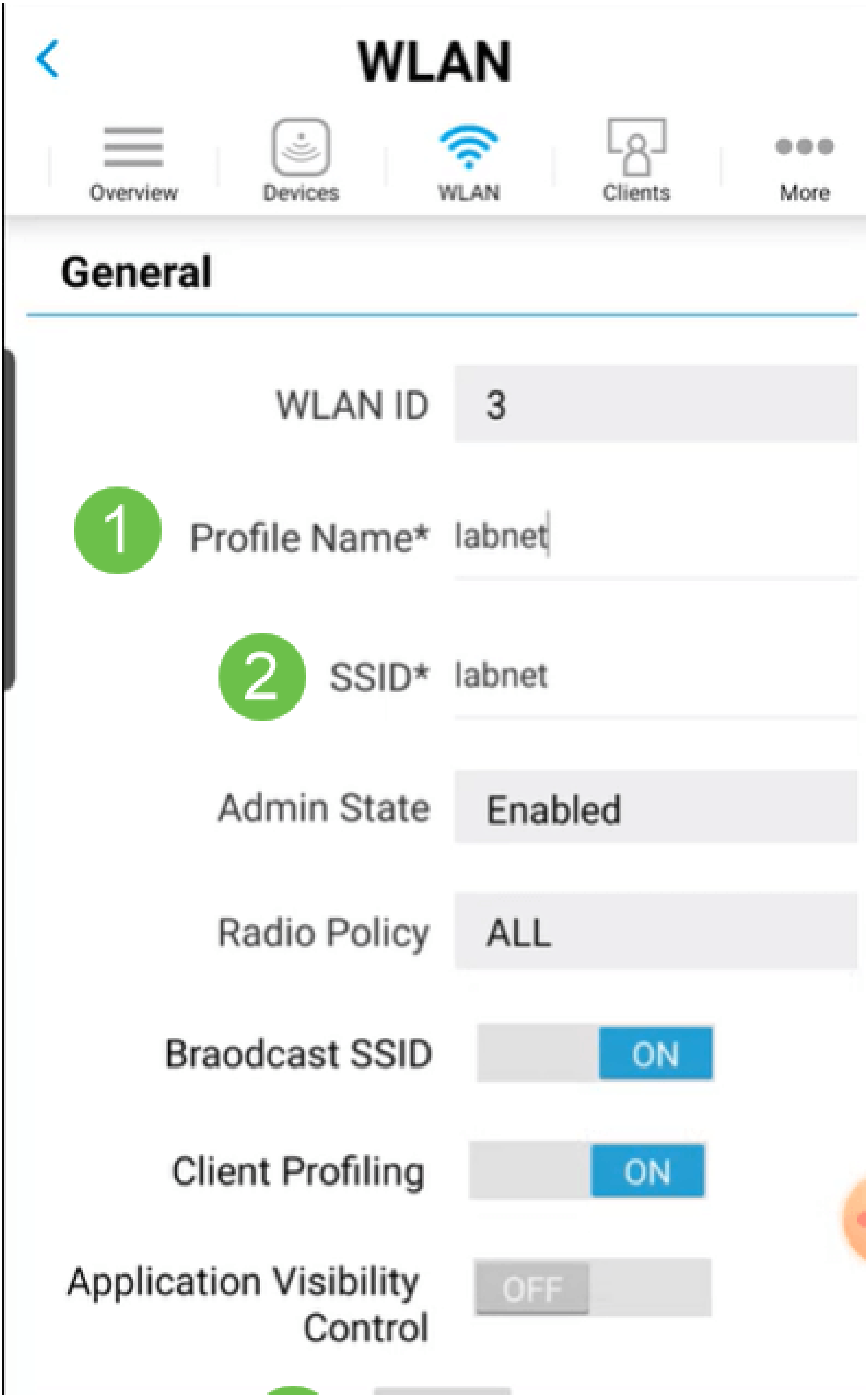
The *Add New WLAN* screen opens. You will see the existing WLANs. Select **Add New WLAN**.



SSID	Security Policy	Radio Policy
● Engineering	Personal(WPA2)	ALL

Step 4

Enter a **Profile Name** and **SSID**. Fill in the rest of the fields or leave at the default settings. If you enabled Application Visibility Control, you will have other configurations explained in Step 6. Click **Next**.



General

WLAN ID 3

Profile Name* labnet

SSID* labnet

Admin State Enabled

Radio Policy ALL

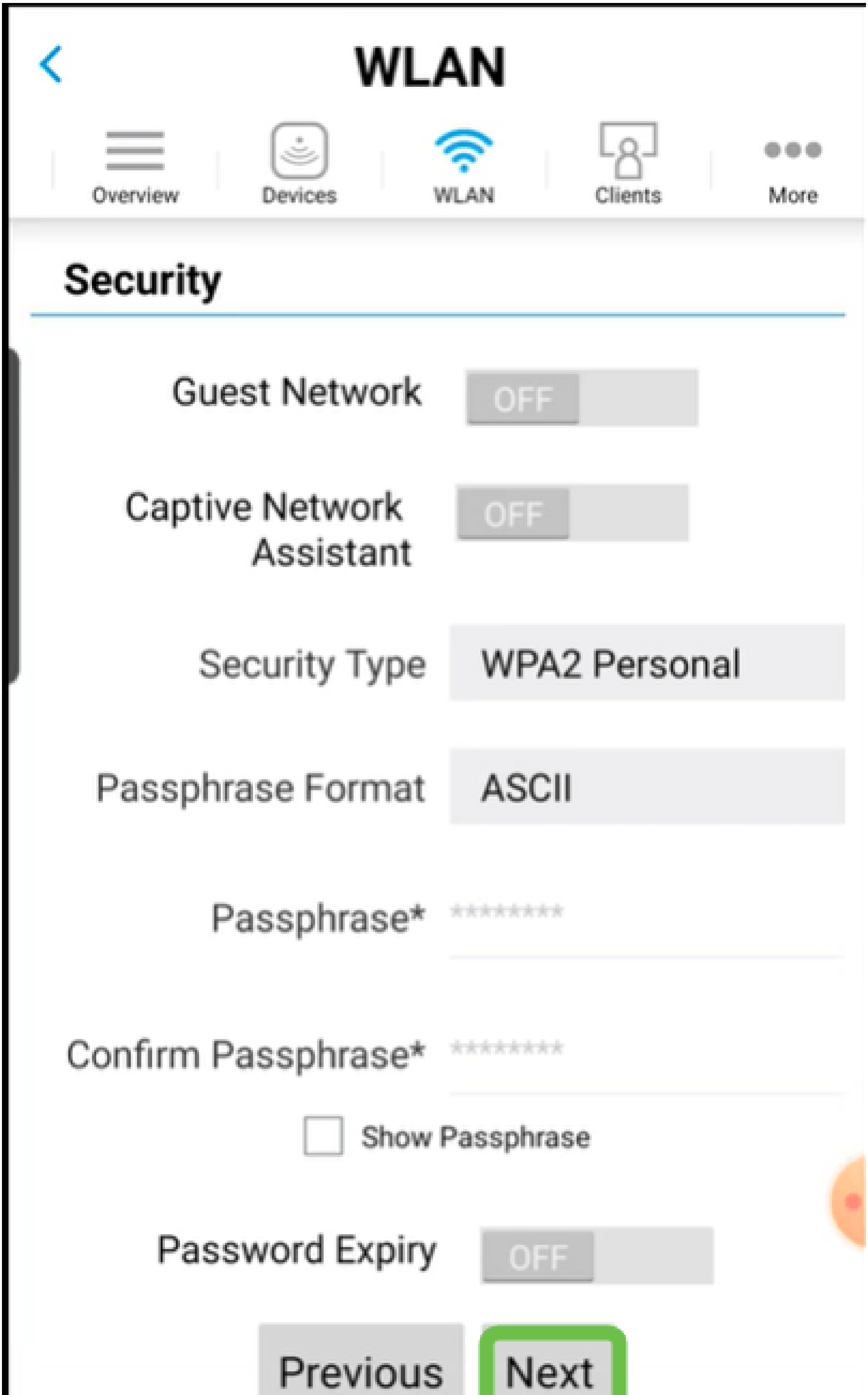
Braodcast SSID ON

Client Profiling ON

Application Visibility Control OFF

Step 5 (Optional)

If you enabled *Application Visibility Control* in step 4, you may configure other settings, including a Guest Network, The details for this can be found in the next section. *Captive Network Assistant*, *Security Type*, *Passphrase*, and *Password Expiry* can be added here as well. When you have added all configurations, click **Next**.



Security

Guest Network OFF

Captive Network Assistant OFF

Security Type WPA2 Personal

Passphrase Format ASCII

Passphrase* ********

Confirm Passphrase* ********

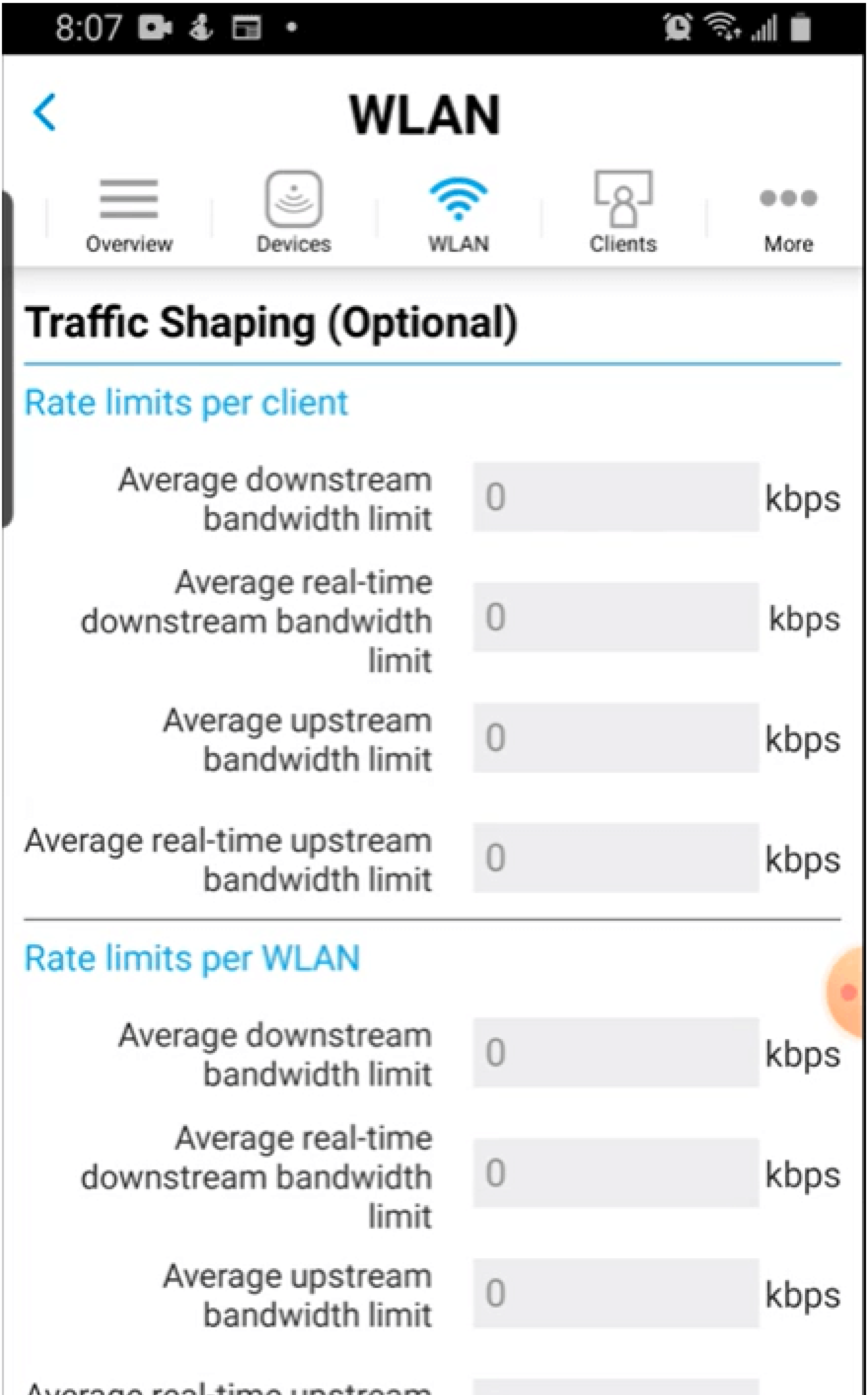
□ Show Passphrase

Password Expiry OFF

When using the mobile application, the only options for *Security Type* are *Open* or *WPA2 Personal*. For more advanced options, log into the Web UI of the Mobile Application AP instead.

Step 6 (Optional)

This screen gives you the options for *Traffic Shaping*. In this example, no traffic shaping has been configured. Click **Submit**.



WLAN

Traffic Shaping (Optional)

Rate limits per client

Average downstream bandwidth limit	0	kbps
Average real-time downstream bandwidth limit	0	kbps
Average upstream bandwidth limit	0	kbps
Average real-time upstream bandwidth limit	0	kbps

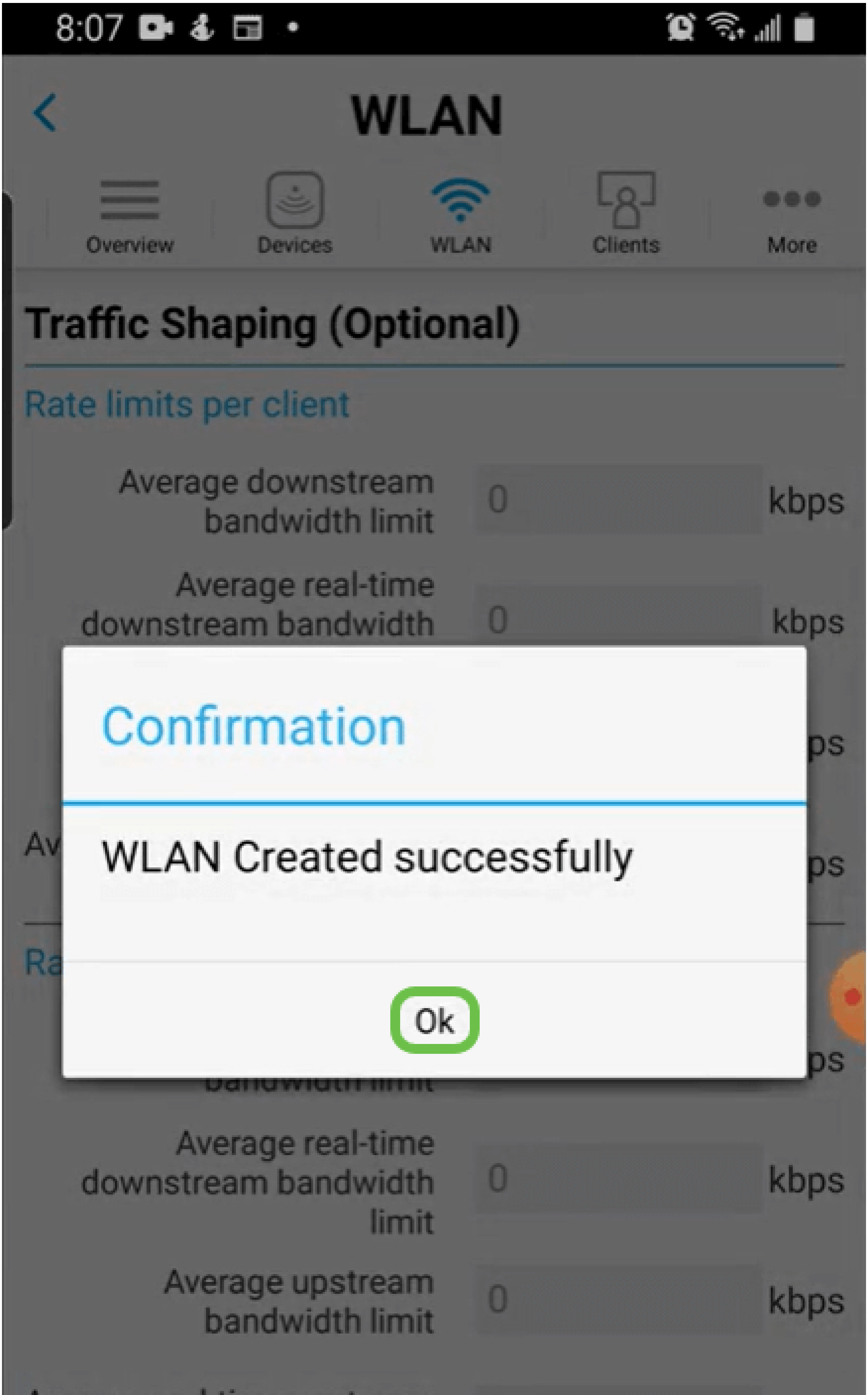
Rate limits per WLAN

Average downstream bandwidth limit	0	kbps
Average real-time downstream bandwidth limit	0	kbps
Average upstream bandwidth limit	0	kbps

Average real-time upstream

Step 7

You will see a confirmation pop-up. Click **Ok**.



Traffic Shaping (Optional)

Rate limits per client

Average downstream bandwidth limit 0 kbps

Average real-time downstream bandwidth 0 kbps

Confirmation

WLAN Created successfully

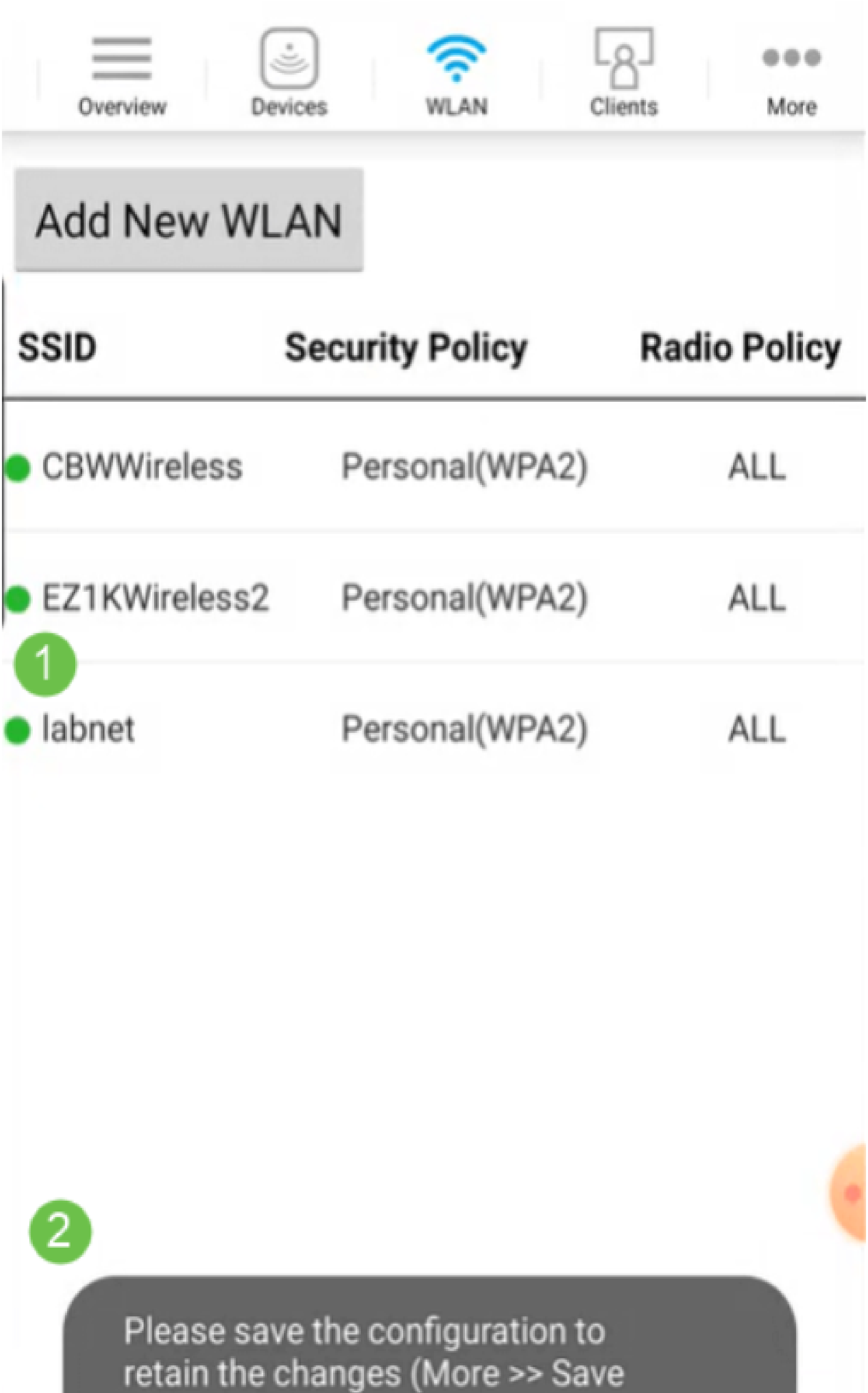
Ok

Average real-time downstream bandwidth limit 0 kbps

Average upstream bandwidth limit 0 kbps

Step 8

You will see the New WLAN added to the network as well as a reminder to save the configuration.

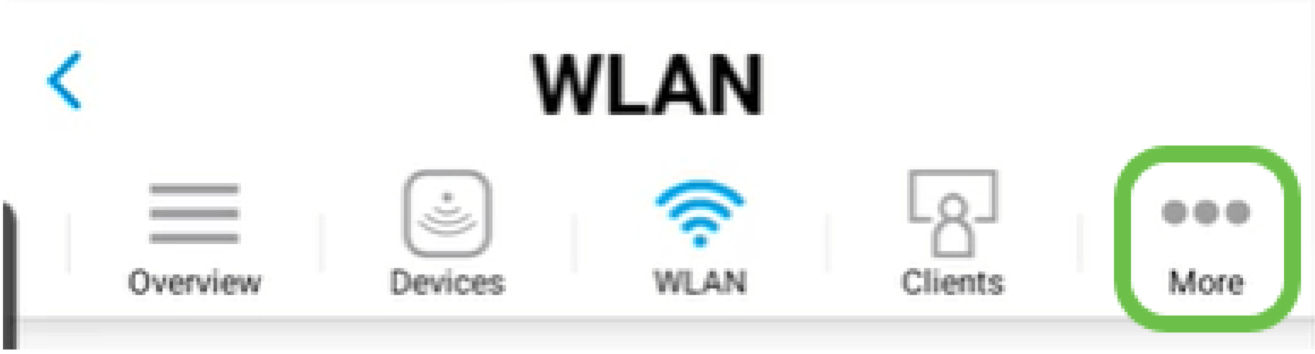


SSID	Security Policy	Radio Policy
● CBWWireless	Personal(WPA2)	ALL
● EZ1KWireless2	Personal(WPA2)	ALL
● labnet	Personal(WPA2)	ALL

Please save the configuration to retain the changes (More >> Save

Step 9

Save your configuration by clicking the **More** tab and then select **Save Configuration** from the drop-down menu.



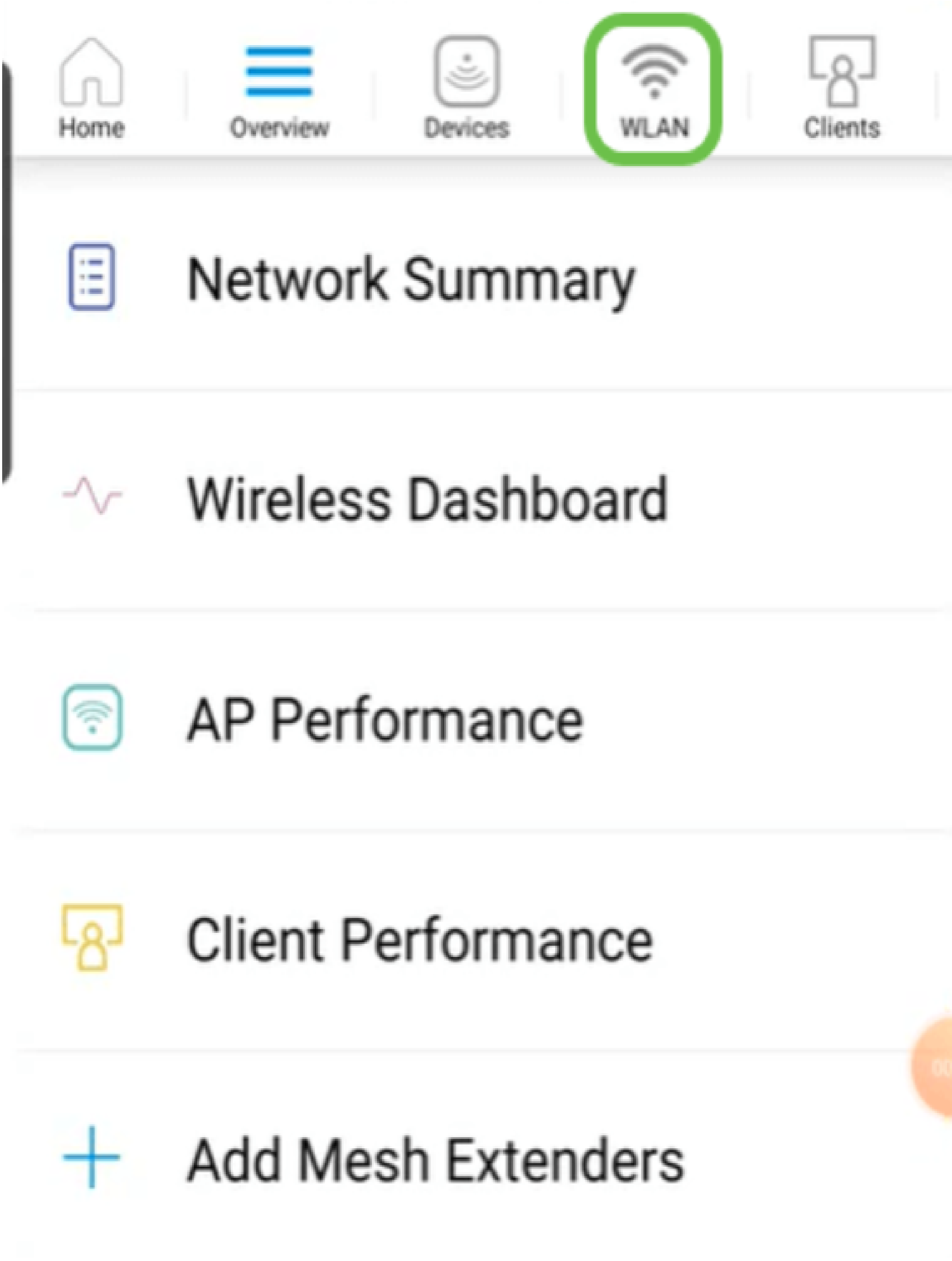
Create a Guest WLAN using the Mobile App

Step 1

Connect to your Cisco Business wireless network on your mobile device. Log into the application.

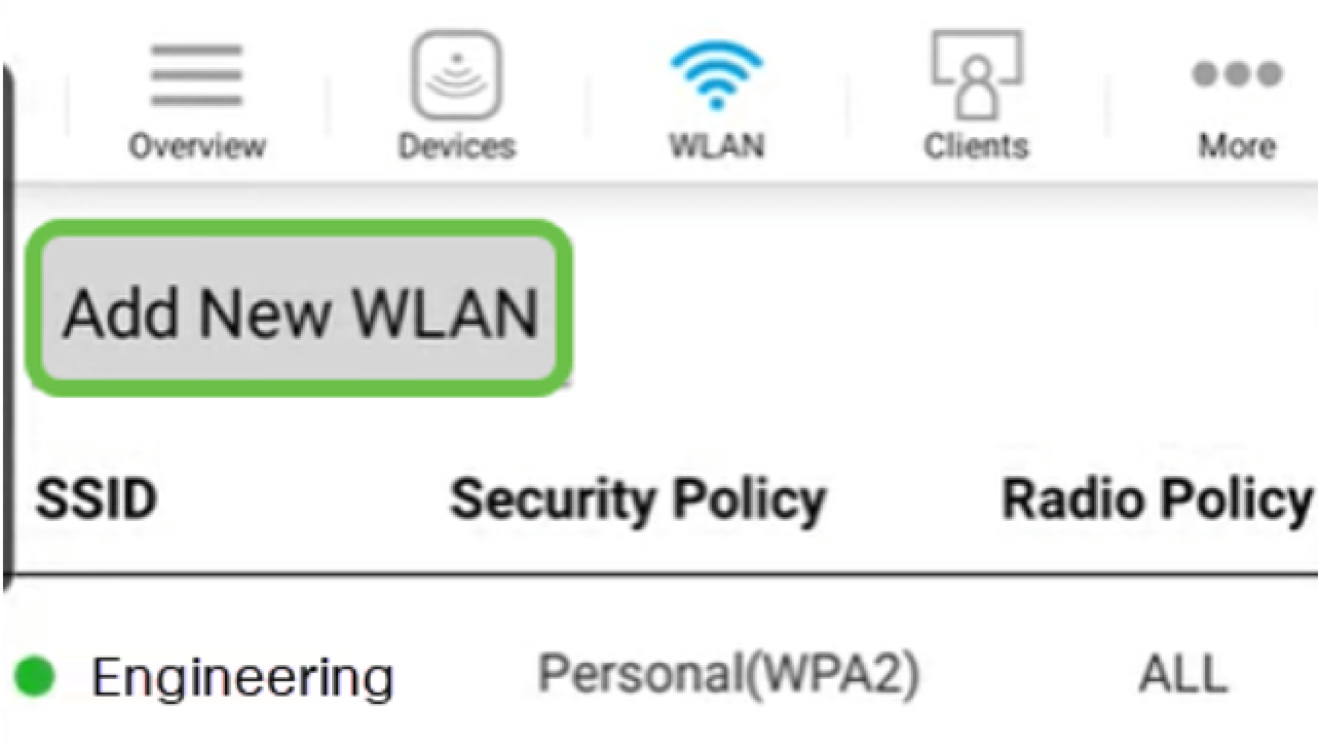
Step 2

Click on the **WLAN icon** at the top of the page.



Step 3

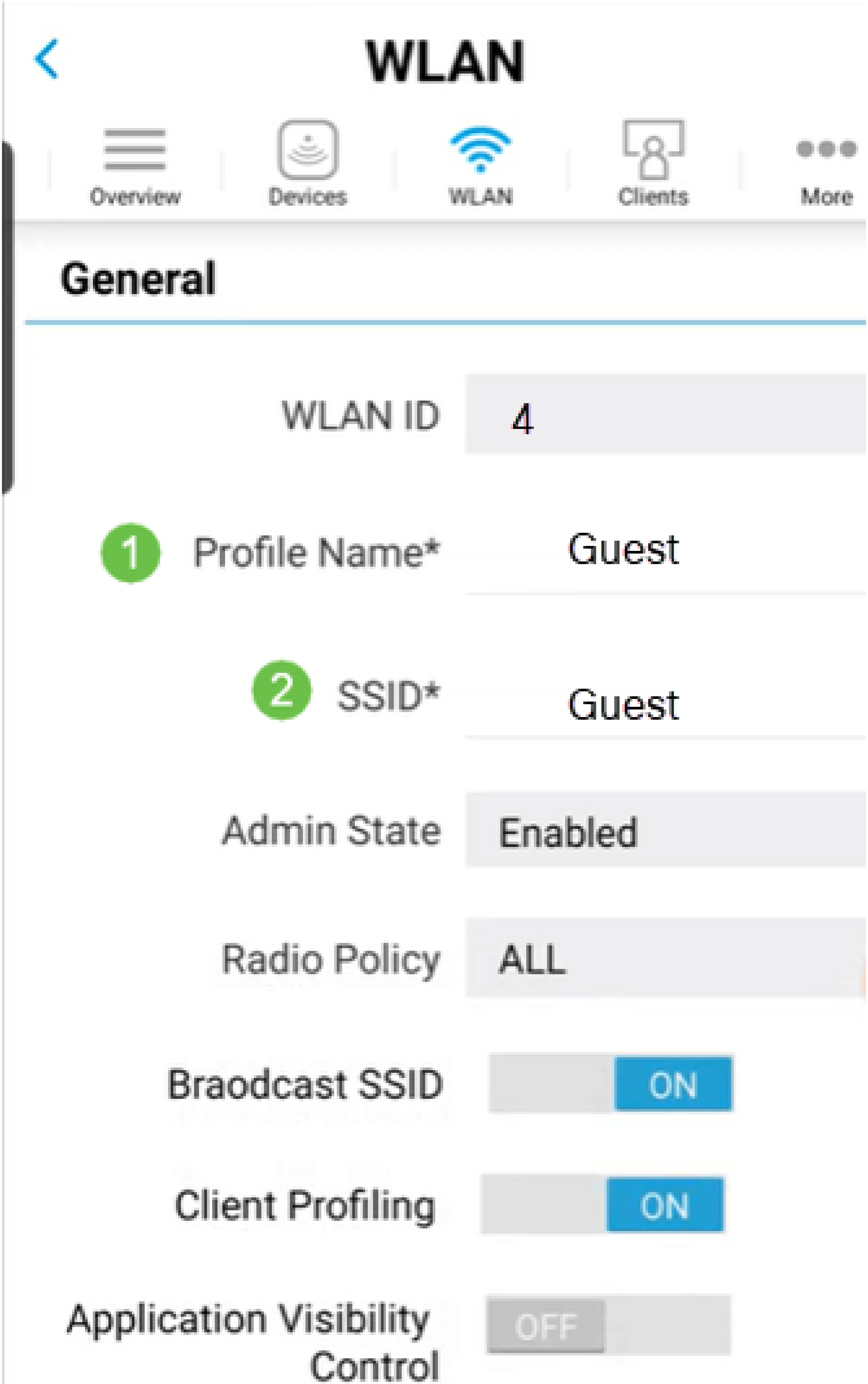
The *Add New WLAN* screen opens. You will see any existing WLANs. Select **Add New WLAN**.



SSID	Security Policy	Radio Policy
● Engineering	Personal(WPA2)	ALL

Step 4

Enter a **Profile Name** and **SSID**. Fill in the rest of the fields or leave at the default settings. Click **Next**.



WLAN ID 4

1 Profile Name* Guest

2 SSID* Guest

Admin State Enabled

Radio Policy ALL

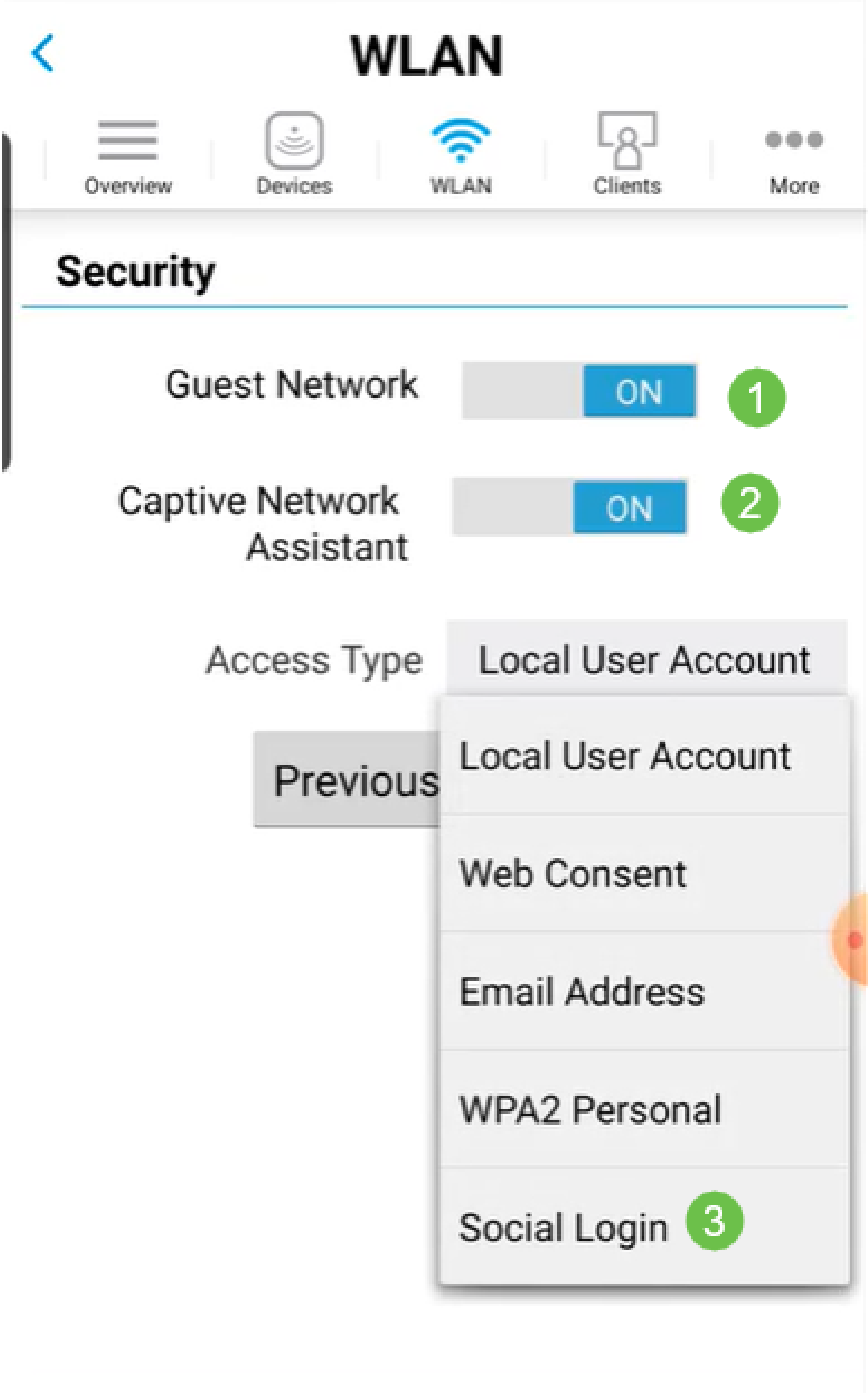
Braodcast SSID ON

Client Profiling ON

Application Visibility Control OFF

Step 5

Turn on *Guest Network*. In this example, *Captive Network Assistant* is also toggled on, but this is optional. You have options for *Access Type*. In this case, **Social Login** is selected.



WLAN

Security

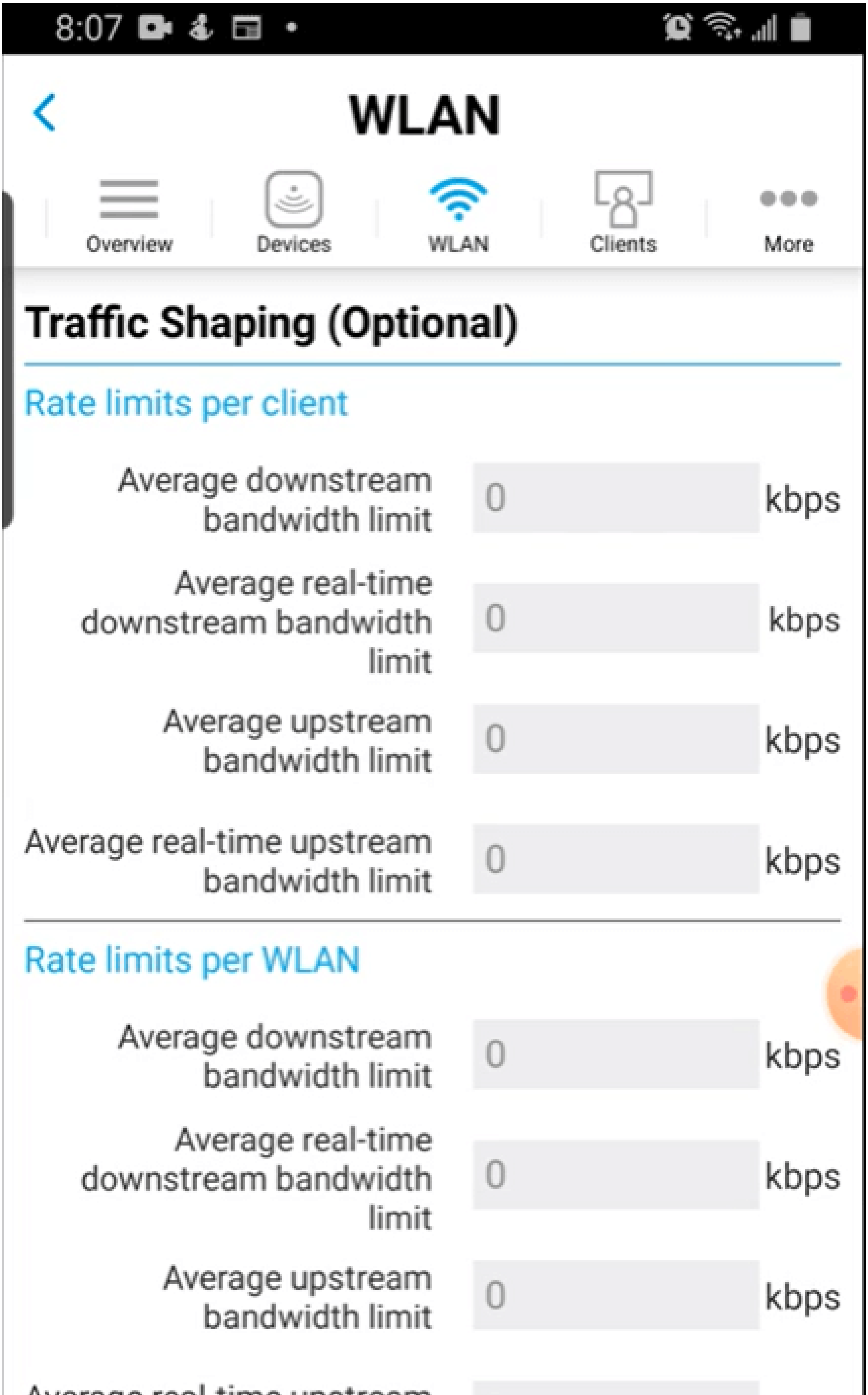
Guest Network: ON (1)

Captive Network Assistant: ON (2)

Access Type: Local User Account

Step 6

This screen gives you the options for *Traffic Shaping (Optional)*. In this example, no traffic shaping has been configured. Click **Submit**.



Traffic Shaping (Optional)

Rate limits per client

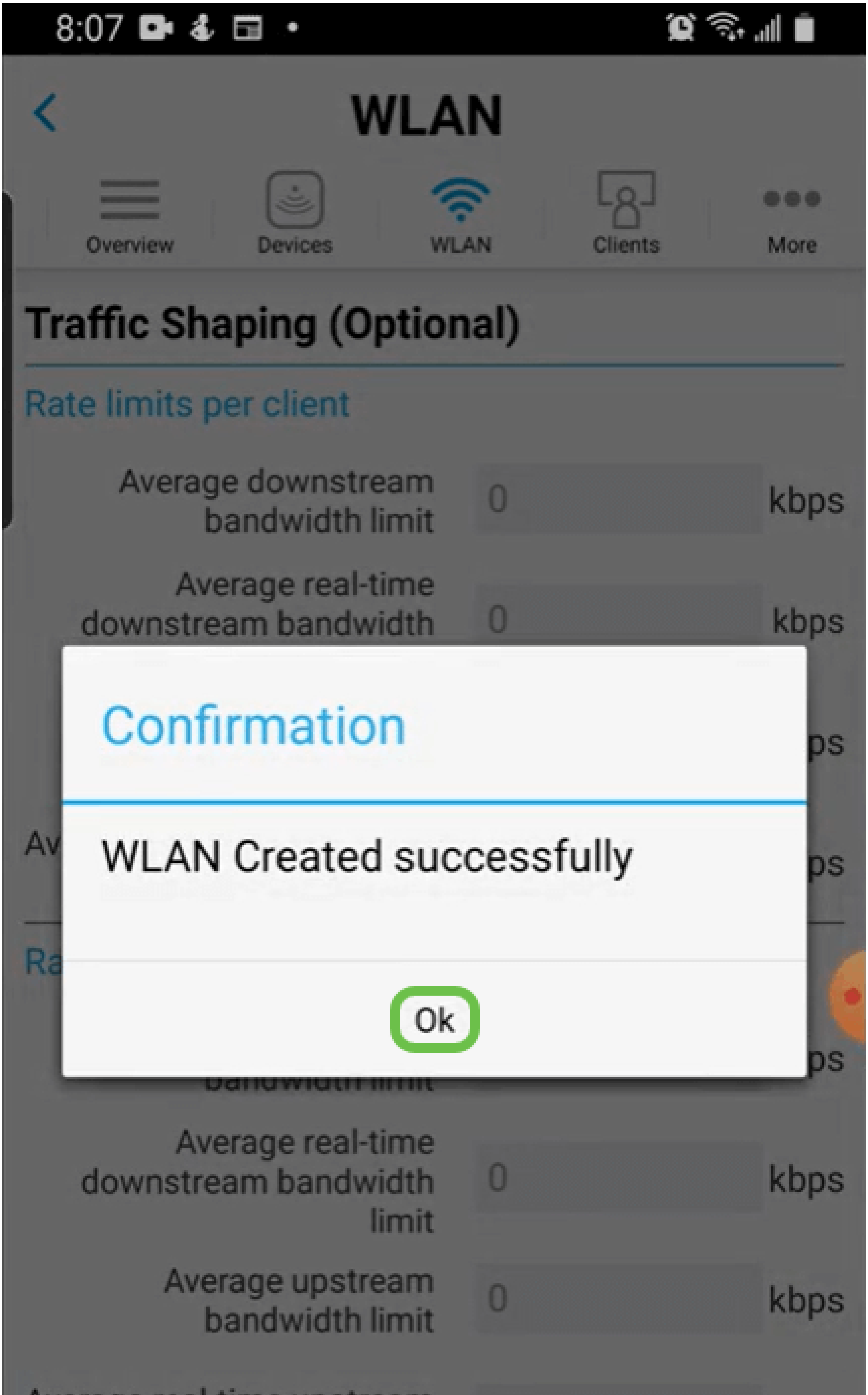
Average downstream bandwidth limit	0	kbps
Average real-time downstream bandwidth limit	0	kbps
Average upstream bandwidth limit	0	kbps
Average real-time upstream bandwidth limit	0	kbps

Rate limits per WLAN

Average downstream bandwidth limit	0	kbps
Average real-time downstream bandwidth limit	0	kbps
Average upstream bandwidth limit	0	kbps

Step 7

You will see a confirmation pop-up. Click **Ok**.



WLAN

Traffic Shaping (Optional)

Rate limits per client

Average downstream bandwidth limit	0	kbps
Average real-time downstream bandwidth	0	kbps

Confirmation

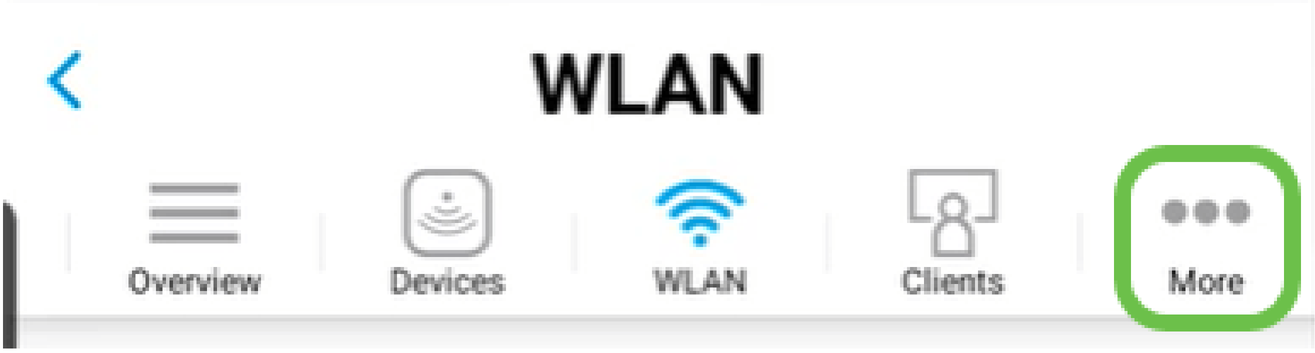
WLAN Created successfully

Ok

Average real-time downstream bandwidth limit	0	kbps
Average upstream bandwidth limit	0	kbps

Step 8

Save your configuration by clicking the **More** tab and then select **Save Configuration** from the drop-down menu.



Conclusion

You now have a complete set up for your network. Take a minute to celebrate and then get to work!

If you want to add Application Profiling or Client Profiling to your wireless mesh network, you will want to use the Web User Interface (UI). Click to set up these features.

We want the best for our customers, so you have any comments or suggestions regarding this topic, please send us an email to the Cisco Content Team.

If you would like to read other articles and documentation, check out the support pages for your hardware:

- Cisco RV345P VPN Router with PoE
- Cisco Business 140AC Access Point
- Cisco Business 142ACM Mesh Extender