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EWS850AP

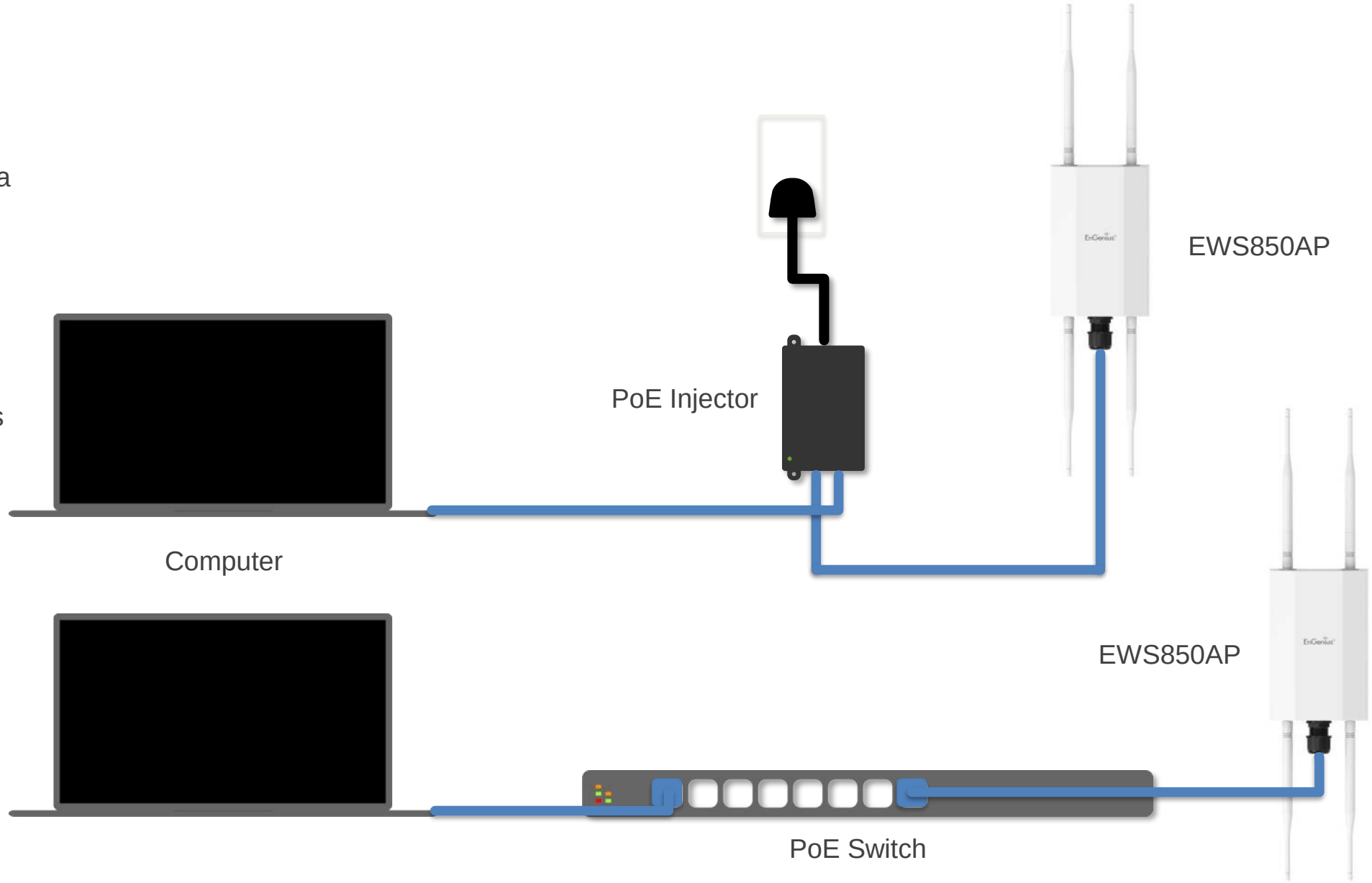
Setup and Configuration

02/08/2020

Initial Configuration 01

Initial Configuration

1. Power up the EWS850AP either through an injector, or a PoE switch.
2. Configure your computer with a static LAN IP in this range: **192.168.1.0/24**
3. Access the GUI of the EWS850AP through the unit's default IP: **192.168.1.1**
4. The default login of credentials of the EWS850AP are: **admin/password**

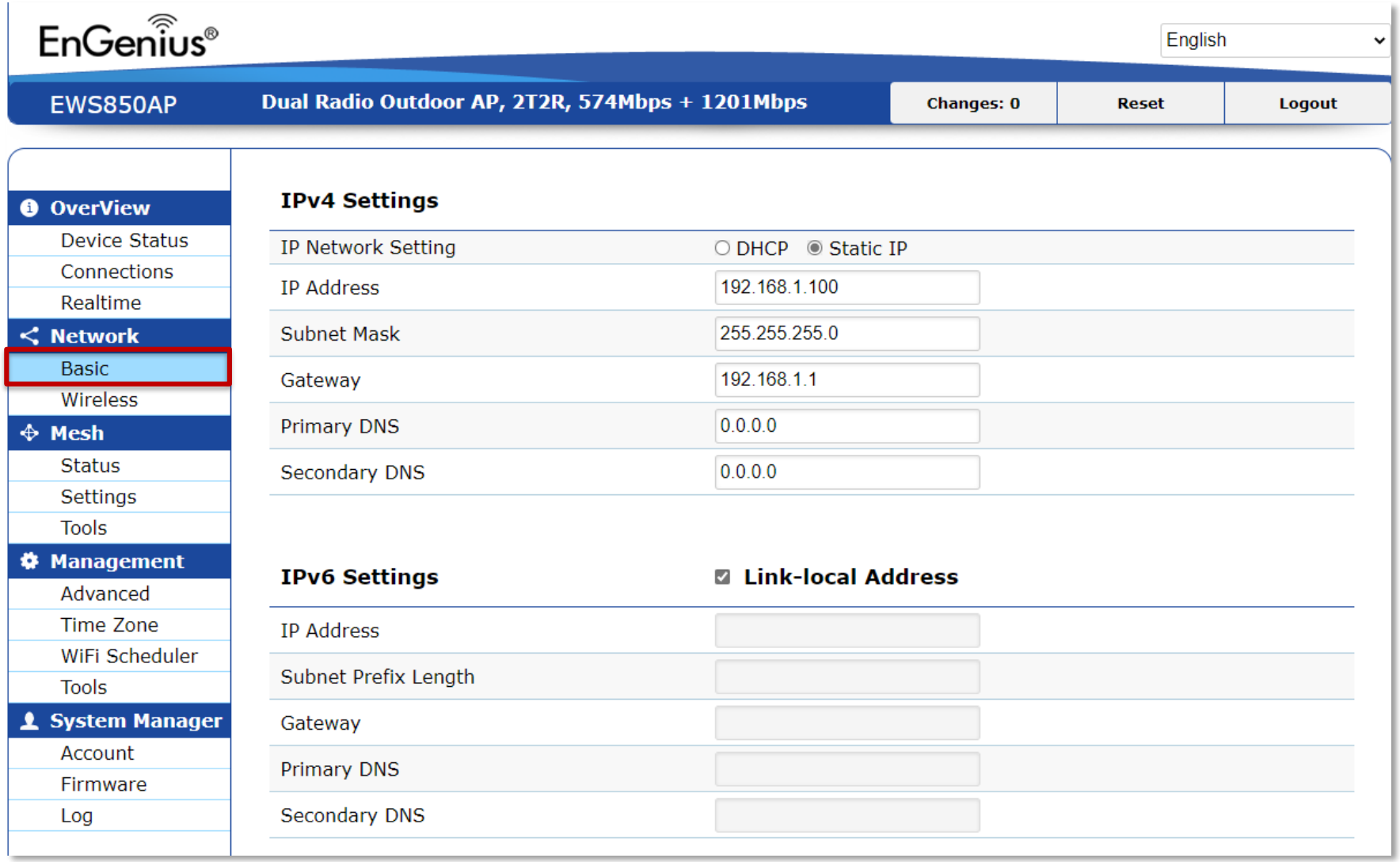


4. Once logged in, modify the IP address of the unit to match that of your test environment. You can configure the IP address of the EWS850AP through ***Network>Basic>IP Settings***. Make sure to use a free IP, a valid Subnet Mask and Gateway IP, and DNS if necessary.

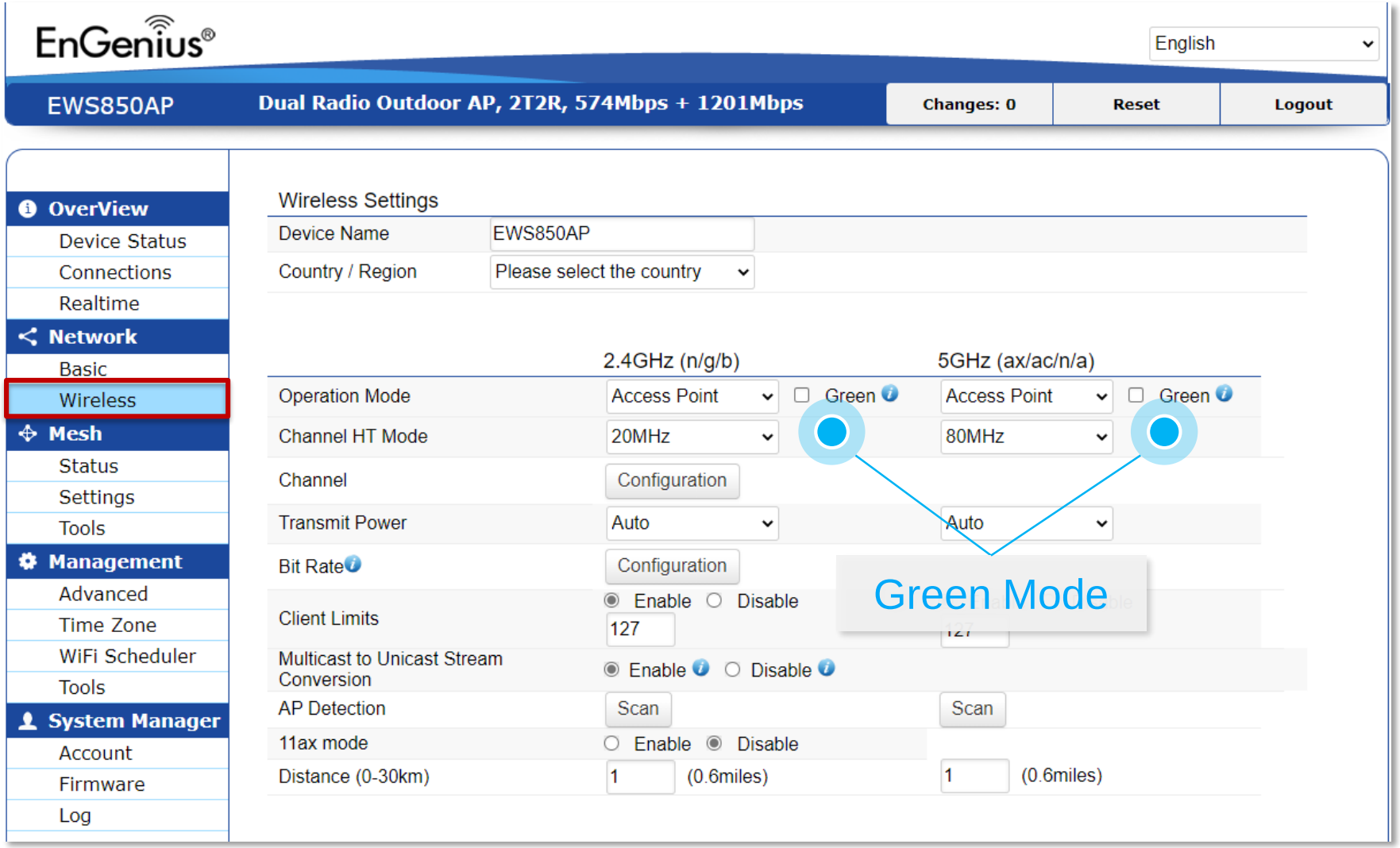
5. Click on ***Save*** at the bottom.

6. Changes made on the GUI can be consolidated and applied in bulk.

7. Additional setting to configure before proceeding to the test procedures: Under ***Network>Wireless>Operation Mode***, **Green Mode** must be unchecked. Click save afterwards for the AP to reload and apply the new IP settings as well.



7. Repeat steps 2-6 for the other EWS850AP. **Note:** If you're on static and have configured the AP on a different range, don't forget to modify your computer's LAN configuration to match that of the AP.



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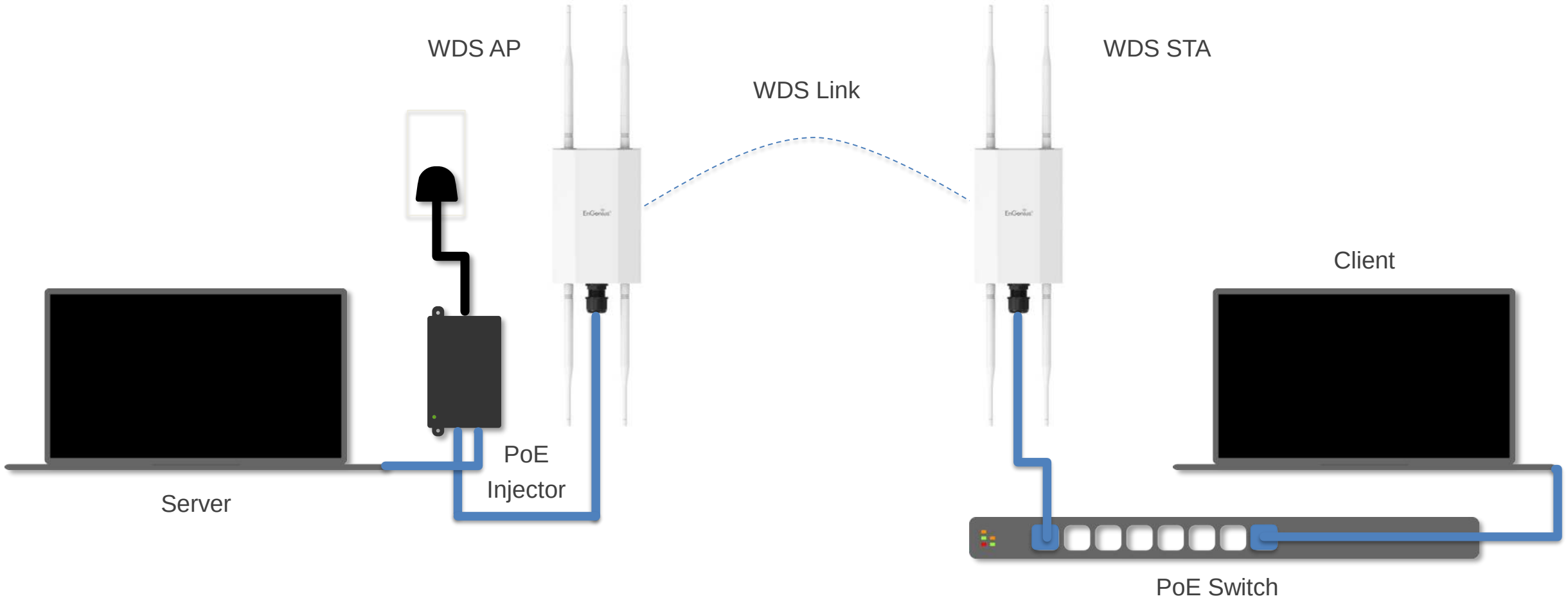
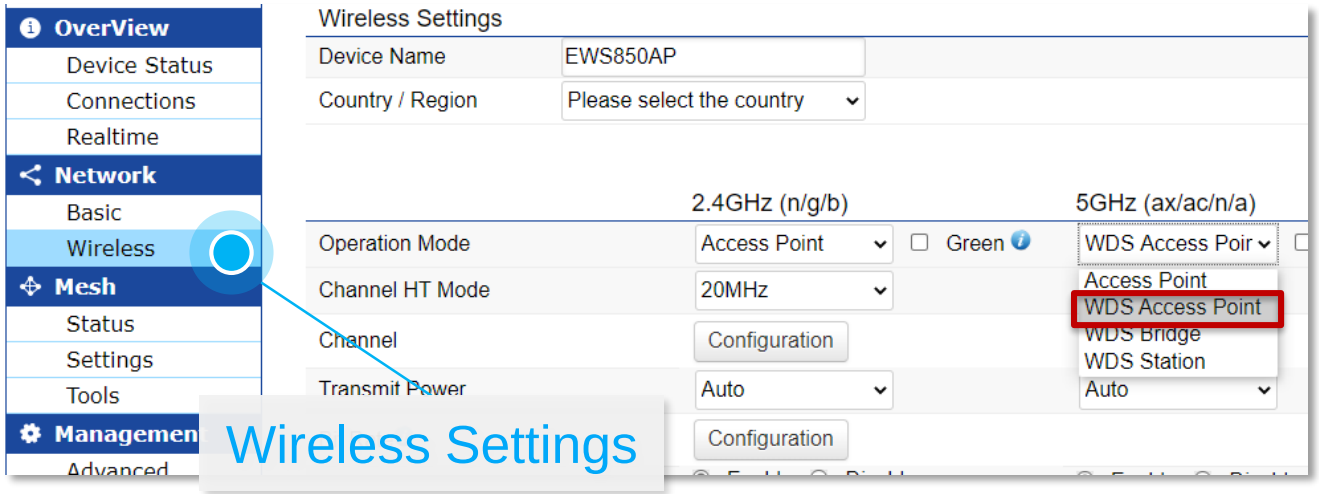
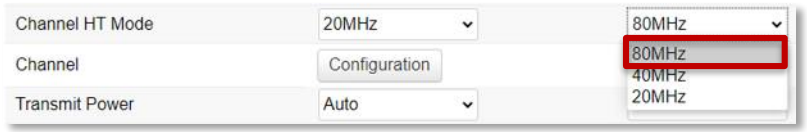
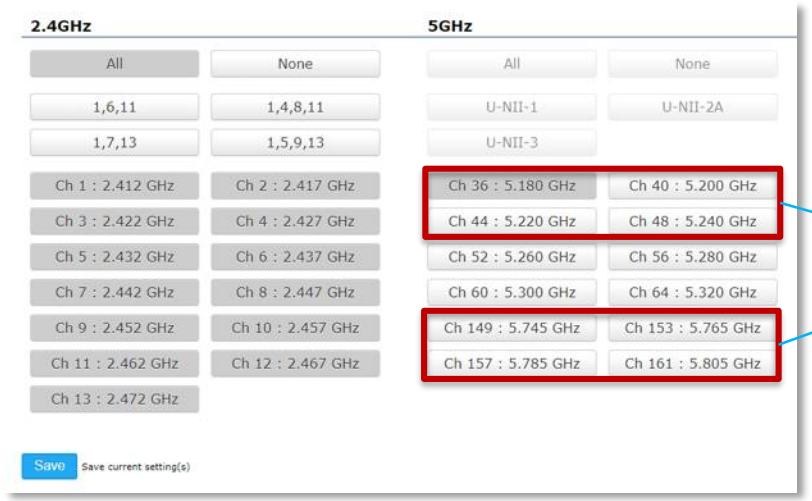
Point to Point / Point to Multipoint | 02


WDS AP
WDS Link
WDS STA
Client
PoE
Injector
Server
PoE Switch

1. Logon to the EWS850AP.
2. On the ***first*** unit, configure the **Operation Mode** as **WDS Access Point** (base station). This can be done on ***Network>Wireless>Operation Mode***.
3. Modify the **Channel HT Mode** to **80MHz**.
4. Configure the channel to the best available 5GHz channel on the environment. Do not use **DFS Channels**.
5. Leave the **Transmit Power** with its default values if you are uncertain of what to set.

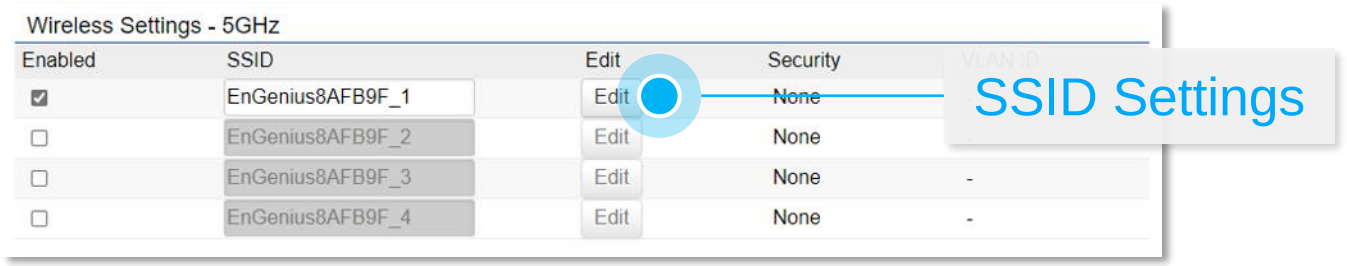


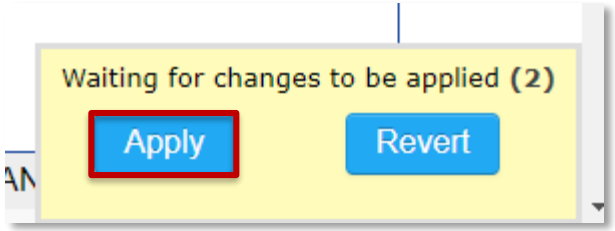




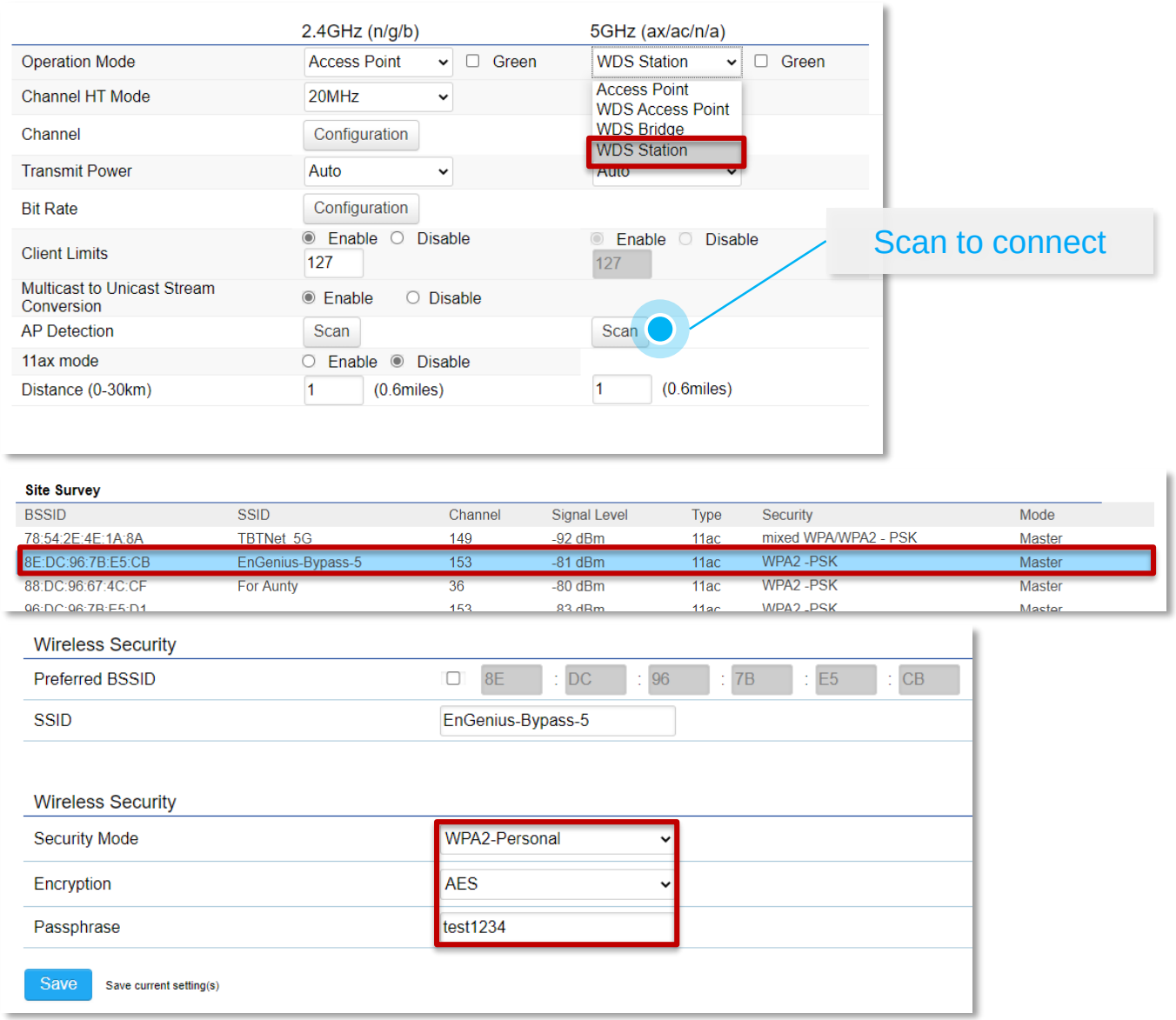
Non-DFS Channels

6. Scroll down and modify the **SSID**.
7. Configure a wireless name as needed, set the security to **WPA2-Personal** and key in your password.
8. Save the SSID settings, and click on apply again under the Wireless page.
9. Once done, click on **Changes** on the top right part of the page and **Apply**, or the **Apply** button found on the bottom of the page. The AP will reboot and broadcast the SSID that you have created.

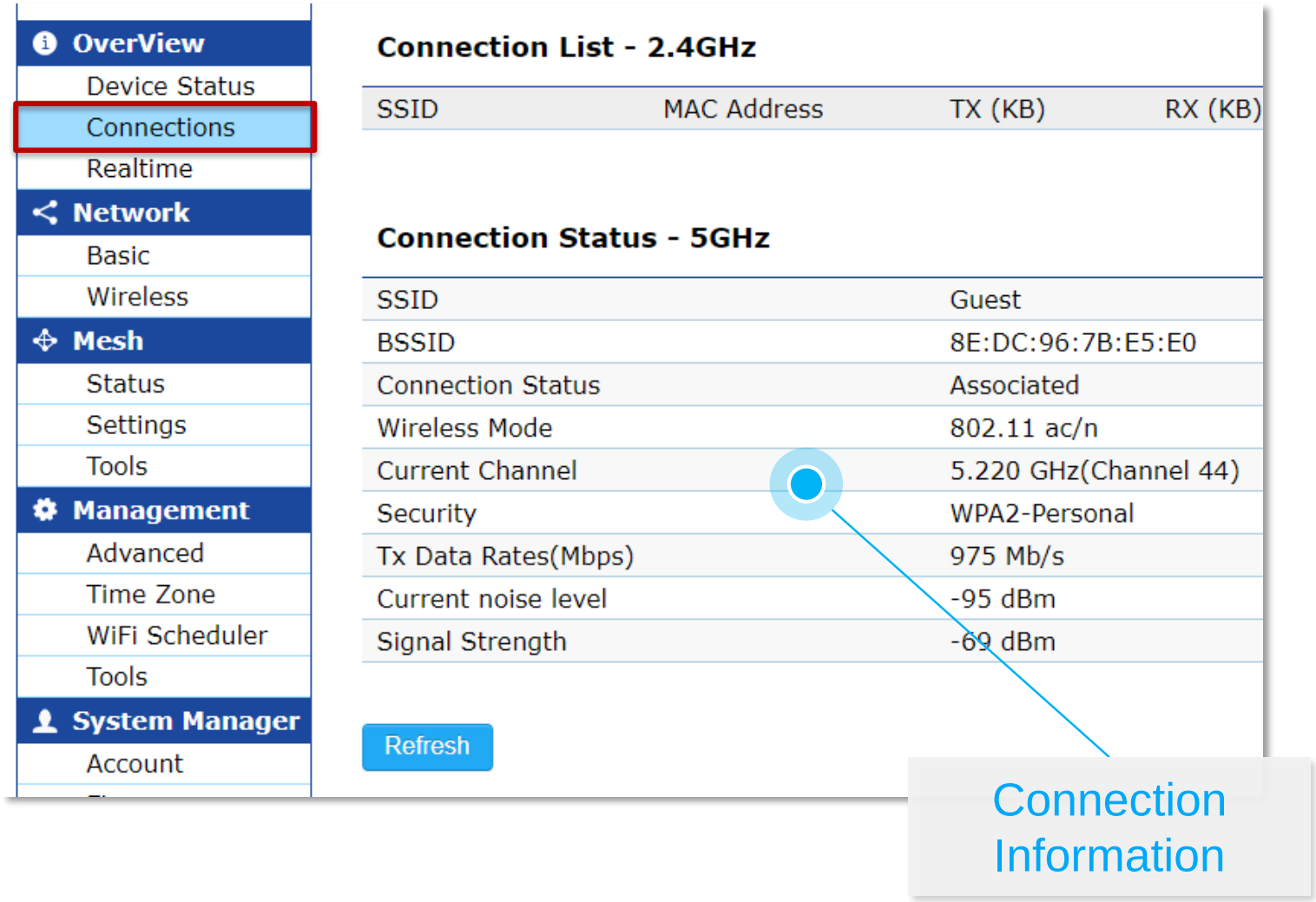




1. For the ***second*** unit, configure the **Operation Mode** as **WDS Station**. This can be done on ***Network>Wireless>Operation Mode***.
2. Press the **Scan** button, and select the SSID that you have created on the first unit.
3. Key in the wireless password you have set and apply.
4. Once done, click on **Changes** on the top right part of the page and **Apply**. The AP will reboot.



5. Verify the connection status via ***Overview>Connections***. Here you can confirm the SSID you are connected to, the wireless mode, channel, data rate, and signal strength (RSSI).



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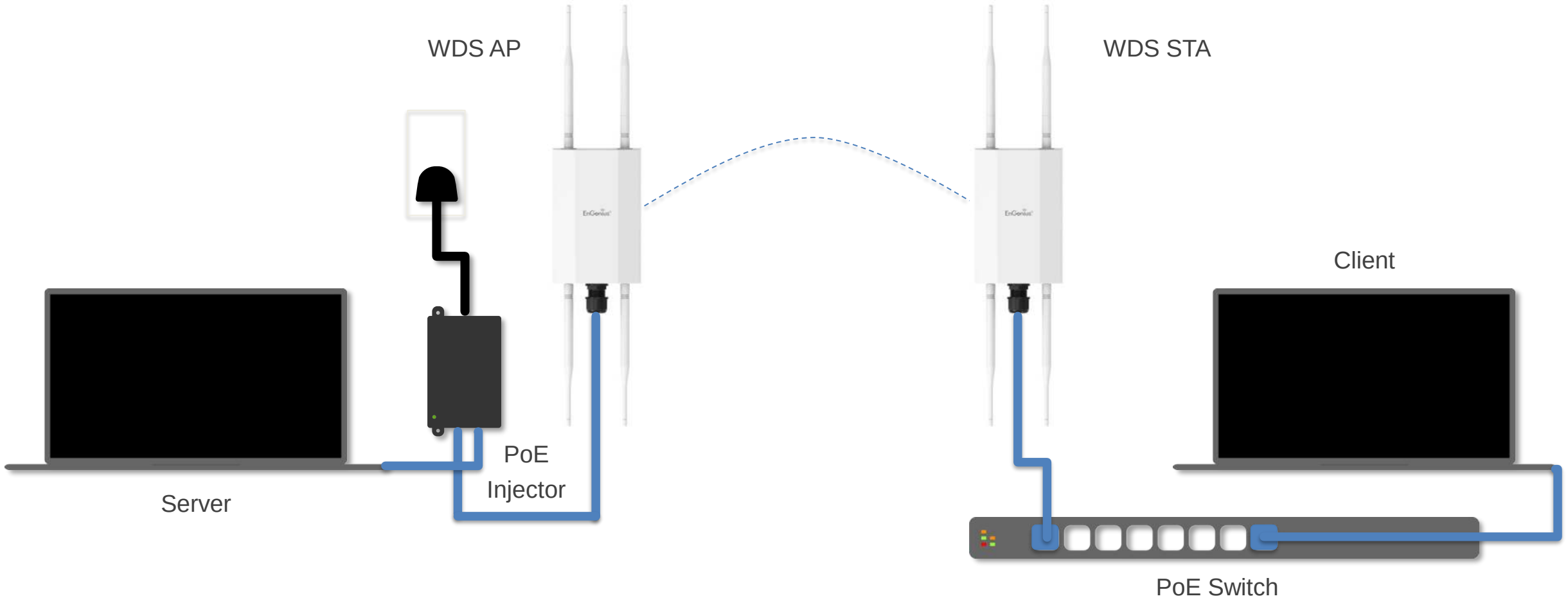
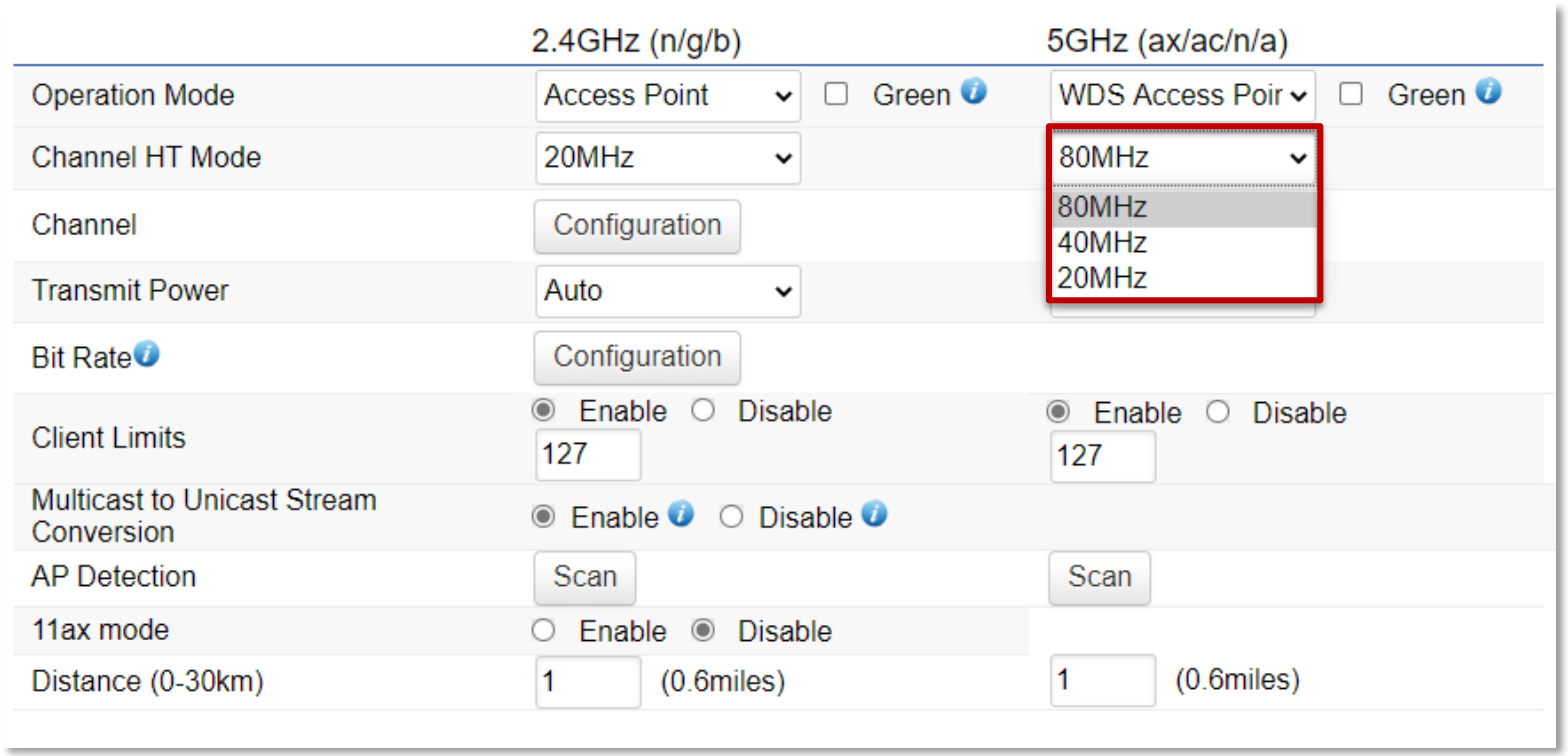
802.11ax Channel Width Support
20, 40, and 80 MHz

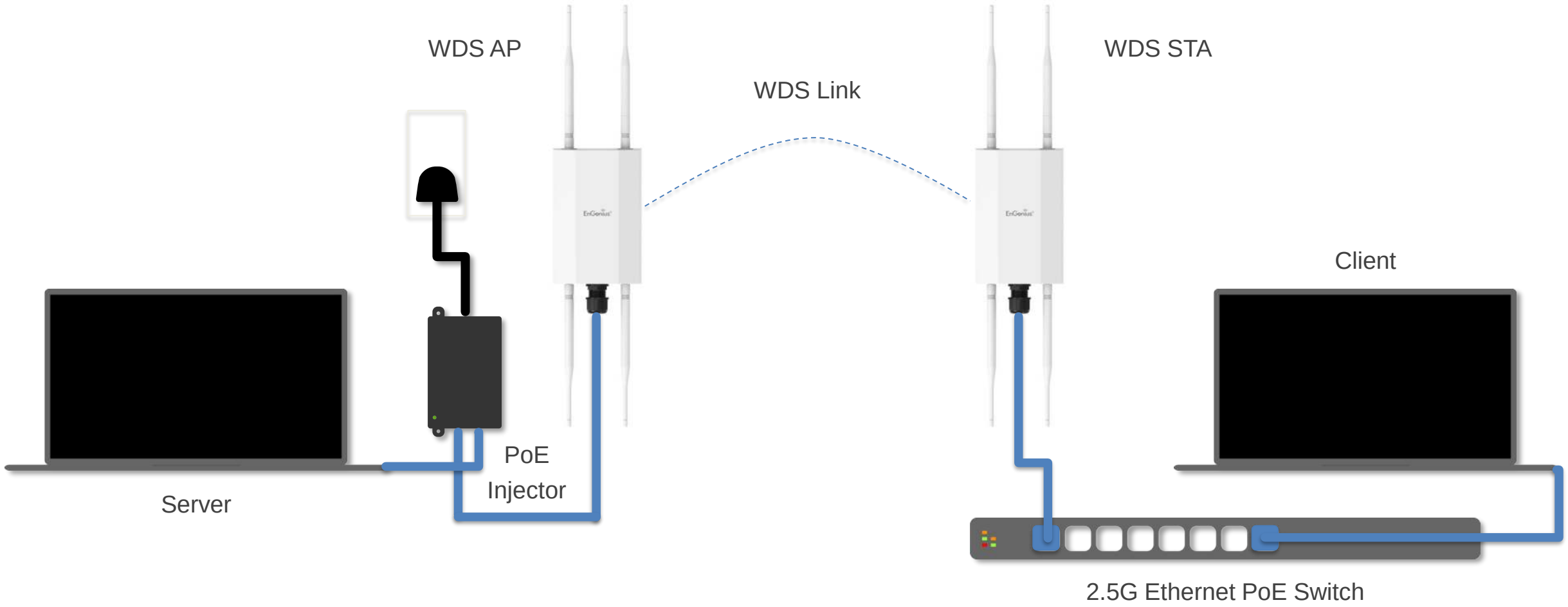
03


WDS AP
WDS STA
Client
PoE
Injector
Server
PoE Switch

1. On the **WDS AP** you may toggle between the available channel widths for testing. The **WDS Station** will follow the channel width of the **WDS AP**.
2. You may also connect a wireless client (laptop/mobile phone) directly to the **WDS AP**, to perform a test.

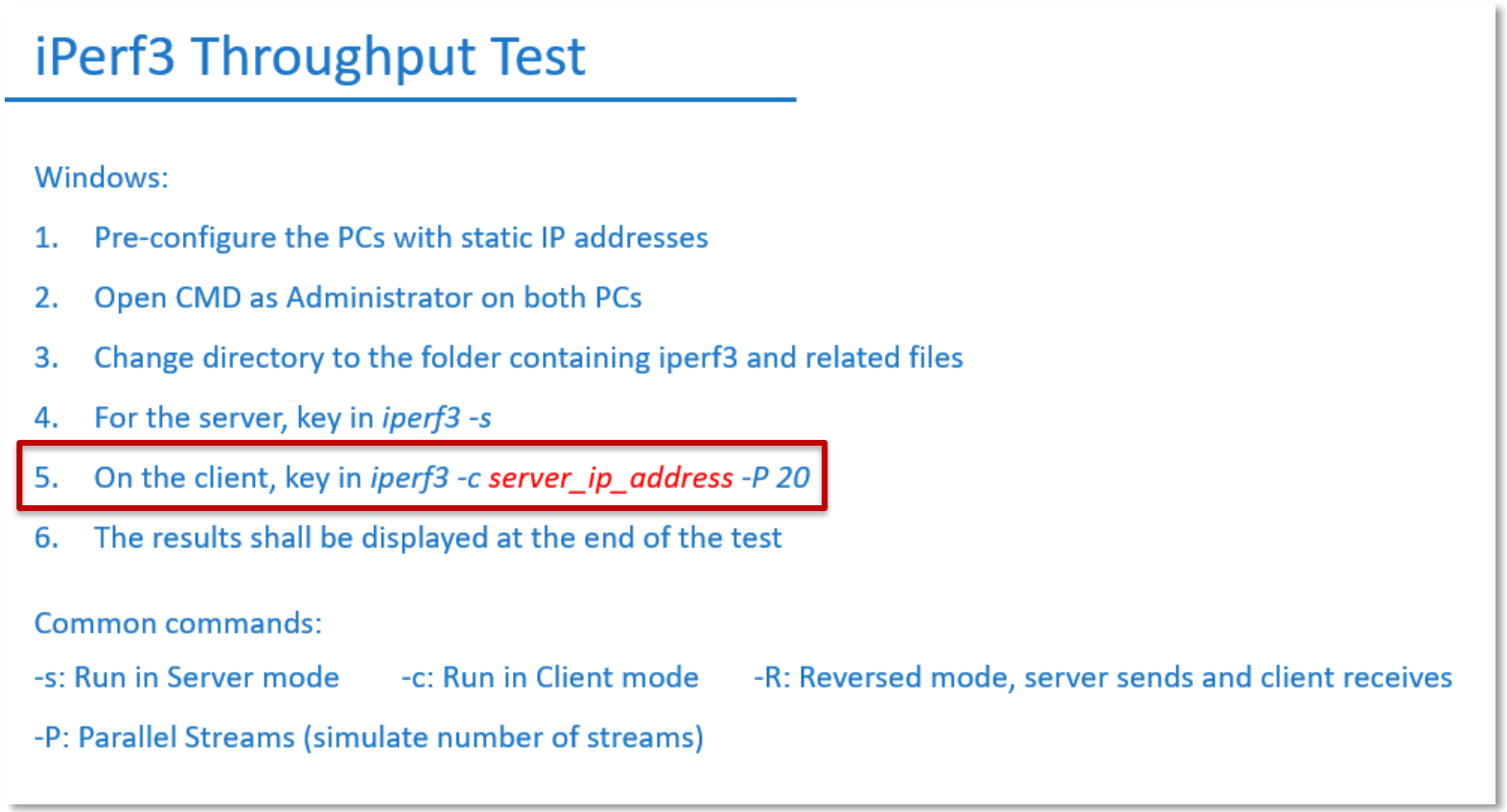


Throughput Test 04

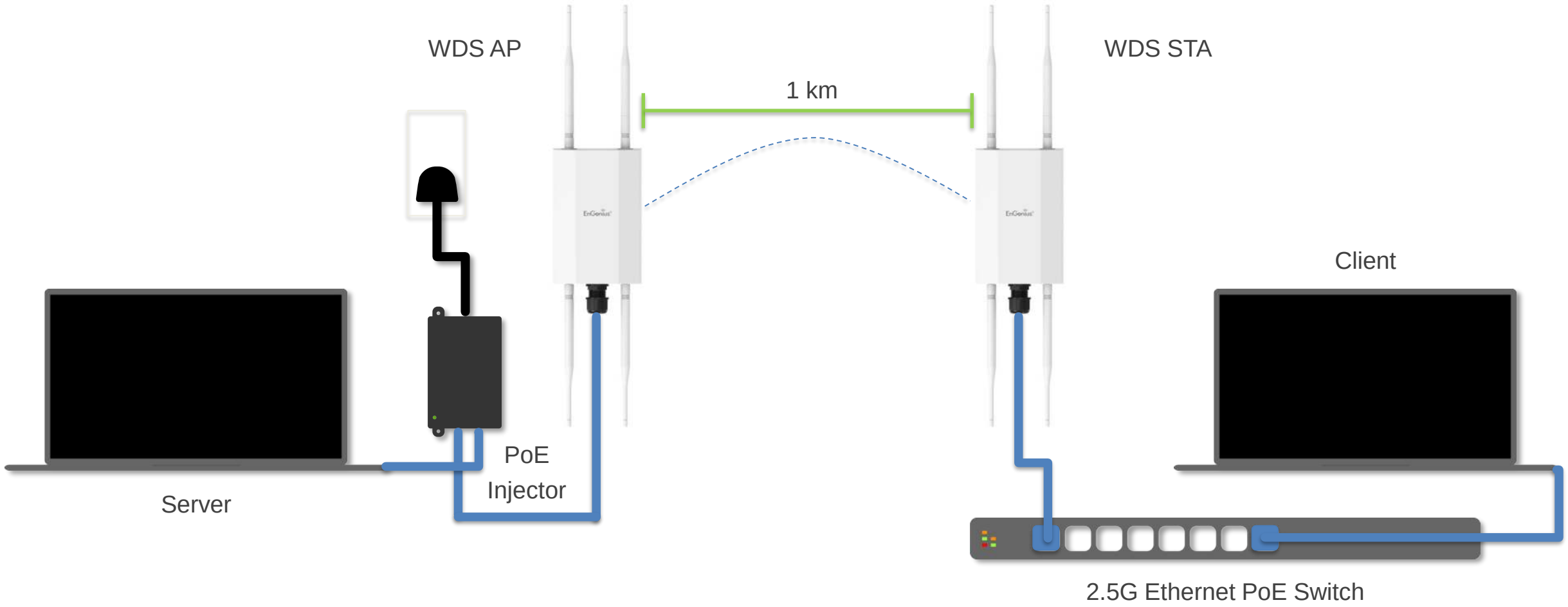

WDS AP
WDS Link
WDS STA
Client
PoE
Injector
Server
2.5G Ethernet PoE Switch

1. Running the same topology, a throughput test may be initiated by utilizing two computers, one acting as a server and the other as a client. Do take note that in order to maximize and get the actual wireless throughput of the **EWS850AP**, the **LAN port** of the server and client device, the **Ethernet cable**, as well as the **PoE switch** you are using, must be capable of delivering **2.5 Gbps**. Otherwise, your throughput test will be capped at **1 Gbps**.

2. When running the throughput test, set **multiple parallel streams** to maximize the bandwidth.



Throughput vs Range Test 05


WDS AP
1 km
WDS STA
Client
PoE
Injector
Server
2.5G Ethernet PoE Switch

Throughput vs Range Test

1. Following the above throughput test parameters, when testing based on the distance, you can expect to reach about the same figures as on the table based on optimum environments with clear **LOS** (line-of-sight).
2. Please share your throughput results to us based on the various distances you have tested.

Distance	RSSI	TX	RX	TX+RX
1 km	-79	205.8	198.7	203.1
500 m	-	-	-	-
250 m	-	-	-	-
100 m	-	-	-	-
50 m	-	-	-	-

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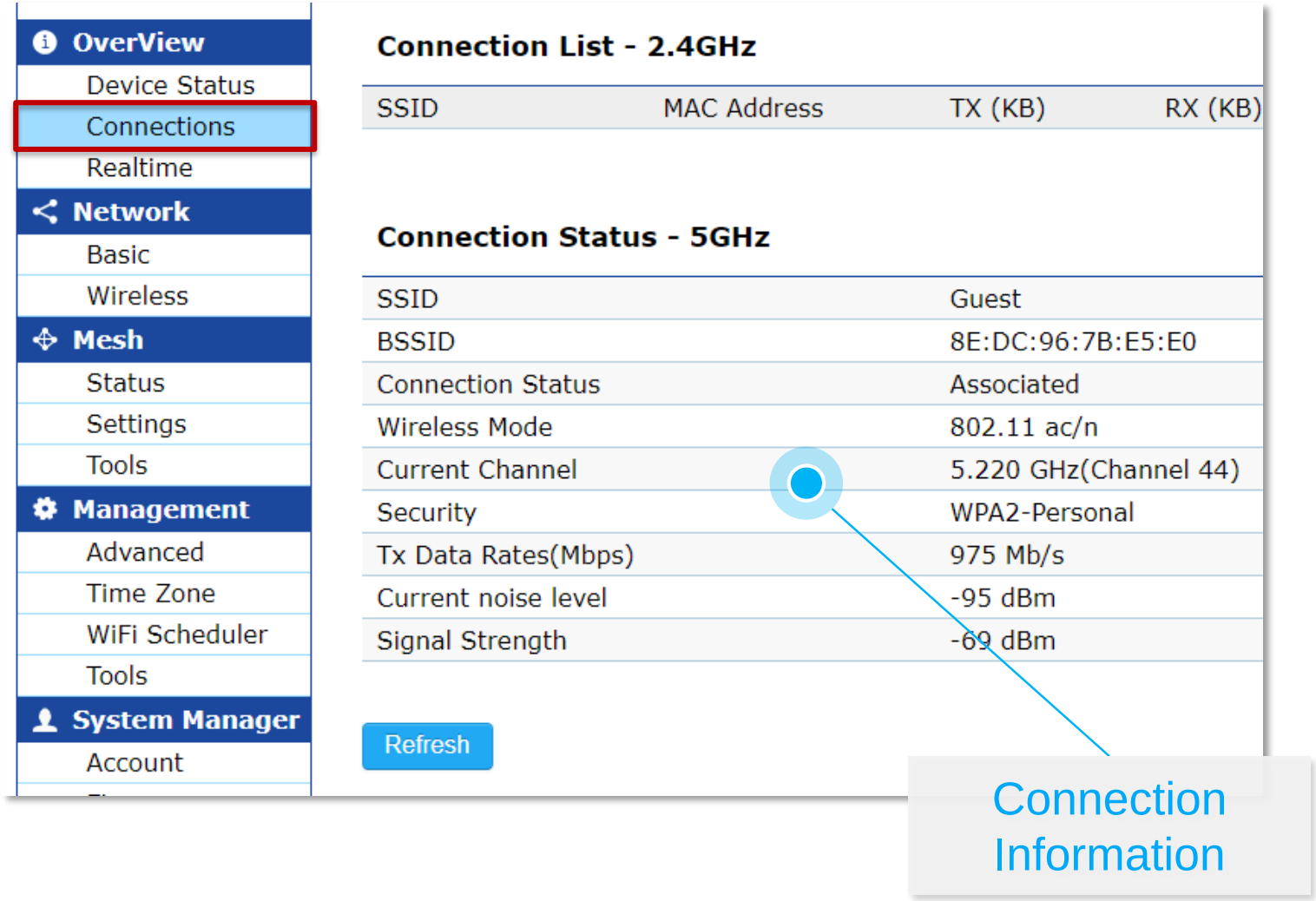
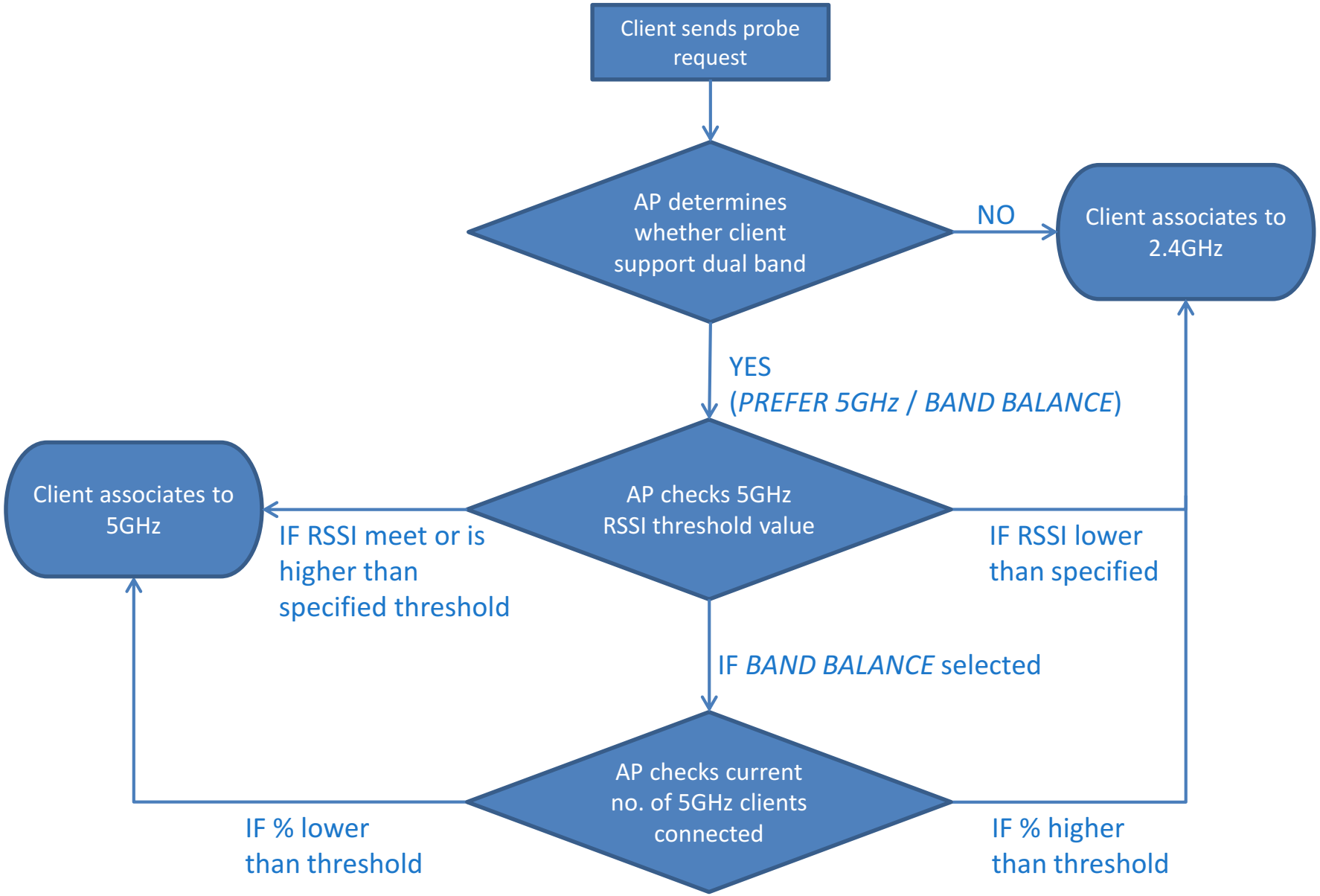
RSSI Test 06

1. The RSSI can also be read under ***Overview>Connections***. The information here will provide you an accurate representation of the RSSI based on what the AP is reading. RSSI measured from the AP itself is more reliable vs client device RSSI readings due to the difference in the transmit power of the chipsets.

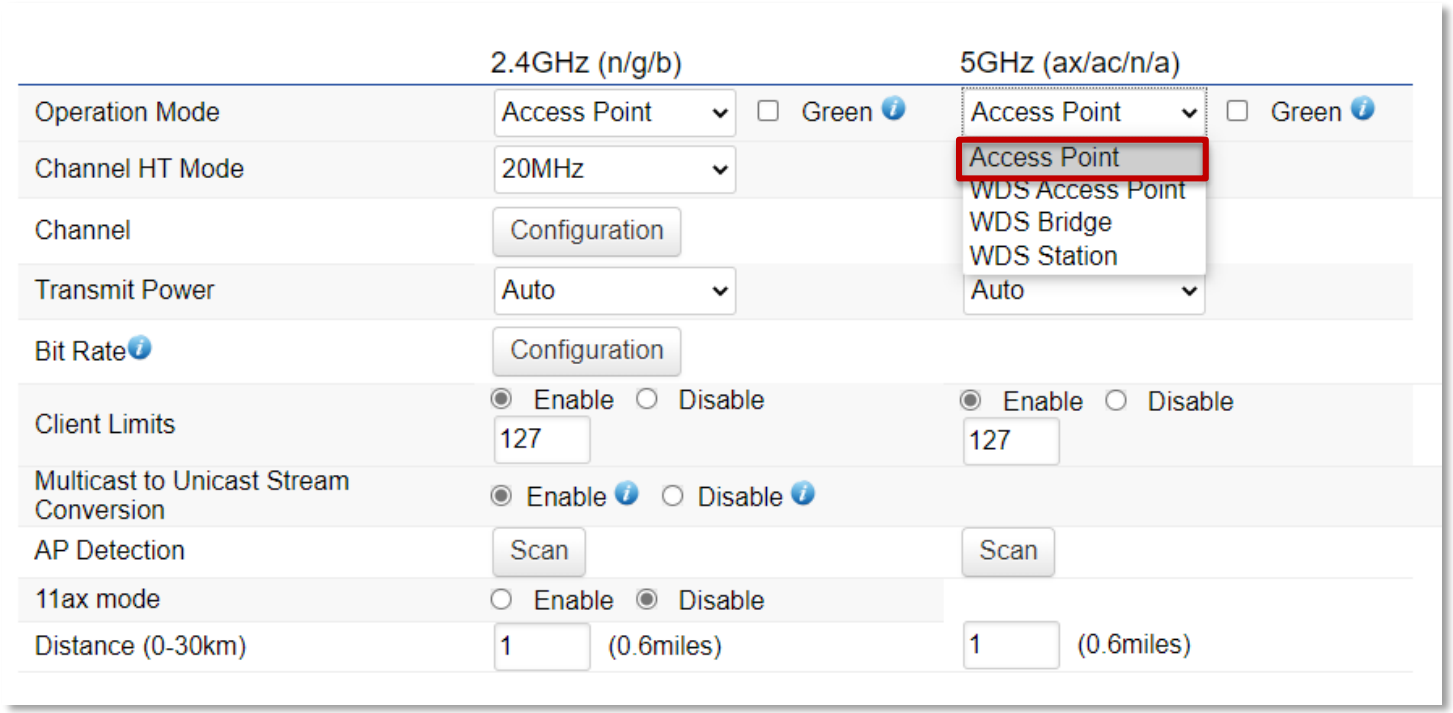


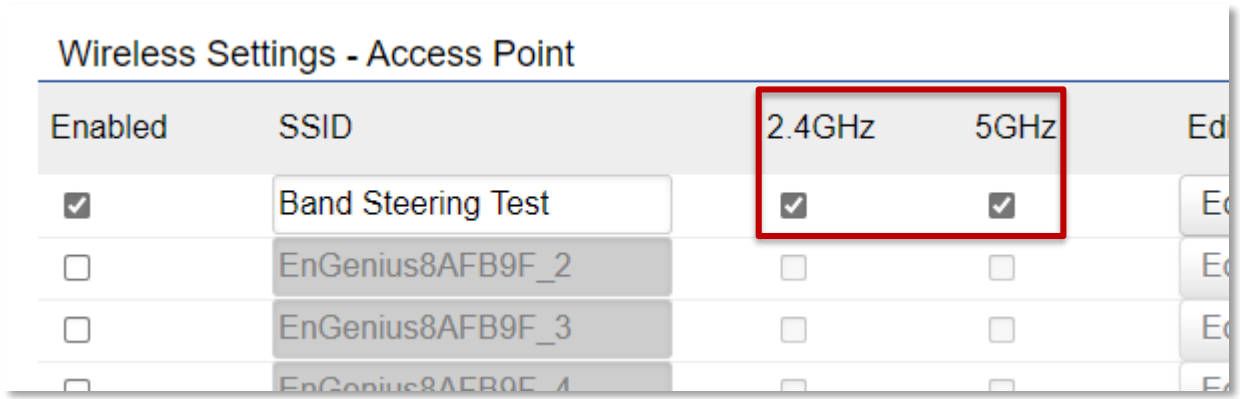
Band Steering 07

Algorithm


Client sends probe request
AP determines whether client support dual band
NO
Client associates to 2.4GHz
YES
(PREFER 5GHz / BAND BALANCE)
AP checks 5GHz RSSI threshold value
Client associates to 5GHz
IF RSSI meet or is higher than specified threshold
IF RSSI lower than specified
IF BAND BALANCE selected
AP checks current no. of 5GHz clients connected
IF % lower than threshold
IF % higher than threshold

1. To proceed with the **band steering** test, the operation mode of the AP must be set to **Access Point**.
2. Ensure that both radios for 2.4 GHz and 5 GHz are enabled, prior to editing the SSID options.





3. You will find the option to enable **Band Steering** under the SSID settings and will be able to select from multiple options:

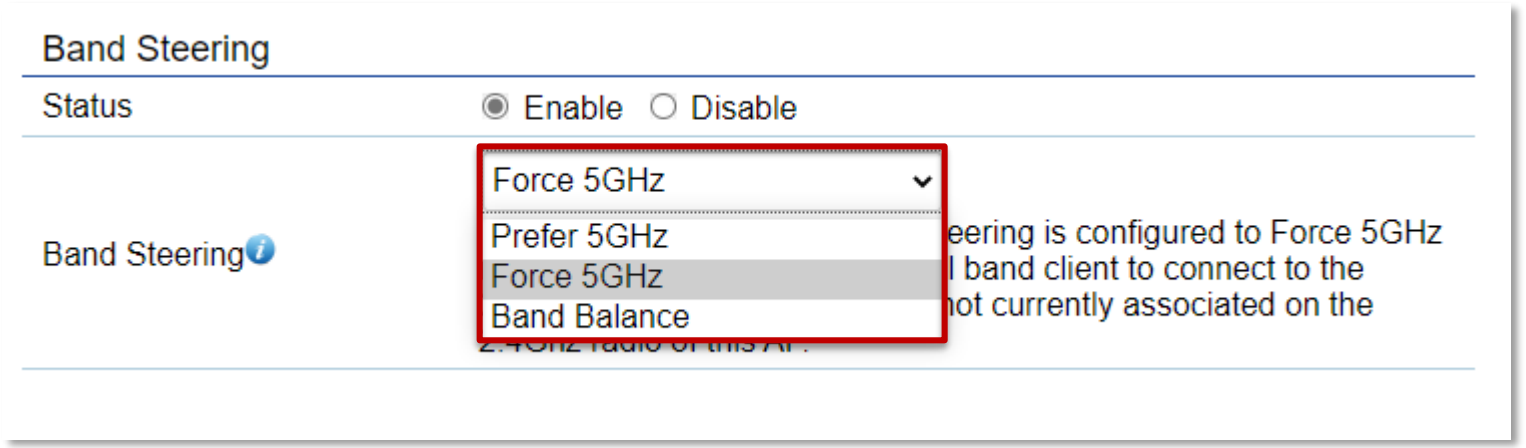
   Force 5G: Client devices connect to 5 GHz so long as they are within range

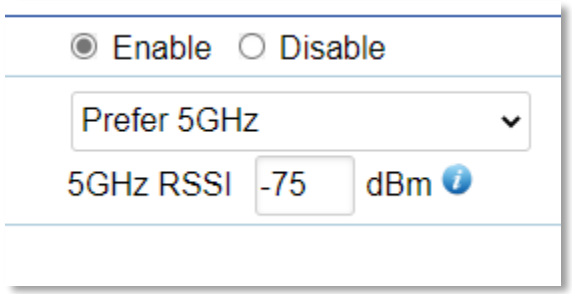
   Prefer 5G: Client devices connect to 5 GHz if they are within the set **RSSI** threshold

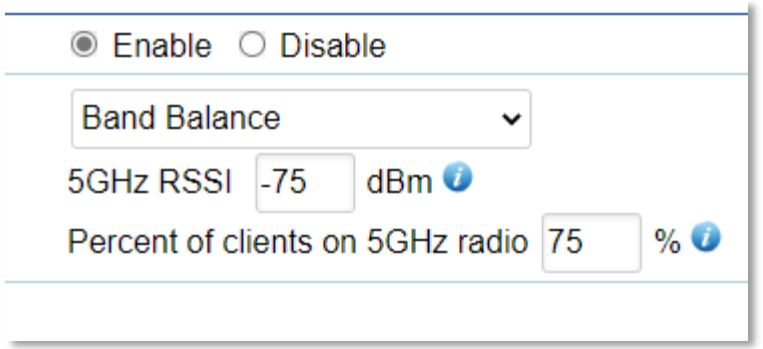
   Band Balance: Client devices connect to 5 GHz if they are within the set **ratio** between both radios

4. Save the settings and apply.

5. Band steering may only be tested with client devices that support **dual band** functionality.



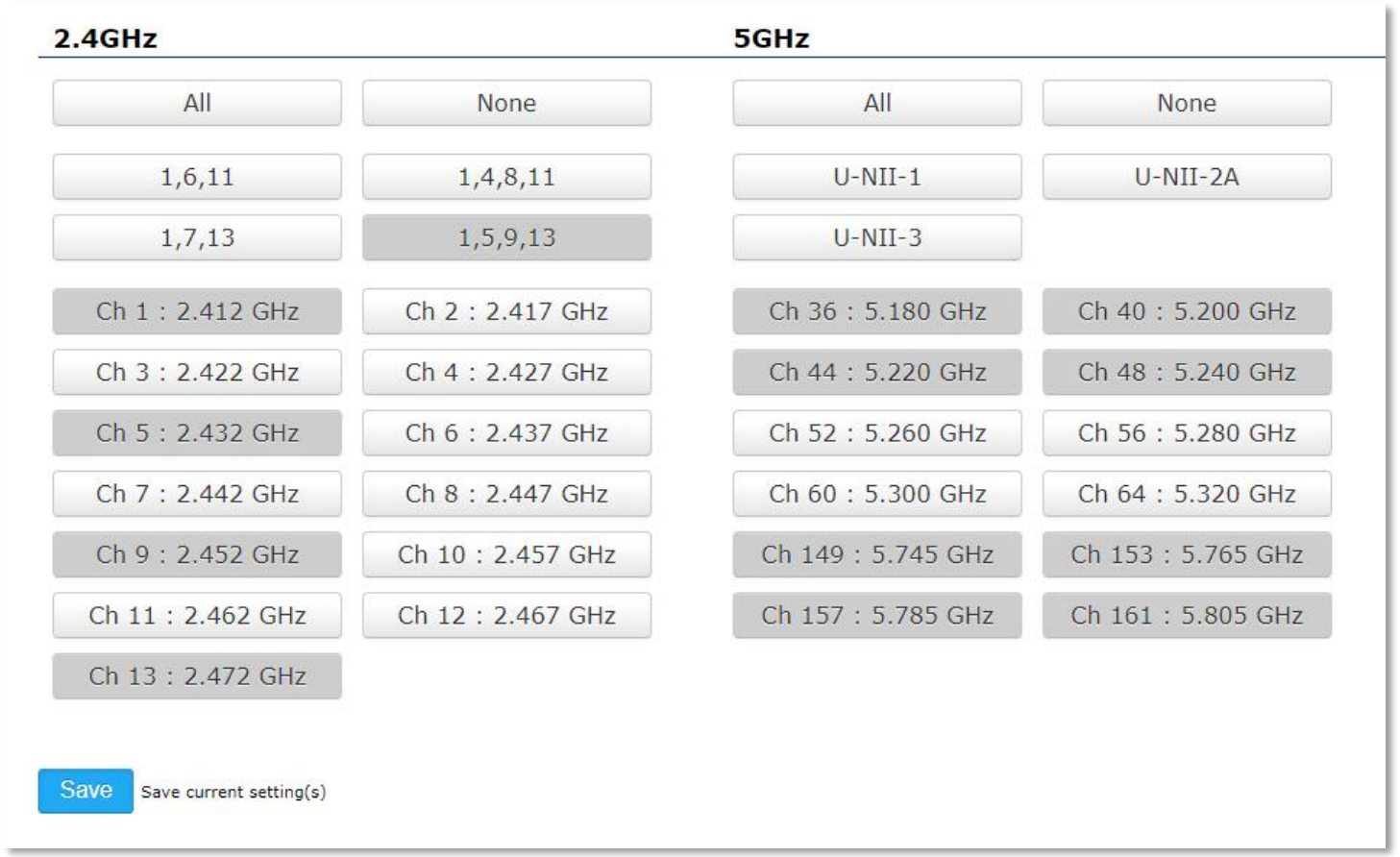




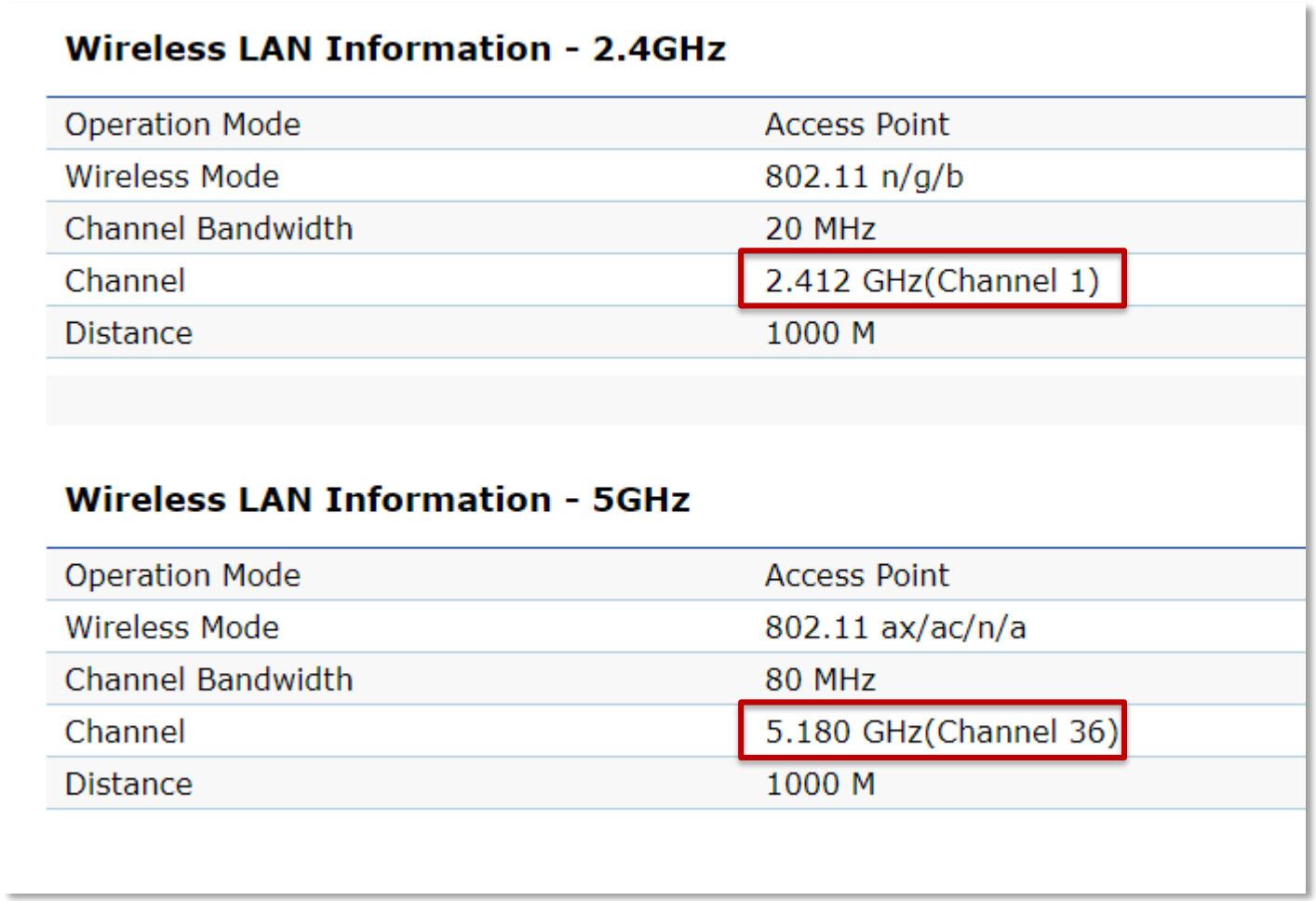
Auto Channel 08

Auto Channel Test

1. In **stand alone mode**, **auto channel** is triggered upon AP boot up. It inspects the best available channel based on interference in the environment.
2. You may pre-set the only channels that the AP will select for auto channel, instead of having the AP pick from the full spectrum. The grayed out channels on the diagram represent which channel the AP will choose from.



3. You may verify the current channel selection of the AP via ***Overview>Device Status*** and scroll down under the **Wireless LAN Information**.



Wireless LAN Information - 2.4GHz

Operation Mode	Access Point
Wireless Mode	802.11 n/g/b
Channel Bandwidth	20 MHz
Channel	2.412 GHz(Channel 1)
Distance	1000 M

Wireless LAN Information - 5GHz

Operation Mode	Access Point
Wireless Mode	802.11 ax/ac/n/a
Channel Bandwidth	80 MHz
Channel	5.180 GHz(Channel 36)
Distance	1000 M

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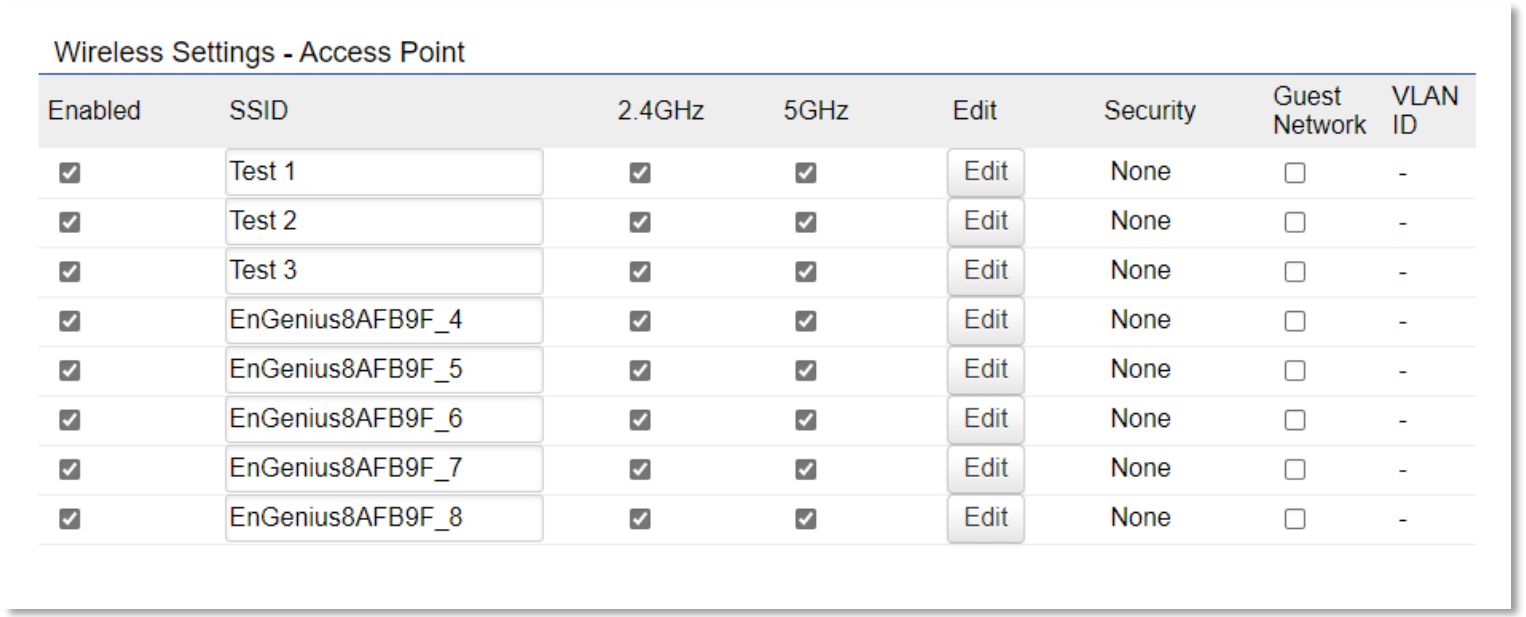
Multiple SSID 09

1. On the same SSID page as the previous tests, you may enable multiple SSID profiles that are independent of each other.
2. Each SSID may have totally different options in terms of: security, radio, VLAN, band steering options, roaming, etc.

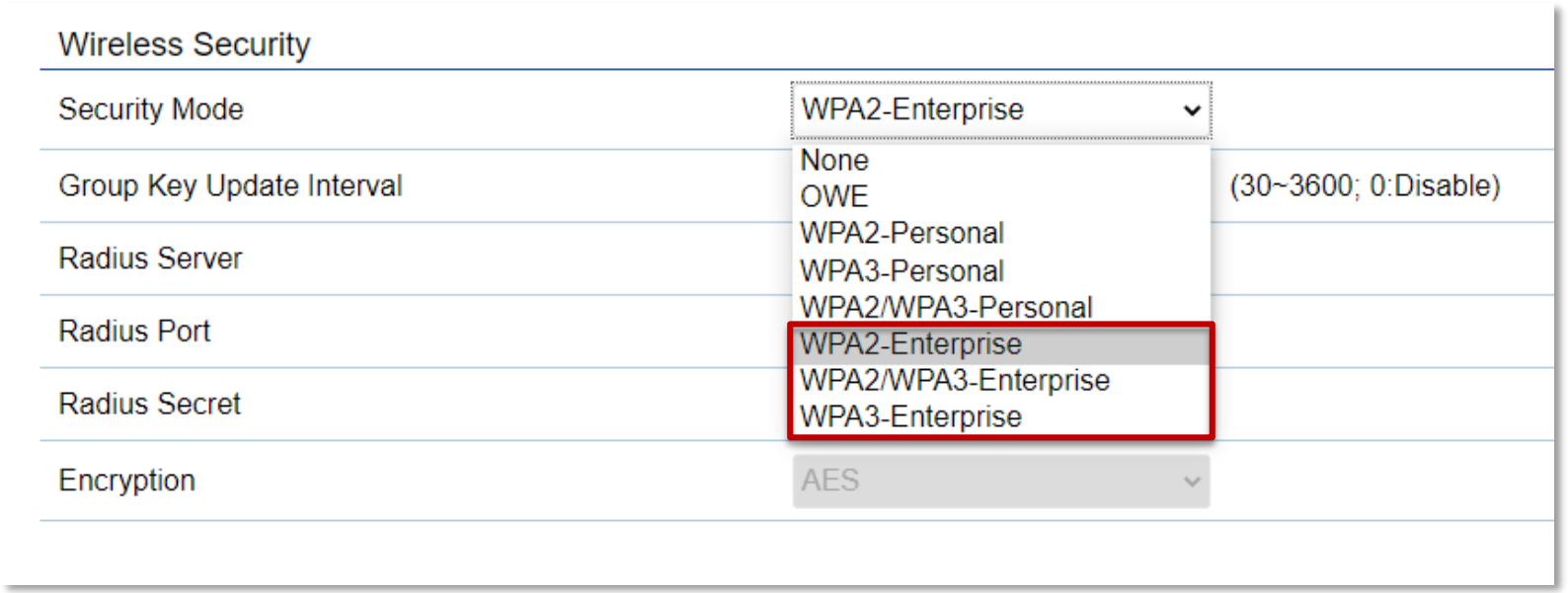


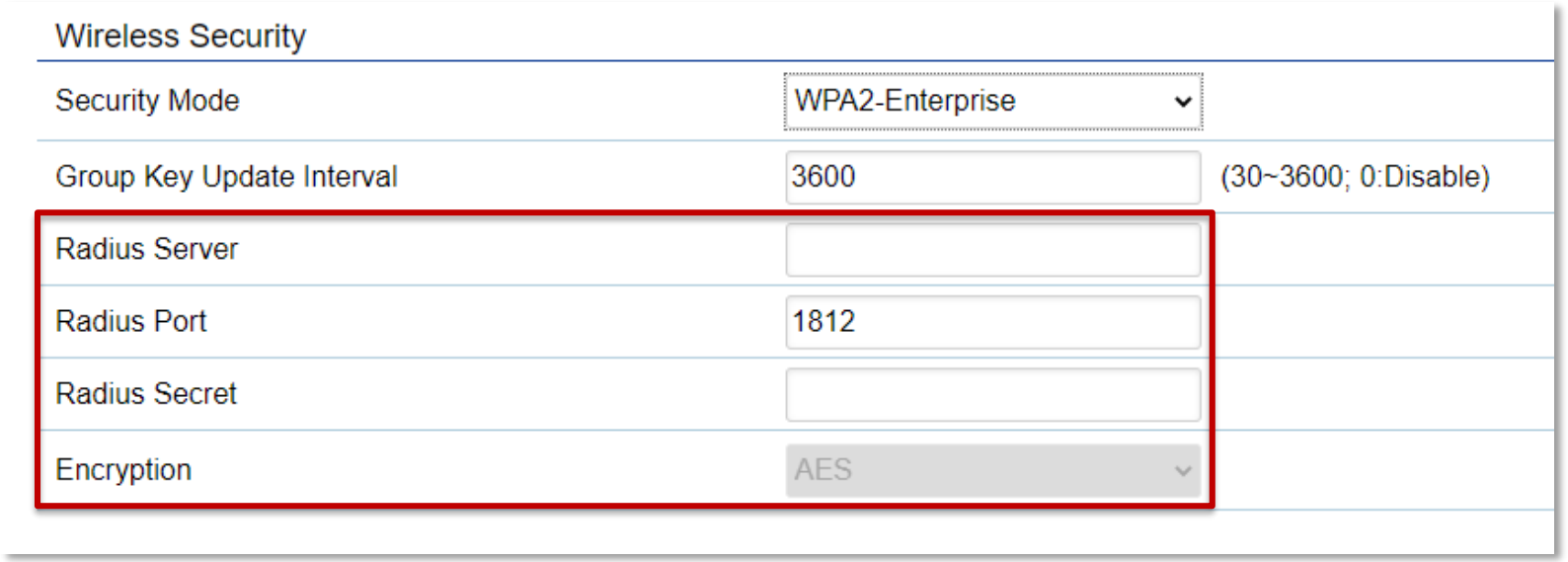
Wireless Settings - Access Point

Enabled	SSID	2.4GHz	5GHz	Edit	Security	Guest Network	VLAN ID
☑	Test 1	☑	☑	Edit	None	☐	-
☑	Test 2	☑	☑	Edit	None	☐	-
☑	Test 3	☑	☑	Edit	None	☐	-
☑	EnGenius8AFB9F_4	☑	☑	Edit	None	☐	-
☑	EnGenius8AFB9F_5	☑	☑	Edit	None	☐	-
☑	EnGenius8AFB9F_6	☑	☑	Edit	None	☐	-
☑	EnGenius8AFB9F_7	☑	☑	Edit	None	☐	-
☑	EnGenius8AFB9F_8	☑	☑	Edit	None	☐	-

RADIUS Authentication (802.1X) 10

1. RADIUS authentication is set by selecting **WPA2/WPA3 Enterprise** options.
2. Upon selecting the security option, proceed with filling in your RADIUS server credentials.
3. After applying the settings, you will be asked to key in a **username** and **password** when you connect to the SSID. The login credentials are the ones stored on your RADIUS server database.





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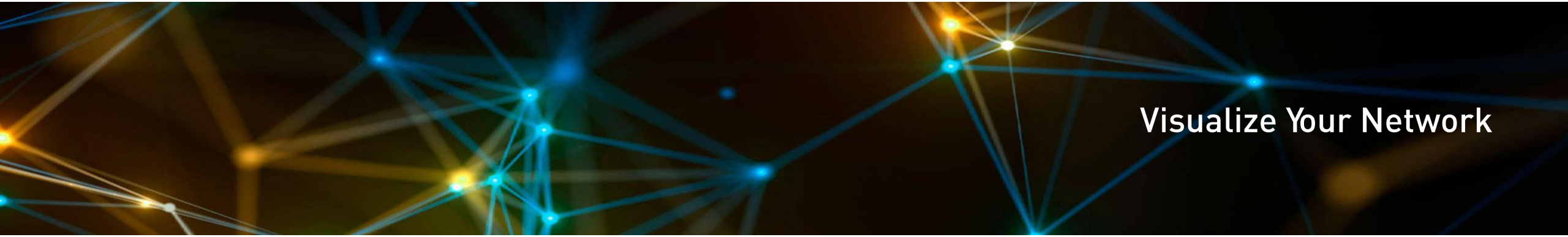
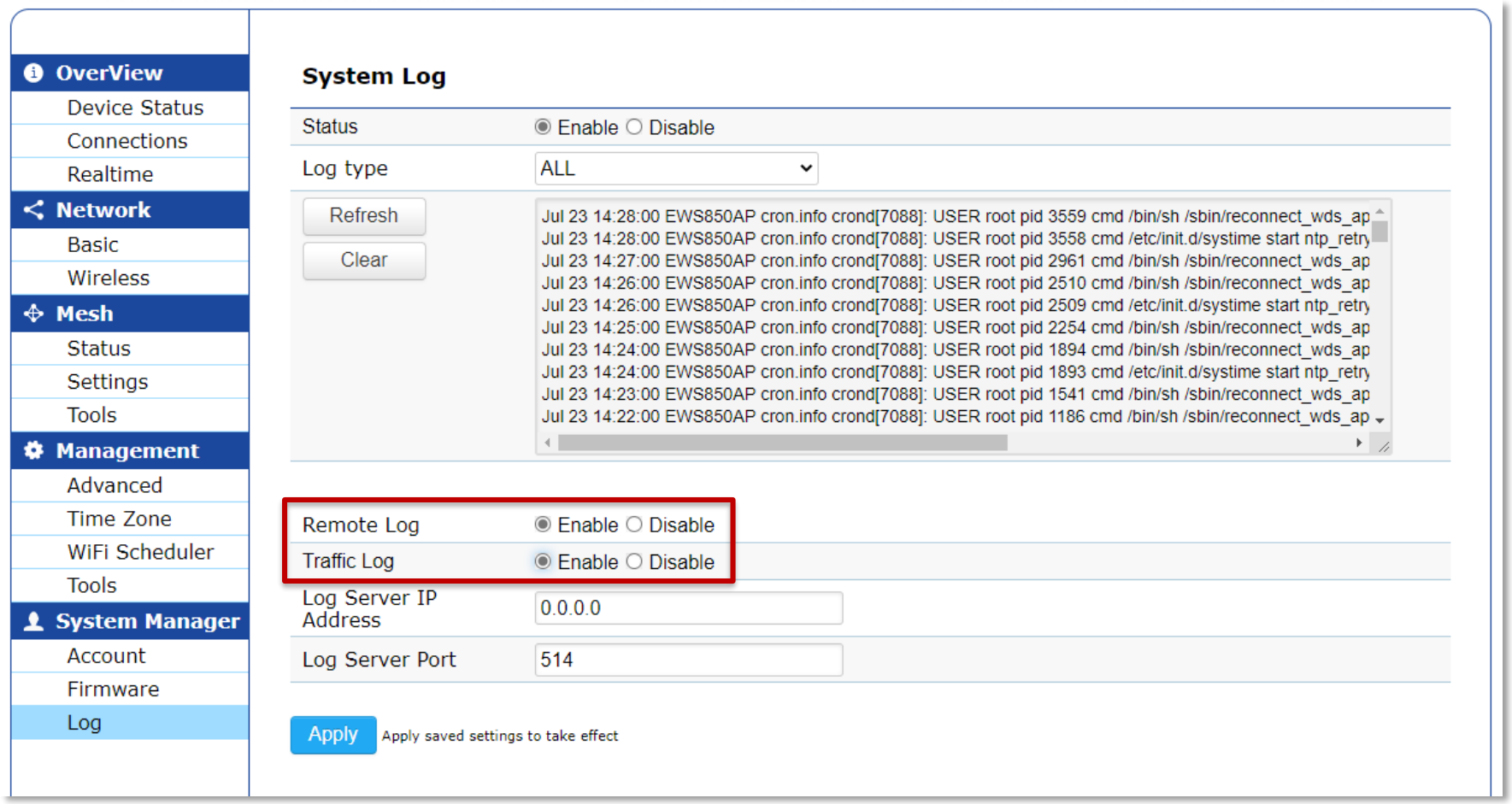
Traffic Logs | 11



1. Traffic Logs can be enabled under ***System Manager>Log*** once remote log has been enabled.

2. The logs will then be redirected to your designated **Syslog Server** which you have to identify. Do take note that enabling **Traffic Log** will impact the performance of the AP depending on the activity level of the clients connected. This can reduce the number of concurrent users as well.



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Unwire the Possibilities