

Grandstream Networks, Inc.

GWN7610 WiFi Access Point

Master/Slave Architecture Guide



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INTRODUCTION

The GWN7610 Wireless Access Point can be deployed in network environment as standalone (using only one GWN7610 to provide wireless network access) or in Master/Slave architecture (using multiple GWN7610 units) to extend wireless network access range.

In Master/Slave configuration, a unique/chosen GWN7610 acts as master/controller and can manage up to 50 other GWN7610 considered as slaves. Note that master GWN7610 can act as controller and can also be member of network group(s).

This guide covers Master/Slave architecture mode giving steps to successfully configure GWN7610 access points in your network environment; including steps to discover and pair GWN7610 units, create and manage network groups and SSIDs.

The figure below shows a sample setup of master GWN7610 with different slave units, and different connected Wi-Fi clients GWN7610 through different SSIDs defined in network groups.

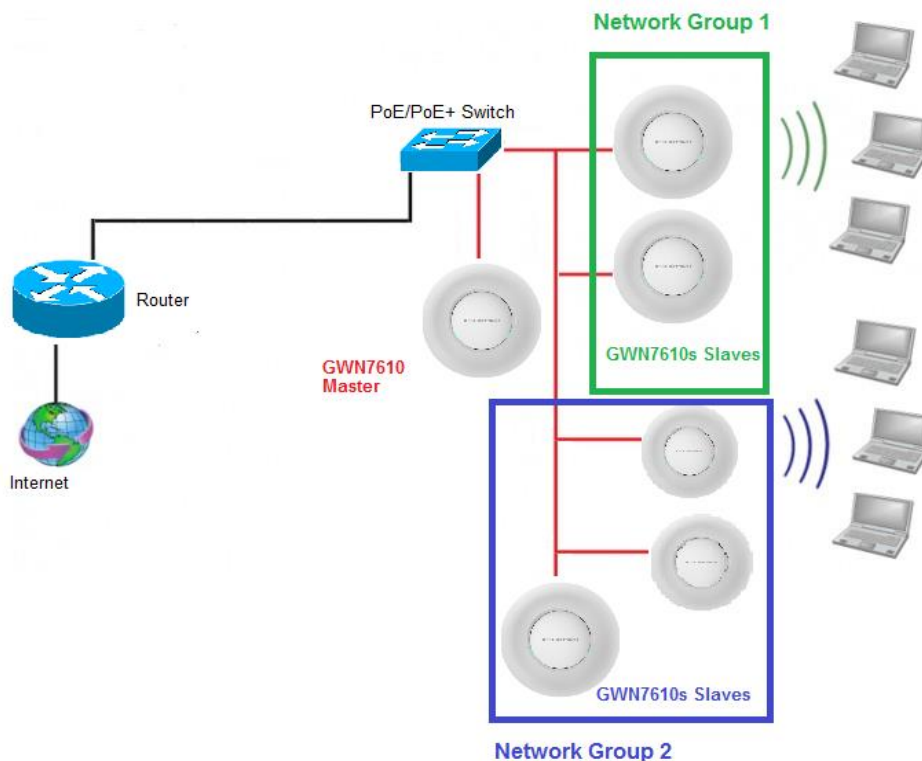


Figure 1: GWN7610s Setup sample



DISCOVER AND PAIR GWN7610 ACCESS POINTS

In this guide, we will consider an environment where different GWN7610 access points are installed, one of them will be Master over the remaining ones (Slaves) as shown in Figure 1.

To set a GWN7610 as Master, we need to access to its web interface by discovering it first on the network.

The following chapter describes two methods how to discover a GWN7610 connected to network and configure it as Master.

Discover GWN7610

Once the GWN7610 is powered up and connected to the network correctly, users can discover the GWN7610 using one of the following methods:

Method 1: Discover GWN7610 using its MAC address

1. Locate the MAC address on the MAC tag of the unit, which is on the underside of the device, or on the package.
2. From a computer connected to same network as the GWN7610, type in the following address [https://gwn_\[MAC_address\].local/](https://gwn_[MAC_address].local/) using the GWN7610's MAC address on your browser.

For example, if a GWN7610 has the MAC address **00:0B:82:8B:4E:28**, this unit can be accessed by typing https://gwn_000b828b4e28.local/ on the browser.

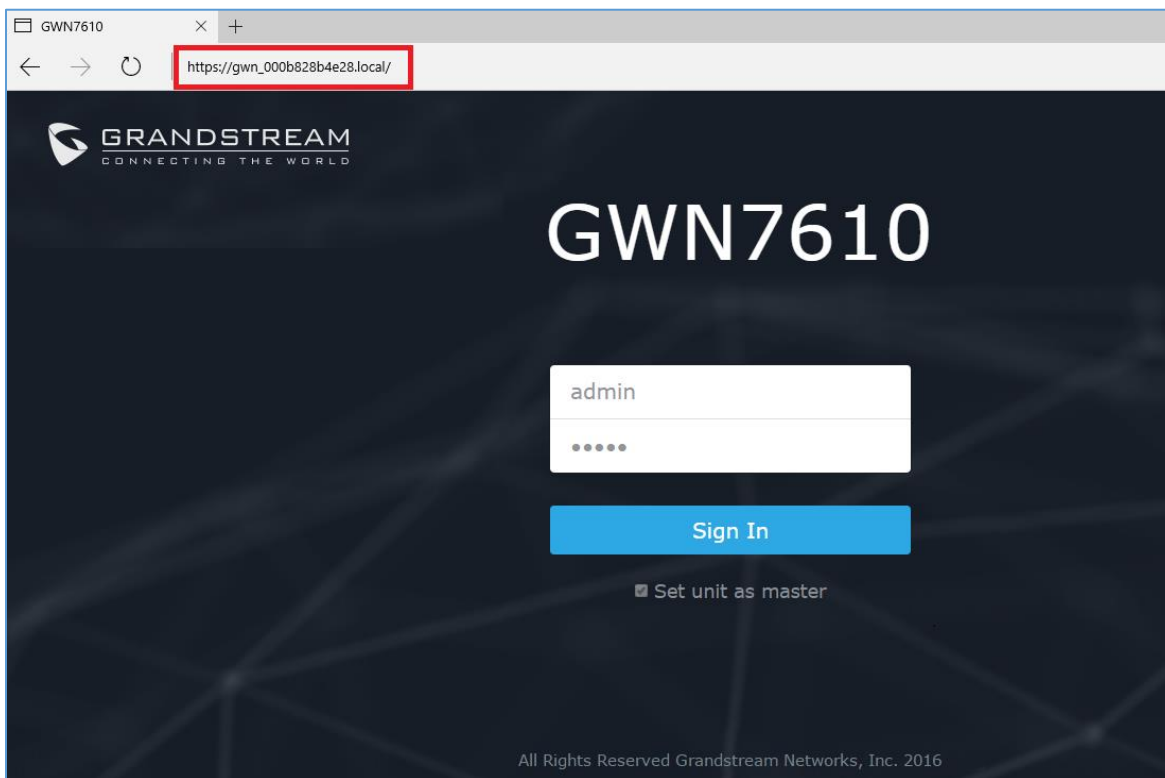


Figure 2: Discover the GWN7610 using its MAC Address



Method 2: Discover GWN7610 using GWN Discovery Tool

1. Download and install **GWN Discovery Tool** from the following link:
<http://www.grandstream.com/support/tools>
2. Open the “GWN Discovery Tool”, click on **Select** to define the network interface, then click on **Scan**.
3. The tool will discover all GWN7610 Access Points connected on the network showing their MAC, IP addresses and firmware version.
4. Click on **Manage Device** to be redirected directly to the GWN7610's configuration interface, or type in manually the displayed IP address on your browser.

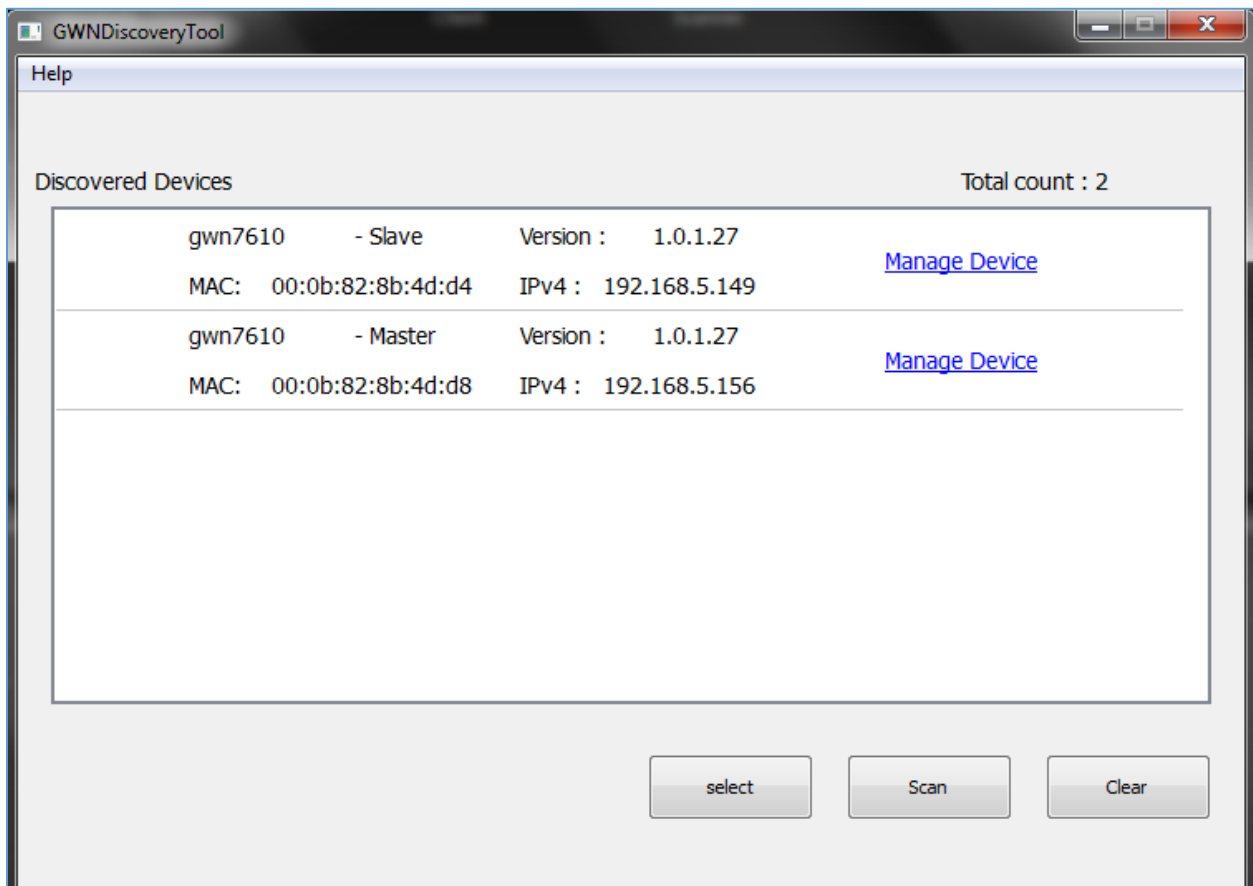


Figure 3: GWN Discovery Tool

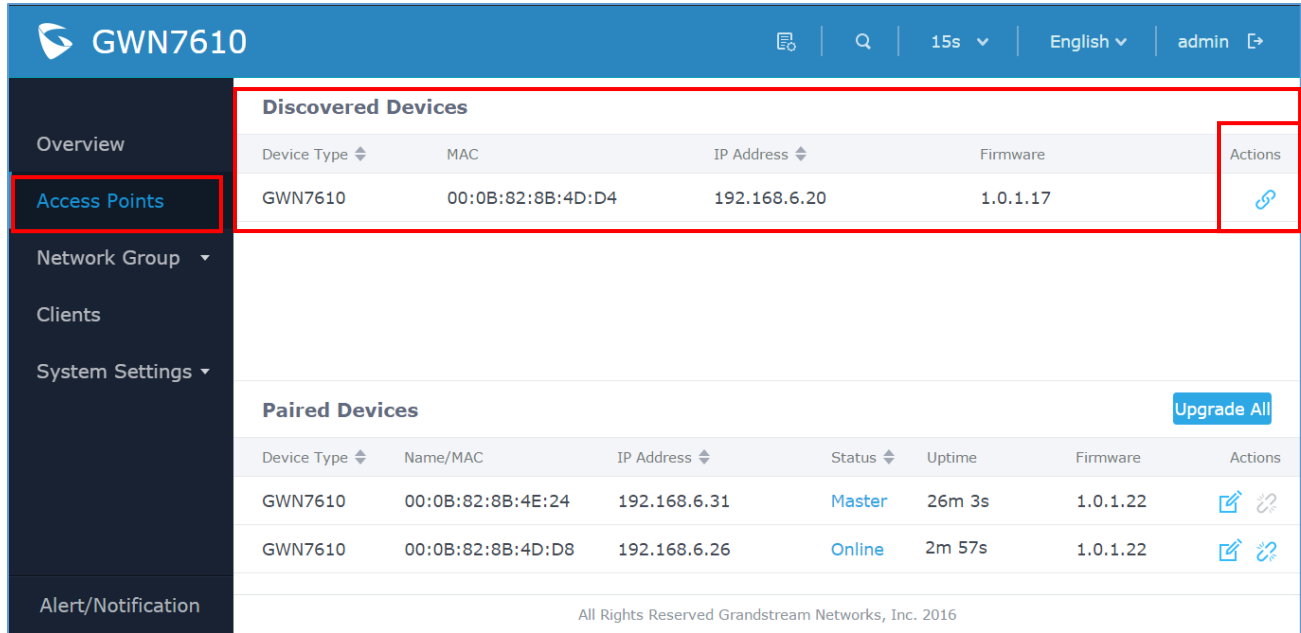
Note: By login into GWN7610 web GUI successfully using admin credentials for the first time or after factory reset, master mode will be enabled automatically.



Pair Slave GWN7610 Access Points

To pair a GWN7610 access points (slaves) connected to the same network as the Master GWN7610 follow the below steps:



1. Connect to the GWN7610 web GUI as Master and go to **Access Points**.



| Device Type | MAC | IP Address | Firmware | Actions |
|-------------|-------------------|--------------|----------|---------|
| GWN7610 | 00:0B:82:8B:4D:D4 | 192.168.6.20 | 1.0.1.17 | |

| Device Type | Name/MAC | IP Address | Status | Uptime | Firmware | Actions |
|-------------|-------------------|--------------|--------|--------|----------|---------|
| GWN7610 | 00:0B:82:8B:4E:24 | 192.168.6.31 | Master | 26m 3s | 1.0.1.22 | |
| GWN7610 | 00:0B:82:8B:4D:D8 | 192.168.6.26 | Online | 2m 57s | 1.0.1.22 | |

Figure 4: Discover and Pair GWN7610

2. Under **Discovered Devices** section, select a discovered GWN7610 and click on pair icon  under **Actions**.
3. The paired GWN7610 will appear online, users can click on  to unpair it.

| | | | | | | |
|---------|-------------------|--------------|--------|------------|----------|--|
| GWN7610 | 00:0B:82:8B:4D:D8 | 192.168.1.24 | Online | 18h 37m 2s | 1.0.1.17 | |
|---------|-------------------|--------------|--------|------------|----------|--|

Figure 5: Slave GWN7610 Online


Users can click on  next to Master or paired access point to check device configuration including its status, connected users and configuration. Refer to below table for Device Configuration tabs.

Table 1: Device Configuration

| | |
|----------------------|--|
| Status | Shows the device's status information such as firmware version, IP address, link speed, uptime and users count via different Radio channels. |
| Users | Shows the connected users to the GWN7610 access point. |
| Configuration | <ul style="list-style-type: none"> • Device Name: Set GWN7610's name to be shown next to MAC address. • Fixed IP: Set a static IP for the GWN7610, default is unchecked. |



- **Frequency:** Set the GWN7610's frequency, it can be either 2.4GHz, 5GHz or Dual-band.
- **Enable Band Steering:** When Frequency is set to Dual-Band, users can check this option to enable Band Steering on the Access Point, this will help redirecting clients to a radio band accordingly for efficient use and to benefit from the maximum throughput supported by the client.
- **Mode:** Choose the mode for the frequency band, 802.11n/g/b for 2.4Ghz and 802.11ac for 5Ghz.
- **Channel Width:** Choose the channel width.
- **40MHz Channel Location:** Configure the 40MHz channel location.
- **Channel:** Select Auto, or a specified channel, default is Auto.
- **Enable Short Guard Interval:** Check to activate this option to increase throughput.
- **Active Spatial Streams:** Choose active spatial stream if Auto, 1, 2 or 3 streams.
- **Radio Power:** Set the Radio Power, it can be Low, Medium or High.
- **Disable Beam Forming:** Check to disable beam forming to broadcast the signal to a wide area.
- **Reboot Device:** Reboot the access point.
- **Upgrade Device Firmware:** Upgrade the access point's firmware.

Note:

If a GWN7610 is not being paired or pair icon is grayed, make sure that it is not already paired with another GWN7610 Master Access Point. If yes, users will need to unpair it first, or reset it to factory default settings in order to make it available for pairing by other GWN7610 Access Point Controller.



CREATE AND MANAGE NETWORK GROUPS

After creating Master/Slave architecture using deployed GWN7610 access points, users can create different Network Groups on the Master GWN7610 and select specific GWN7610 Slave Access Points as members in the Network Group.

i

Information

Network Group:
 Each set of devices communicating directly with each other is called a Basic Service Set (BSS). Several BSSs can be joined together to form one logical WLAN segment, referred to as an Extended Service Set (ESS). A GWN7610 group is an Extended Service Set. A Group also can contain different SSIDs.

SSID:
 A Service Set Identifier (SSID) is the name given to each ESS. It is also the primary name associated with an 802.11 wireless local area network (WLAN) including home networks and public hotspots. Client devices use this name to identify and join wireless networks. SSIDs are case-sensitive text strings. The SSID is a sequence of alphanumeric characters (letters or numbers) with a maximum length of 32 characters.

The following steps show how to create and manage network groups:

1. Login to the Master GWN7610 AP web GUI and navigate to **Network Group->Network Group**.

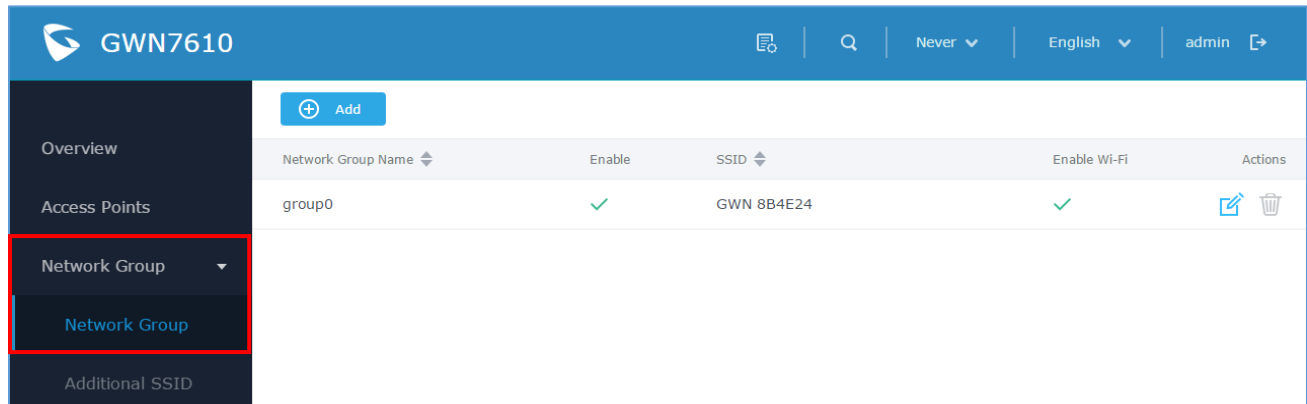




Figure 6: Network Group

2. The GWN7610 has a default network group named **group0** (enabled by default). Click on  to edit it, or click on  to add a new network group if needed.



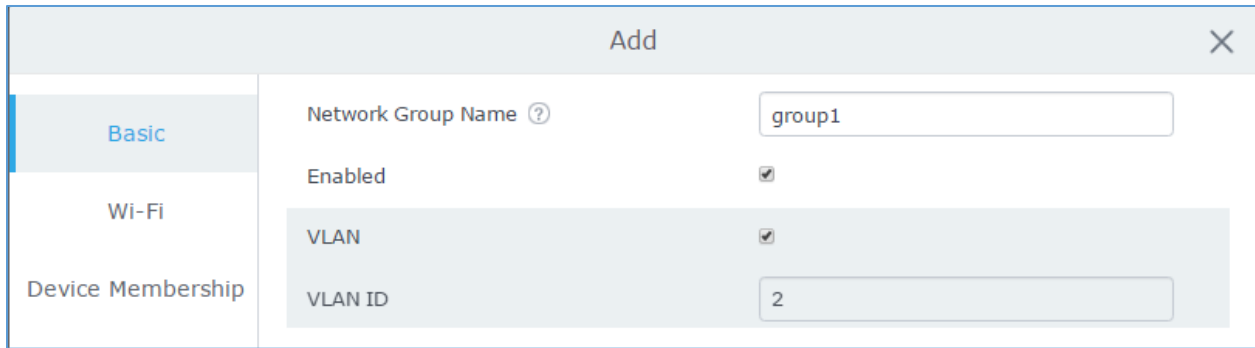


Figure 7: Add a New Network Group

Notes:

A network group can be formed by one or multiple GWN7610 access points (including slave GWN7610). Each network group can have a unique or different SSIDs (up to 16). A slave access point can be member of different network groups.

GWN7610 doesn't support DHCP server and cannot assign IP addresses to devices. GWN7610 acts only as a relay of the router connected to it.

Network Group & SSID Configuration

Network group configuration is available when editing or adding a new network group. The configuration is arranged in 3 tabs including Basic, Wi-Fi and Device Membership.

- **Basic:** This tab allows to define a name to identify the network group, enable or disable VLAN, and specify VLAN ID for the group.

Table 2: Network Group Settings – Basic

| | |
|---------------------------|---|
| Network Group Name | Defines a name for the network group. |
| Enabled | Enables/disables a network group. Group0 is by default enabled. |
| VLAN | Enables/disables VLAN setting. |
| VLAN ID | Set VLAN ID when VLAN option is enabled. |

Note: “Enabled”, “VLAN” and “VLAN ID” options are available for created network groups only.

- **Wi-Fi:** This tab contains all Wi-Fi settings to be used by the group, including definition of SSID, security mode, MAC filtering...

Table 3: Network Group Settings – Wi-Fi

| | |
|---------------------|--|
| Enable Wi-Fi | Check to enable Wi-Fi for the network group. |
| SSID | Set or modify the SSID name. |
| SSID Hidden | Select to hide SSID. If checked, SSID will not be visible when scanning for Wi-Fi, to connect a device to hidden SSID, users need to specify SSID name and authentication password manually. |



| | |
|----------------------------|---|
| Security Mode | <p>Set the security mode for encryption, 5 options are available:</p> <ul style="list-style-type: none"> • WEP 64-bit: Using a static WEP key. The characters can only be 0-9 or A-F with a length of 10, or printable ASCII characters with a length of 5. • WEP 128-bit: Using a static WEP key. The characters can only be 0-9 or A-F with a length of 26, or printable ASCII characters with a length of 13. • WPA/WPA2: Using “PSK” or “802.1x” as WPA Key Mode, with “AES” or “AES/TKIP” Encryption Type. • WPA2: Using “PSK” or “802.1x” as WPA Key Mode, with “AES” or “AES/TKIP” Encryption Type. Recommended configuration for authentication. • Open: No password is required. Users will be connected without authentication. Not recommended for security reasons. |
| Use MAC Filtering | <p>Choose Blacklist/Whitelist to specify MAC addresses to be excluded/included from connecting to the Wi-Fi zone. Default is Disabled.</p> |
| Client Isolation | <p>Choose if client isolation will be enabled in order to forbid wireless clients connected to the zone's Wi-Fi from seeing each other.</p> |
| Gateway MAC Address | <p>Type in the Gateway's MAC address if available.</p> |
| RSSI Enabled | <p>Check to enable RSSI function.</p> |
| Minimum RSSI (dBm) | <p>Enter the minimum RSSI value in dBm. If the signal value is smaller than the configured minimum value, the client will be disconnected. The input range is from “-94” to “-1”.</p> |



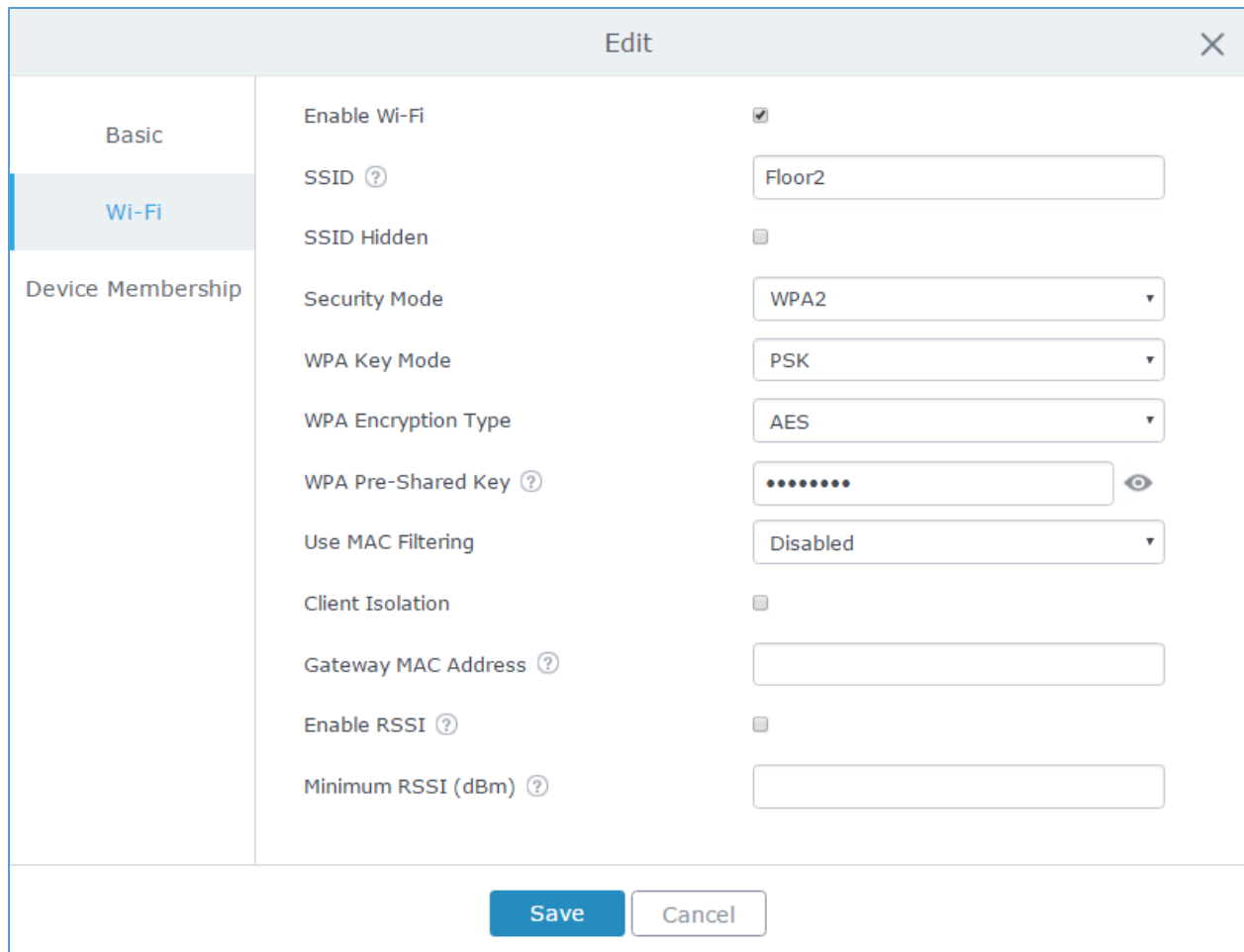


Figure 8: Wi-Fi Settings

- **Device Membership:** This tab lists available devices previously paired and allows to define slave WN7610 access points as members of the network group.

Click on → to add a paired GWN7610 to the network group, or click on ← to remove it.

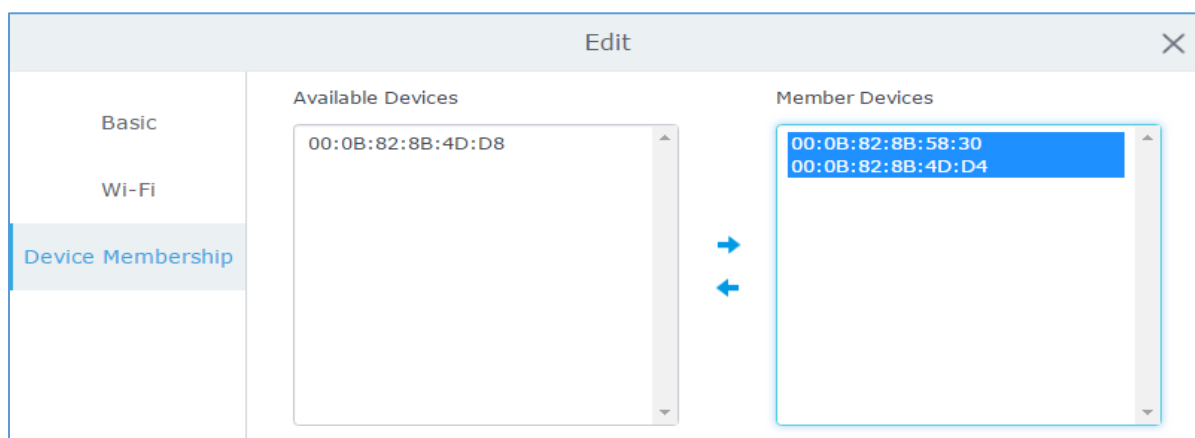


Figure 9: Device Membership



Additional SSID

Additional SSID allows users to create multiple SSIDs under the same group including one or multiple GWN7610 access points.

If configured, different SSID will be available for devices within nearest GWN7610 access points range under the same network group.

1. To create an additional SSID go to **Network Group->Additional SSID**

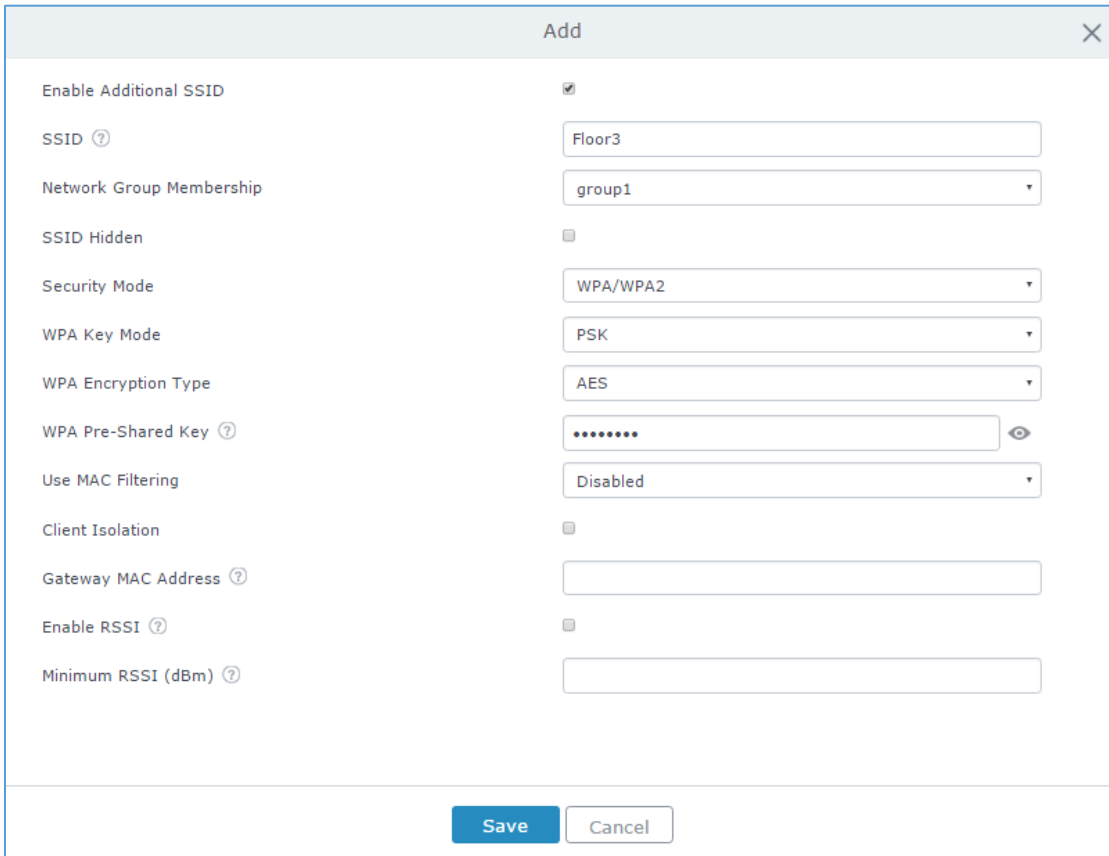


Figure 10: Additional SSID

2. Select one of the available network groups from **Network Group Membership** dropdown menu. This will create an additional SSID with the same Device Membership configured when creating the main network group.





| SSID | Enabled | Network Group | Hidden | Security Mode | MAC Filtering | Client Isolat... | RSSI | Actions |
|--------|---------|---------------|--------|---------------|---------------|------------------|------|---|
| Floor3 | ✓ | group1 | ✗ | WPA/WPA2 | Disabled | ✗ | ✗ |   |

Figure 11: Additional SSID Created

3. Click on  to delete the additional SSID, or  to edit it.

Note: The GWN7610 supports up to 16 SSID. Users can create SSIDs under different groups or on the same group within this limit.

