Grandstream Networks, Inc.

GWN Management Platforms
User Guide

WELCOME

Thank you for using the Grandstream GWN Management Platform.

GWN Management Platforms are enterprise-grade Wi-Fi network management platforms that offer centralized, streamlined network management and monitoring. This includes GWN.Cloud, the cloud-based platform, and the GWN Manager which is a Linux-based platform and GWN App for Android and iOS. It allows businesses to deploy a secure Wi-Fi network in seconds and manage these networks across multiple locations through a web user interface. Users can keep an eye on the network's performance with real-time monitoring, alerts, statistics, and reports that can be viewed using a web browser or a mobile application. Support unified management for different types of GWN devices (Router, Switches, AP) in one network and SDN design, to make the network management more simple, and user-friendly.

REQUIREMENTS

The following tables show the requirements of Grandstream networking products including GWN Access Points, GWN Routers, GWN Switches, and GWN App versions (Android and iOS) for GWN Management Platforms (GWN.Cloud & GWN Manager):

- **GWN Access Points: minimum and recommended version**

Model	Minimum	Recommended
GWN7600	1.0.15.20	1.0.25.10
GWN7600LR	1.0.15.20	1.0.25.10
GWN7602	1.0.15.20	1.0.25.10
GWN7605	1.0.15.18	1.0.25.10
GWN7605LR	1.0.15.18	1.0.25.10
GWN7610	1.0.15.18	1.0.25.10
GWN7615	1.0.15.18	1.0.25.10
GWN7624	1.0.21.5	1.0.25.10
GWN7625	1.0.21.5	1.0.25.10
GWN7630	1.0.15.20	1.0.25.10
GWN7630LR	1.0.15.20	1.0.25.10
GWN7660	1.0.19.4	1.0.25.10
GWN7660LR	1.0.19.4	1.0.25.10
GWN7661	1.0.23.26	1.0.25.10
GWN7662	1.0.23.27	1.0.25.10

GWN7664	1.0.21.4	1.0.25.10
GWN7664LR	1.0.23.4	1.0.25.10

AP minimum and recommended version

- **GWN Routers: minimum and recommended version**

Model	Minimum	Recommended
GWN7001	1.0.1.6	1.0.5.30
GWN7002	1.0.1.6	1.0.5.30
GWN7003	1.0.1.6	1.0.5.30
GWN7052	1.0.5.34	1.0.9.34
GWN7052F	1.0.5.4	1.0.9.34
GWN7062	1.0.5.34	1.0.9.34

Router minimum and recommended version

- **GWN Switches: minimum and recommended version**

Model	Minimum	Recommended
GWN7801	1.0.3.19	1.0.3.37
GWN7801P	1.0.3.19	1.0.3.37
GWN7802	1.0.3.19	1.0.3.37
GWN7802P	1.0.3.19	1.0.3.37
GWN7803	1.0.3.19	1.0.3.37
GWN7803P	1.0.3.19	1.0.3.37
GWN7806	1.0.1.14	1.0.1.14
GWN7806P	1.0.1.14	1.0.1.14
GWN7811	1.0.1.8	1.0.1.20
GWN7811P	1.0.1.8	1.0.1.20
GWN7812P	1.0.1.8	1.0.1.20
GWN7813	1.0.1.8	1.0.1.20
GWN7813P	1.0.1.8	1.0.1.20

GWN7816	1.0.3.8	1.0.3.8
GWN7816P	1.0.3.8	1.0.3.8
GWN7830	1.0.3.3	1.0.3.3
GWN7831	1.0.3.3	1.0.3.3
GWN7832	1.0.3.3	1.0.3.3

Switch minimum and recommended version

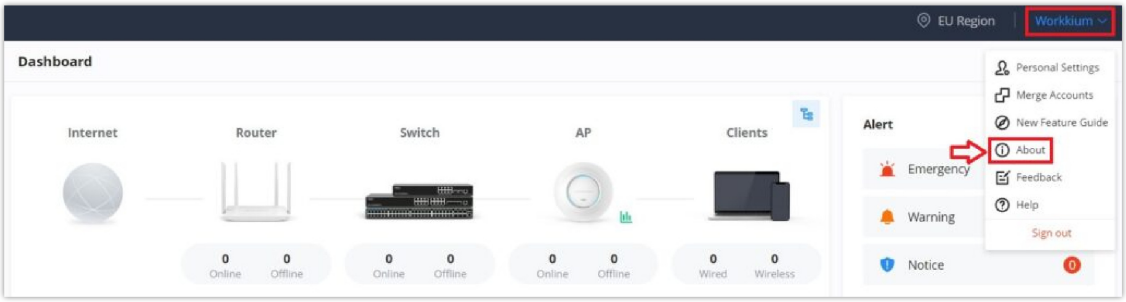
- **GWN App: minimum and recommended version**

Platform	Minimum	Recommended
iOS	1.0.5	1.6.7
Android	1.0.0.14	1.0.6.7

App minimum and recommended version

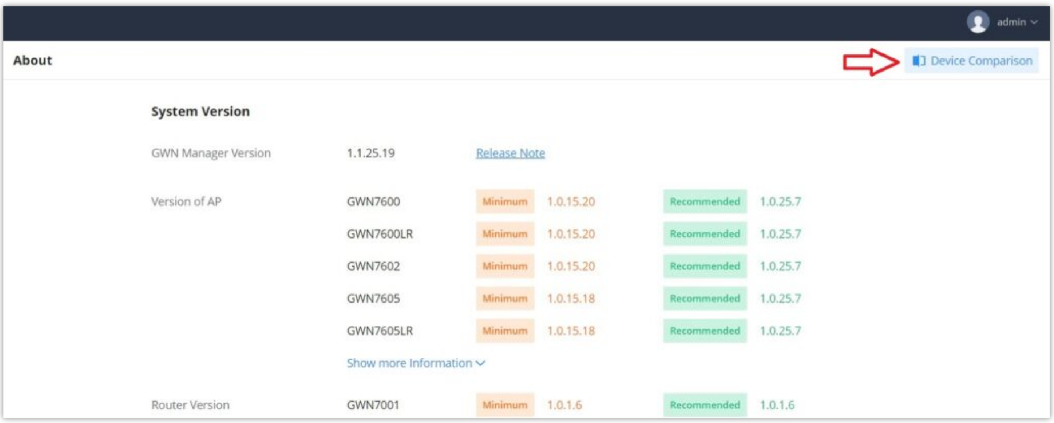
Requirements

To know more about the differences between devices in terms of functions based on the recommended versions, please navigate to **GWN.Cloud Web UI** → **About** → **Device Comparison**. refer to the figures below:



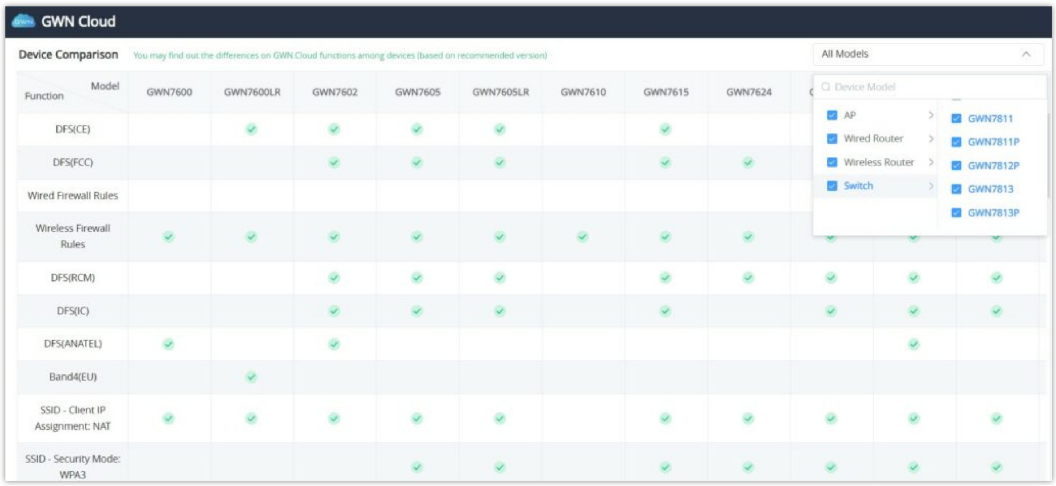
Device Comparison – Step 1

On this page, the users can find the minimum and recommended firmware version for each GWN device and APP (iOS® and Android®). If a Beta firmware is available for a GWN device it will be also shown here.



Device Comparison – Step 2

Device Comparison – Step 2 (Beta firmware)



Device Comparison – Step 3

PRODUCT OVERVIEW

Features Highlights

GWN.Cloud	● Software-as-a-Service (SaaS) Solution to manage all your Grandstream GWN products (Access points, Routers and switches), without any additional on-premise infrastructure. ● High level security, since all the traffic between GWN devices and cloud is secured. ● Easy way to add new GWN devices, either using device MAC address or Mobile App (Android or iOS). ● No limits on number of sites or GWN devices.
GWN Manager	● Linux (CentOS7, AlmaLinux9 and Ubuntu) based solution to secure and manage all your Grandstream GWN devices. ● Automatically discover and Adopt GWN devices in your network. ● Adopt GWN device manually using SSH or through Web GUI by setting the Manager address and port. ● Up to 3000 GWN devices, with high performance hardware.
Shared	● Highly available with no single point of failure across the whole system. ● Easy and intuitive dashboard for monitoring. ● Network Group creation. ● GWN devices and clients Centralized monitoring and management. ● Captive portal configuration. ● Bandwidth control per SSID, IP, or MAC address. ● Unified GWN device management (GWN Routers, GWN Switches and GWN APs) ● Inventory management ● Map to locate devices and Heatmap. ● Network topology

Features Highlights

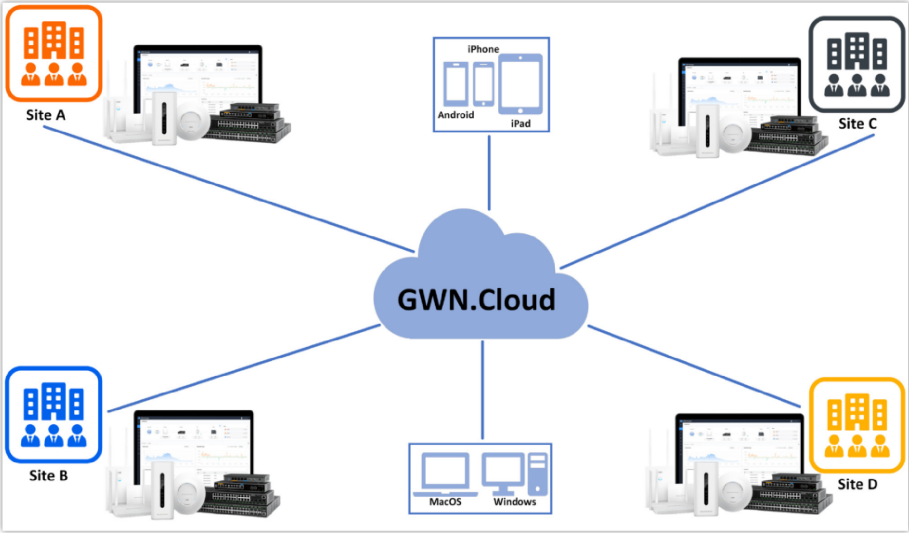
Specifications

Function	● Network-based GWN devices management ● Network/GWN devices/client monitoring
Security and Authentication	● Supports access policies configuration (blacklist, whitelist, time policy etc) ● Multiple security modes including WPA, WPA2, WPA3,WEP, open, etc. ● Bandwidth rules for client access ● User and privilege management
Enterprise Features	● No limits on number of sites or GWN devices for GWN.Cloud and up to 3000 GWN devices for GWN Manager with high performance hardware. ● Hosted by AWS with 99.99% uptime (GWN.Cloud only) ● Bank-grade TLS encryption from end-to-end ● X.509 certificate-based authentication ● Supports Wi-Fi Alliance Voice-Enterprise ● Mobile app for iOS and Android ● Real-time Wi-Fi Scan for deployment ● URL access log collection ● Multiple Wi-Fi performance optimization methods including band steering, Minimum RSSI, ARP Proxy, IP multicast to unicast, etc
Supported Devices	● **Access points:** GWN76xx(LR) ● **Routers:** GWN7052/F, GWN7062 and GWN700x ● **Switches:** GWN780x(P), GWN781x(P) and GWN7806(P)
Captive Portals	● Splash page with built-in WYSIWYG editor ● Social media integration ● Multiple captive portal authentications including simple password, radius, voucher, custom field etc. ● External captive portal integration ● Real-time guest statistics and monitoring ● Advertisement integration with flexible strategies ● Export guest info into file and automatically send to email
Centralized Management	● Local data forwarding, no user traffic sent to the controller ● Network-based GWN device management ● Network/GWN device/client monitoring ● Layer2 and Layer3 based GWN device discovery
Reporting and Monitoring	● Real-time Network and client monitoring ● Detailed reports by network, GWN devices, client etc. ● Retrieval of historical data for statistical observations ● Real-time alerts and event logs
Maintenance	● Ping/traceroute/capture ● Both configuration and data backup ● Scheduled GWN devices firmware update and LED control ● Change log for audit trail
Languages	English, Chinese, Spanish, German, Portuguese, French and more.

GETTING TO KNOW GWN MANAGEMENT PLATFORM

GWN.Cloud

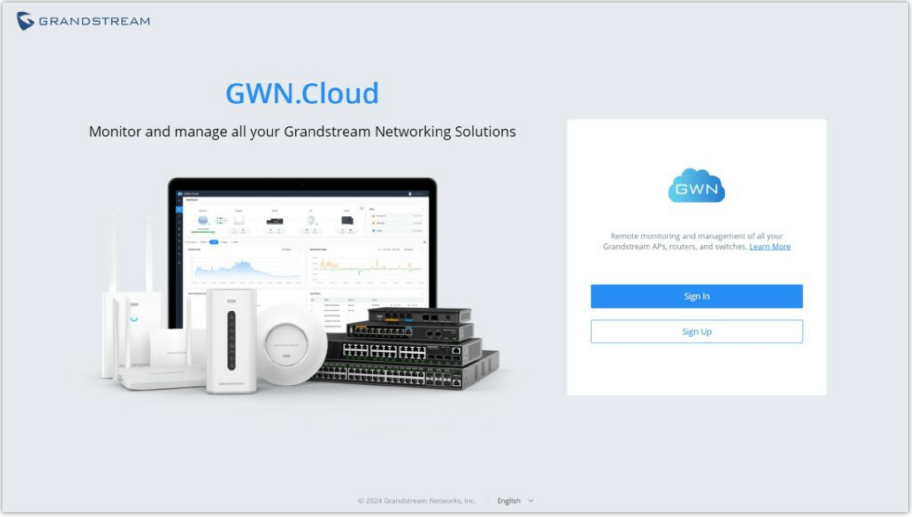
GWN.Cloud is a cloud-based platform used to manage and monitor GWN devices (Access Points, Routers, Switches) wherever they are as long as they are connected to the internet. The platform can be accessed using the following link: https://www.gwn.cloud. It provides an easy and intuitive web-based configuration interface as well as an Android and iOS App.



GWN.Cloud Architecture

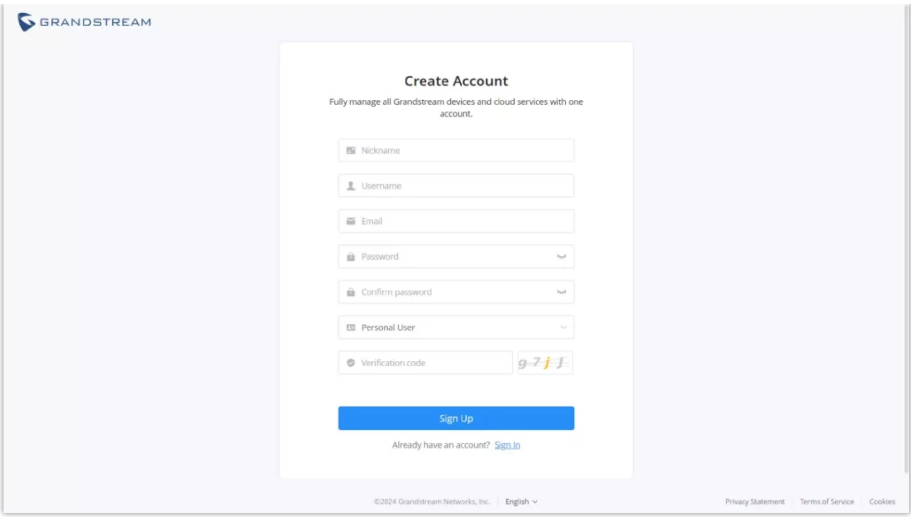
Sign up to GWN.Cloud

When accessing GWN.Cloud for the first time, users are required to sign up. The following screen will be displayed:



GWN.Cloud Login Page

1. Click on Sign up to go to the sign-up screen, then enter the required information.

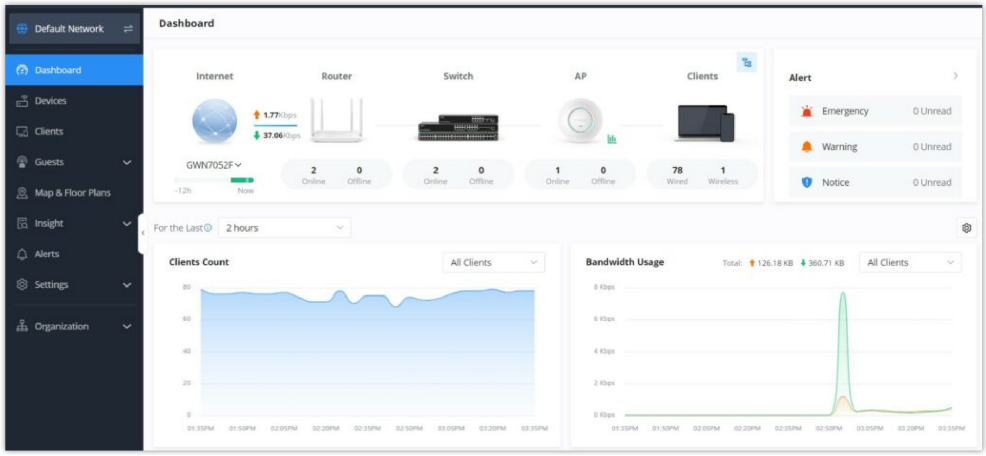


GWN.Cloud Sign-up page

Nickname	Specify a nickname of this account.
Username	Specify a username for this account.
Email	Enter the email address.
Password	Specify a password for the account ***Note:*** *8-16 characters, must be a combination of numbers, letters, and special characters.*
Confirm password	Re-enter the password again.
User type	Select from the drop-down list the type of user: ● Enterprise ● Server provider ● Channel Reseller ● System Integrator ● Personal User
Company Name	Enter the company name if the type of user is set to Enterprise, Server provider, Channel reseller, System integrator.
Verification code	Copy the verification from the Captcha.

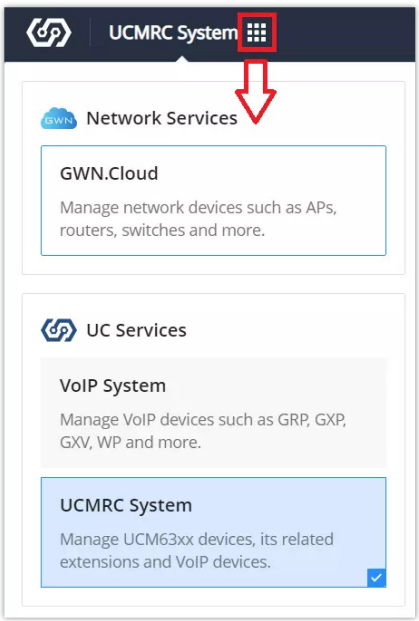
GWN.Cloud Sign-up Settings

2. Once you create an account, you can access your GWN.Cloud page for the first time and the following page will be displayed:



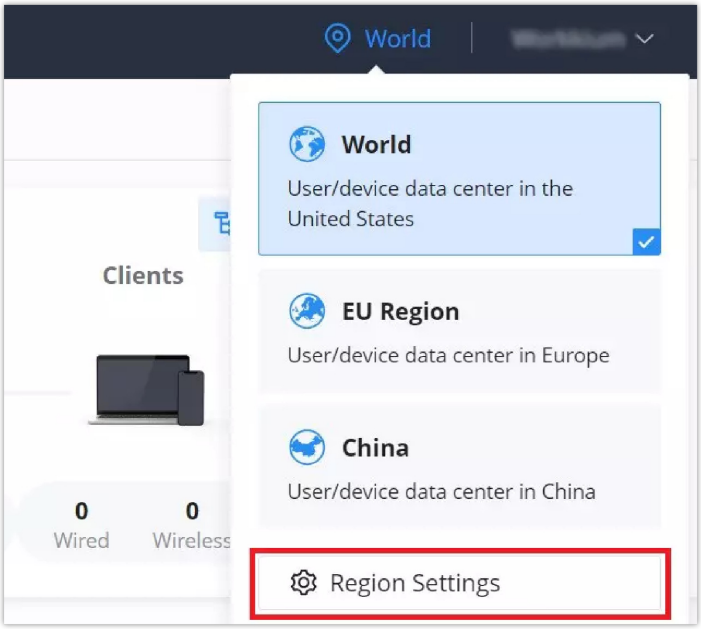
Region settings

To switch to network services (GWN.Cloud) when the user was in another service such as (VoIP system or UCMRC system), on the top left of the web page, click on the dots icon and select GWN.Cloud under Network Services as shown below:



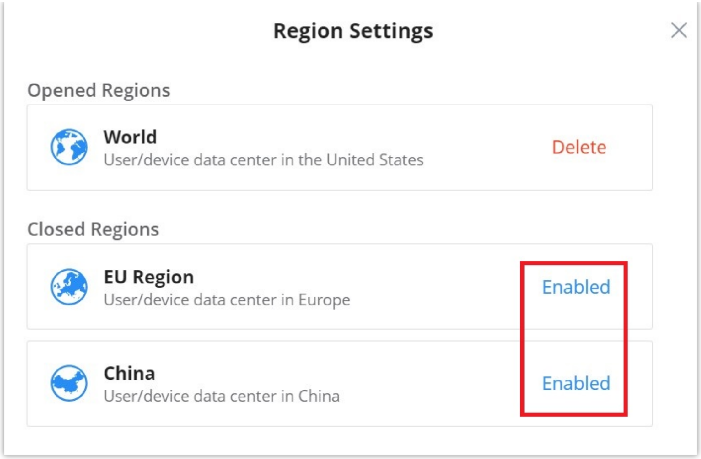
Network Services

Region settings allows the users to enable different regions (data center). To enable or delete a region, on the top right of the page click on **the location icon → region settings** as shown below:



Region settings

The users and devices data is stored in the enabled regions, to delete a region click on "**Delete**", and to enable a region click on "**Enabled**".

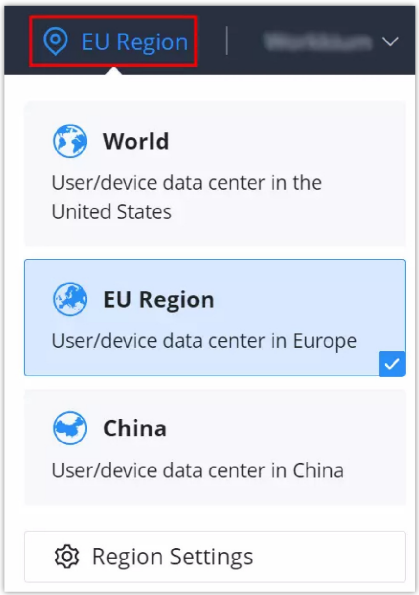


Region settings – delete & enable

Note:

Please note deleting a region will delete all data within that region including GWN.cloud data and GDMS data.

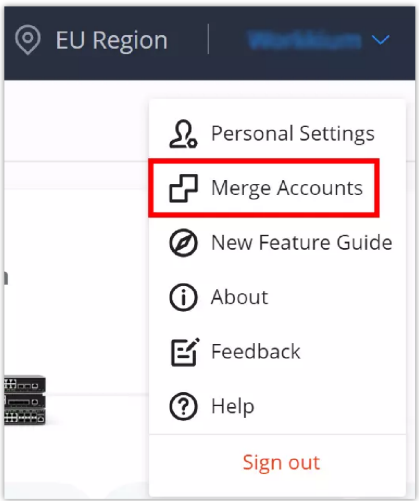
To start using the enabled region to store users/devices data, make sure it's selected on the main page as shown below:



The selected region (EU Region)

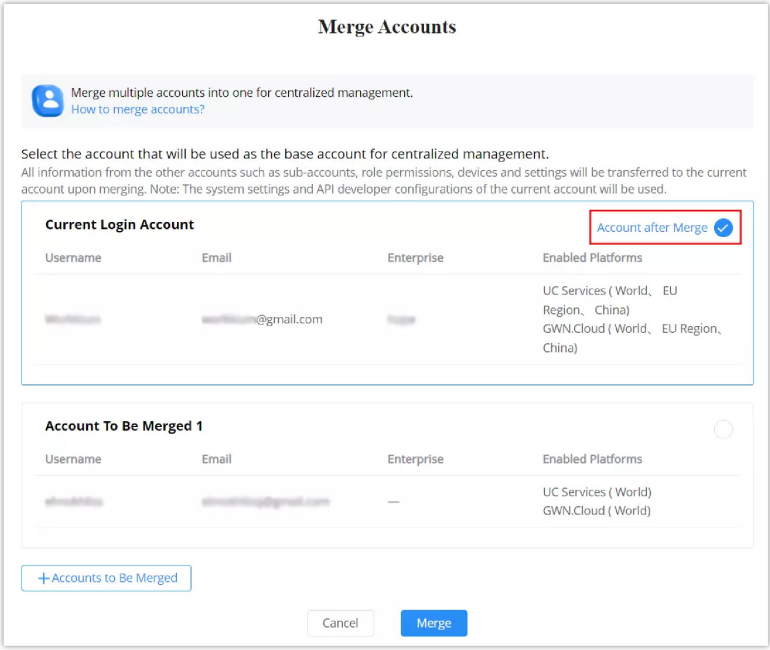
Merge Accounts

Merge accounts feature allows users to merge different account with different services and regions into one single base account. On the main page of GWN.Cloud, top right corner of the page, click on the account name then select Merge Accounts as shown below:

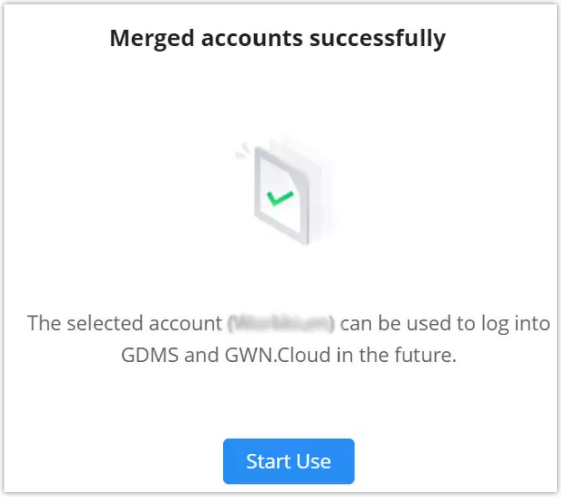


Merge Accounts

Click on "**+Accounts to Be Merged**" button to add more account, then select the base account that will be used for centralized management.



Merge Accounts



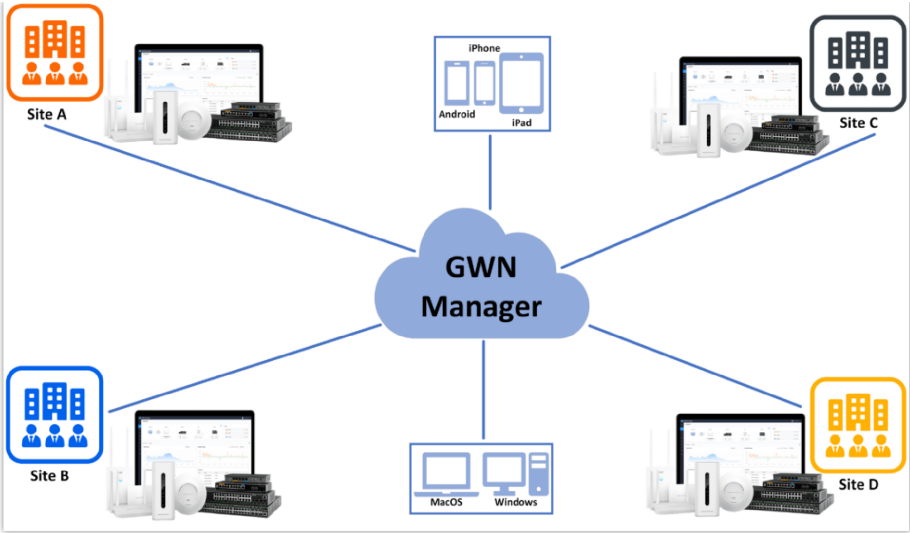
Merged accounts successfully

Note:

The base account will be used for centralized management and all information from the other accounts such as sub-accounts, role permissions, devices and settings will be transferred to the base account upon merging. The system settings and API developer configurations of the current account will be used.

GWN Manager

GWN Manager is an On-premise GWN devices Controller used to manage and monitor GWN network devices including GWN Access points, GWN Routers, and GWN Switches on your network.



GWN Manager Architecture

GWN Manager hardware requirements

- **OS**: CentOS7, AlmaLinux9 and Ubuntu.
- **Hardware:**

For up to 200 APs and 2000 Clients:

- **CPU**: Intel® Core™ i3-3240 or above
- **RAM**: 4GB or above
- **Storage**: 250GB (dependent on retained data)

For up to 3000 devices and 30000 Clients:

- **CPU**: Intel® Xeon® Silver 4210
- **RAM**: 16GB or above
- **Storage**: 250GB (SSD preferred, depend on retained data size)

GWN Manager hardware requirements

Installation

To install GWN Manager please visit the links below:

GWN Manager – Quick Installation Guide

GWN Manager – Deploying a Virtual Machine from an OVA file

First Use

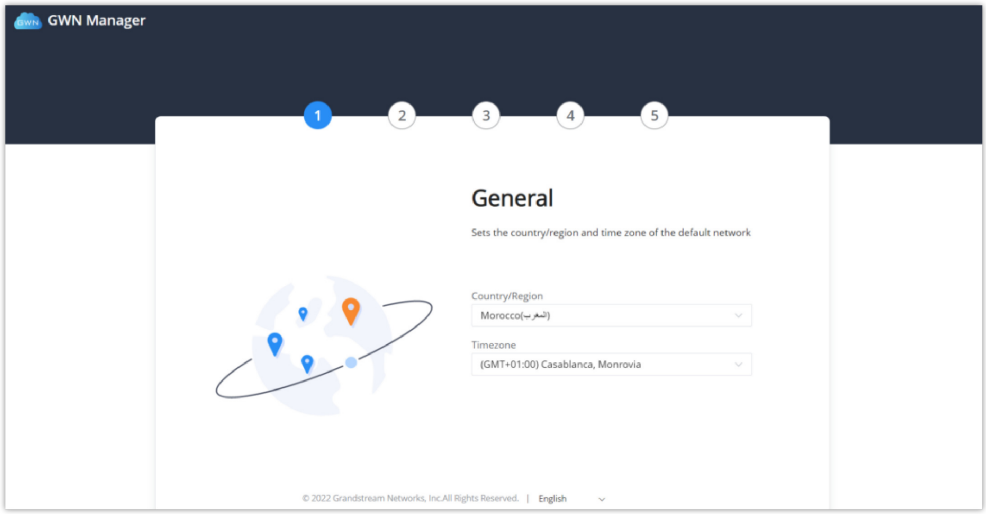
The GWN Manager provides an easy and intuitive Web UI to manage and monitor GWN network devices, it provides users access to all GWN settings, without any additional on-premise infrastructure.

On first use, users need to fill in additional information following the GWN Manager Wizard:

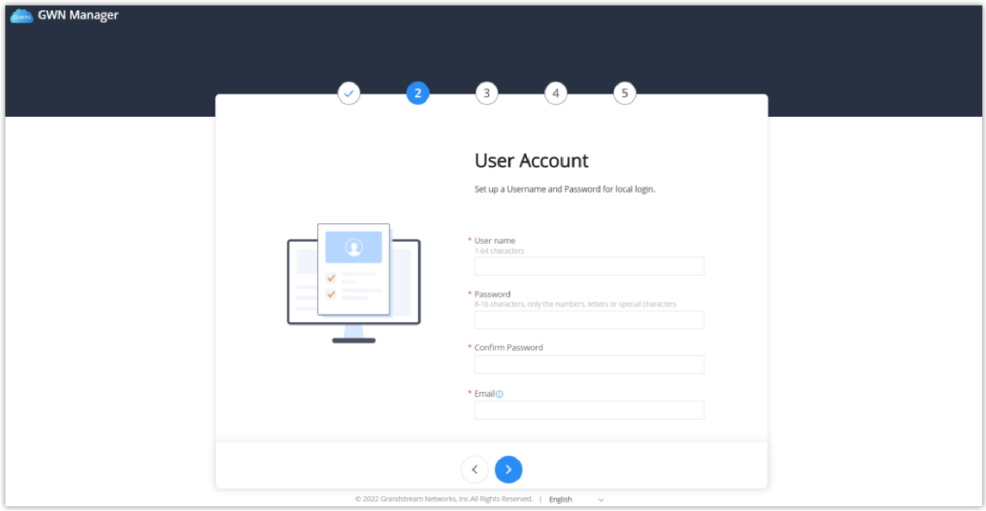
General	Specify the country/region and time zone for the default network. ***Note:*** *these parameters can be automatically detected by the system.*
User Account	Set up a username, password and email for local login.
Adopt Device	Select the GWN devices to be adopted by the default network. ***Note:*** *Access points, Routers available on the same LAN will be detected automatically.*

SSID Configuration	Create an SSID to be used by the default network for the first time. ***Note:*** *this SSID can be modified later.*
Summary	Review all the previous settings

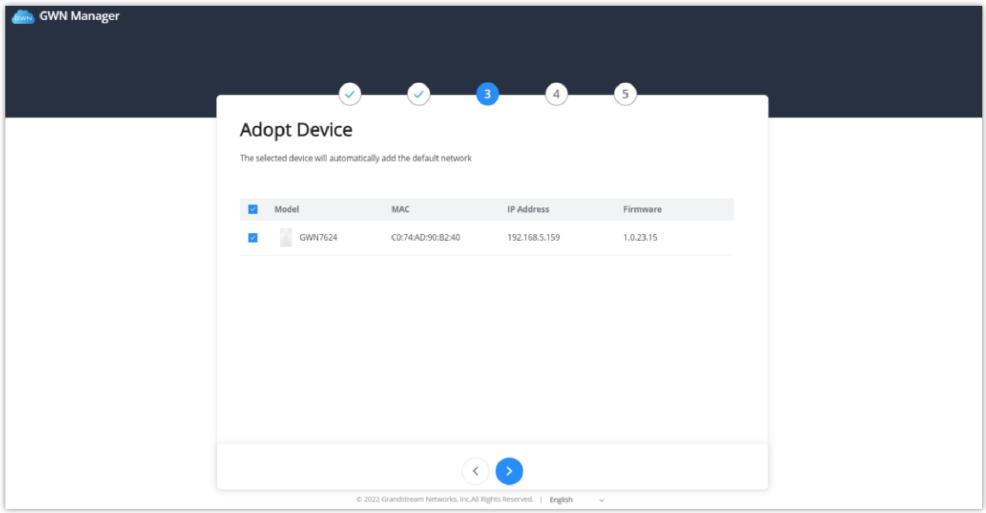
GWN Manager setup wizard



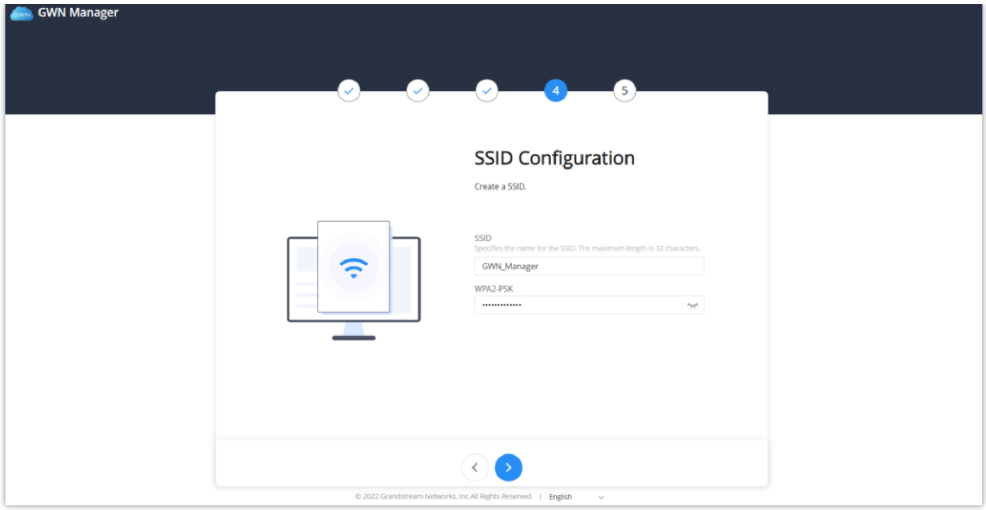
GWN Manager Wizard – Part 1



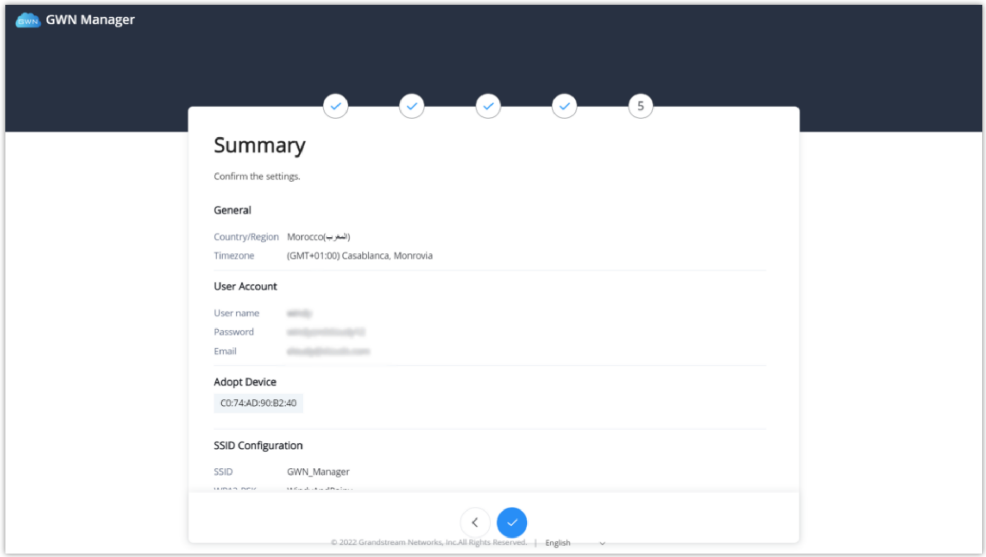
GWN Manager Wizard – Part 2



GWN Manager Wizard – part 3



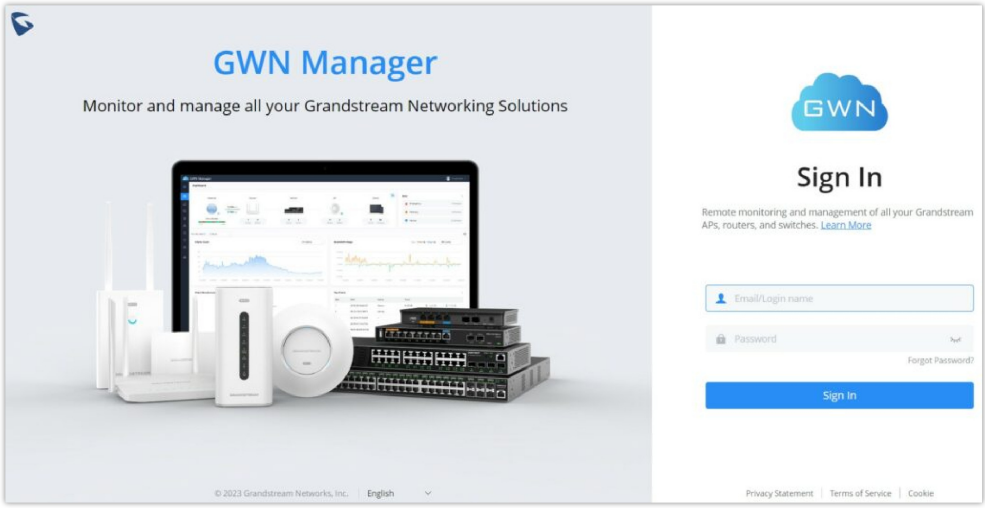
GWN Manager Wizard – part 4



GWN Manager Wizard – part 5

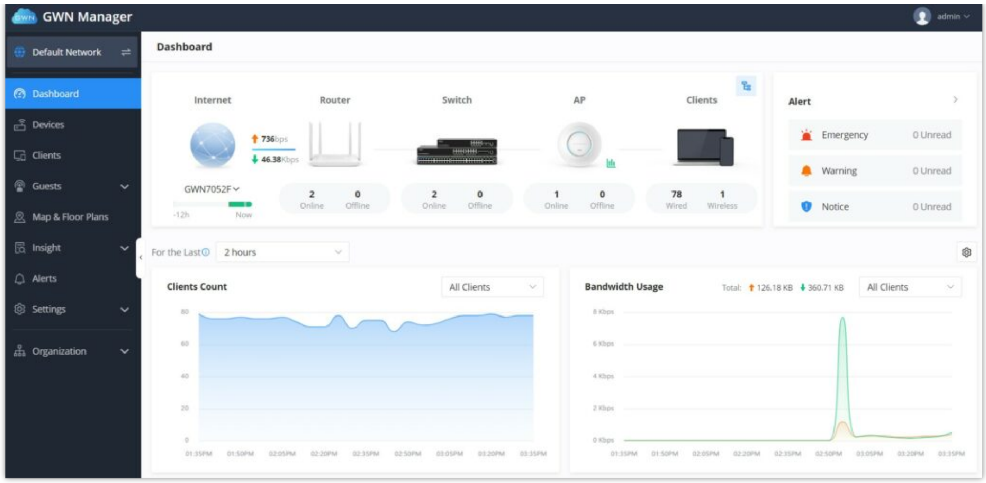
Sign up to GWN Manager

Enter the previously configured user credentials to access the GWN Manager GUI:



GWN Manager Login Page

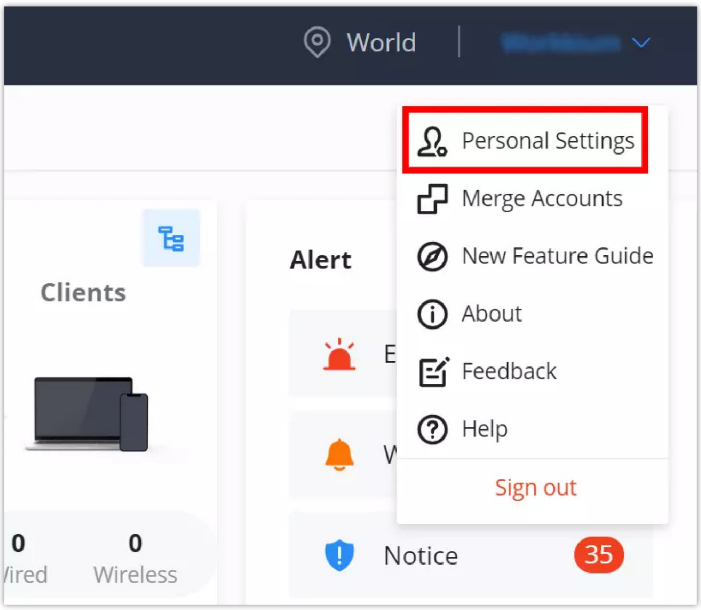
The following page will be displayed:



GWN Manager Dashboard

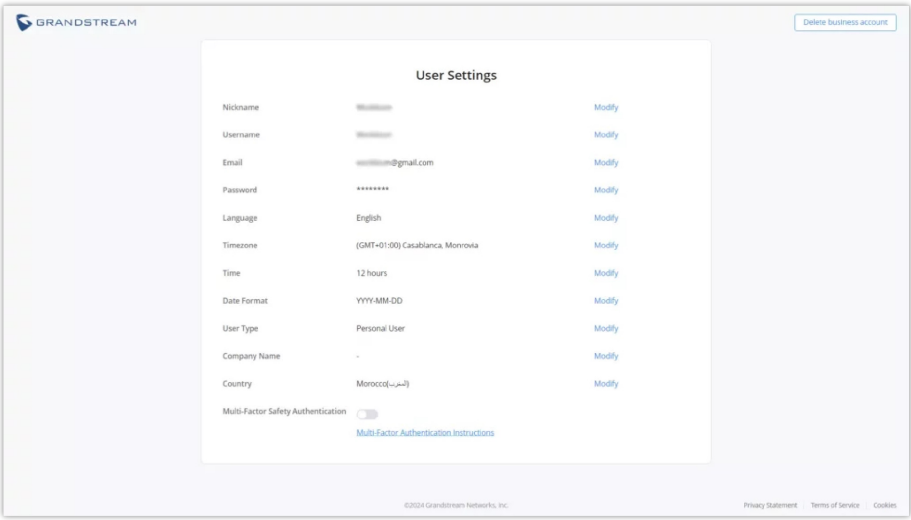
Personal Settings

To edit the personal settings of the currently log in account, click on the name account from **the top right corner** → **Click on Personal Settings** a new page displaying the account details will be displayed, refer to the figure below:

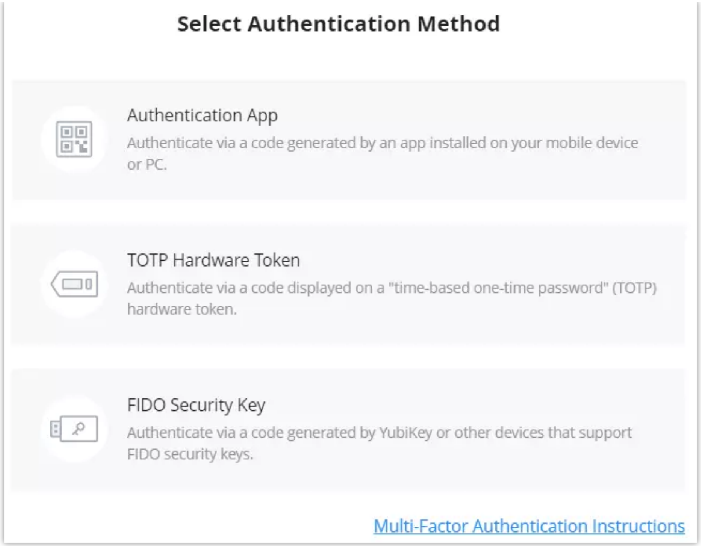


Personal Settings

To modify a field click on "**Modify**" text, refer to the figures and table below:



Personal Settings



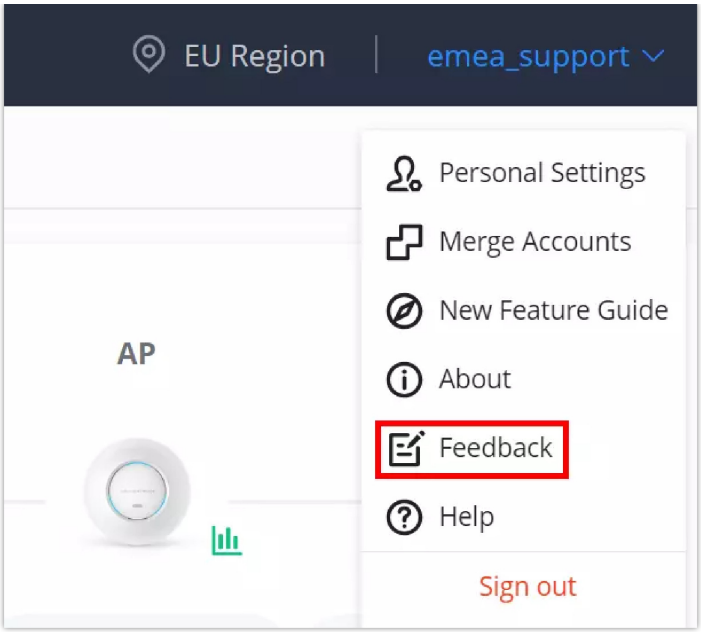
Personal Settings – Multi-Factor Authentication

Nickname	Modifies the user nickname
Username	Modifies the username
Email	Modifies the Email address
Password	Changes the password
Language	Select the web UI language from the drop-down list
Timezone	Select the timezone from the drop-down list
Time	Select the time format: 12 hours or 24 hours
Date Format	Select the date format from the drop-down list
User Type	Select the user type from the drop-down list
Company Name	Specifies the company name
Country	Select the country from the drop-down list
Multi-Factor Safey Authentication	Toggle ON/OFF the Multi-Factor authentication Note: for more details, visit Multi-Factor Authentication

Personal Settings

Feedback

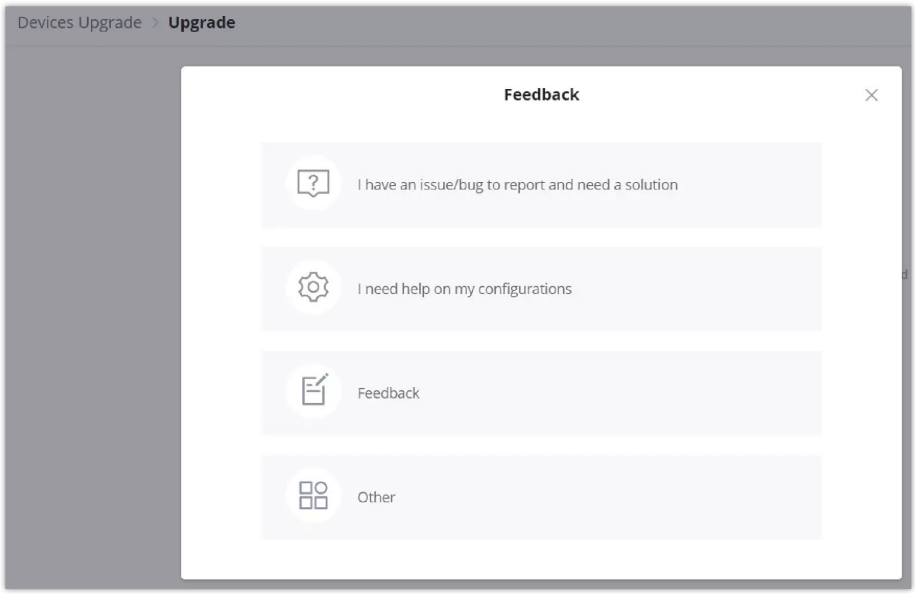
If the users have an issue/bug to report or need help about configurations or a general feedback, on the top right corner of the page, click on the account username then click on "**Feedback**" to send a feedback.



Feedback

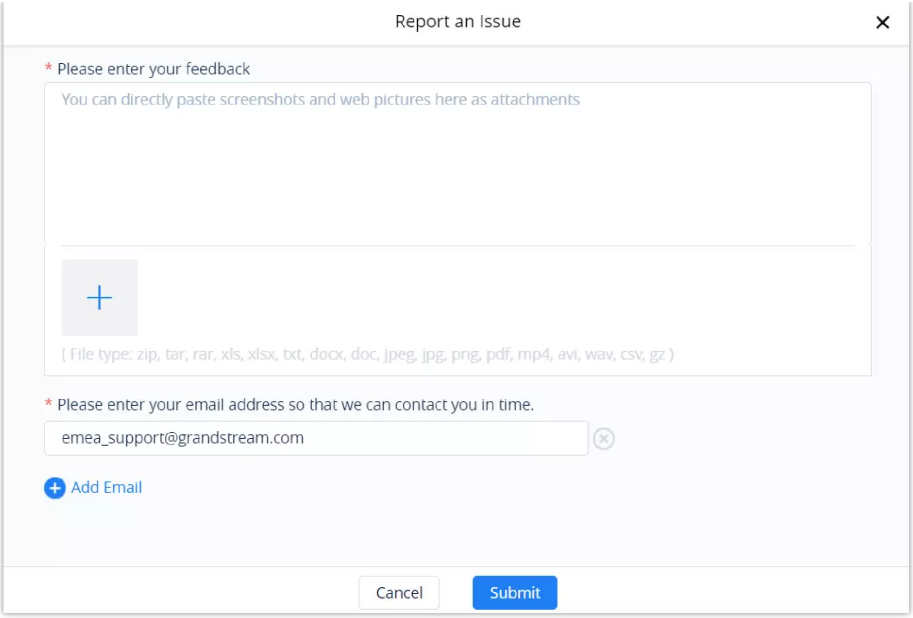
Then, select what type of feedback:

- I have an issue/bug to report and need a solution (forwards the users to Grandstream helpdesk)
- I need help on my configurations (forwards the users to Grandstream helpdesk)
- Feedback.
- Other.



Feedback types

If Feedback or Other is selected, this page will be shown for users to specify the issue/bug/feedback with attachments (e.g. syslog) and emails for contact.



Feedback – report an issue

GETTING STARTED WITH GWN MANAGEMENT PLATFORM

The GWN Management Platforms provide an easy and intuitive Web UI or mobile app (both Android & iOS versions) to manage and monitor GWN devices (Access points, Routers, and Switches), it provides users access to all GWN devices' settings, without any additional on-premise infrastructure.

Add a GWN Device to GWN Cloud

To add a GWN device to GWN.Cloud, the administrator needs two pieces of information:

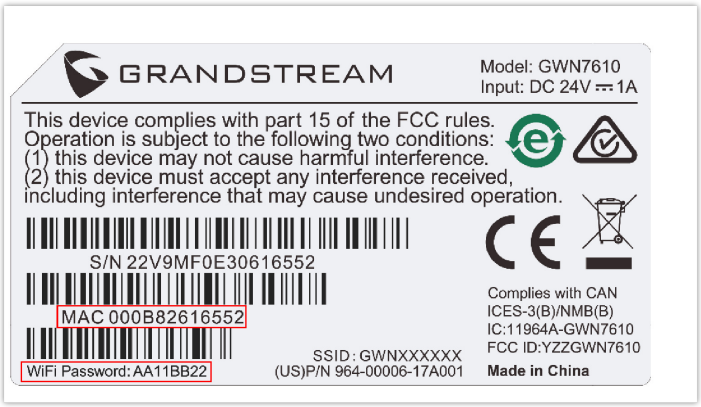
- MAC address of the GWN device.
- Password in the back of the unit.

There are 3 methods to add GWN devices to the cloud:

1. **Method 1: Adding a New GWN Device Manually**
2. **Method 2: Adding a New GWN device using the GWN Application**
3. **Method 3: Transfer APs control from Local Master** (only for GWN Access points)

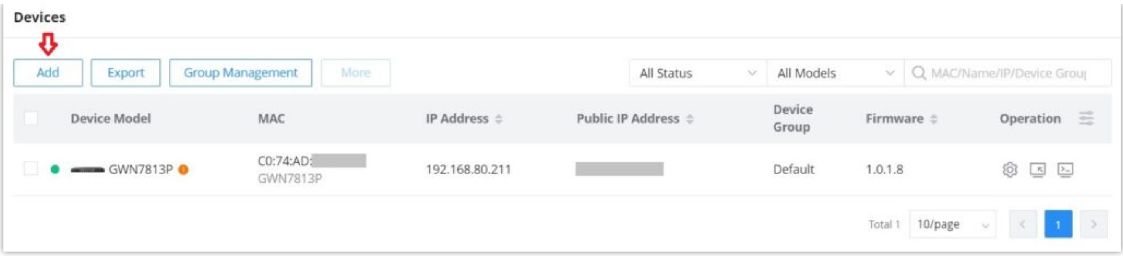
Method 1: Add a new GWN device manually

1. Locate the MAC address on the MAC tag of the unit, which is on the device, or the package.
2. Locate the Password.



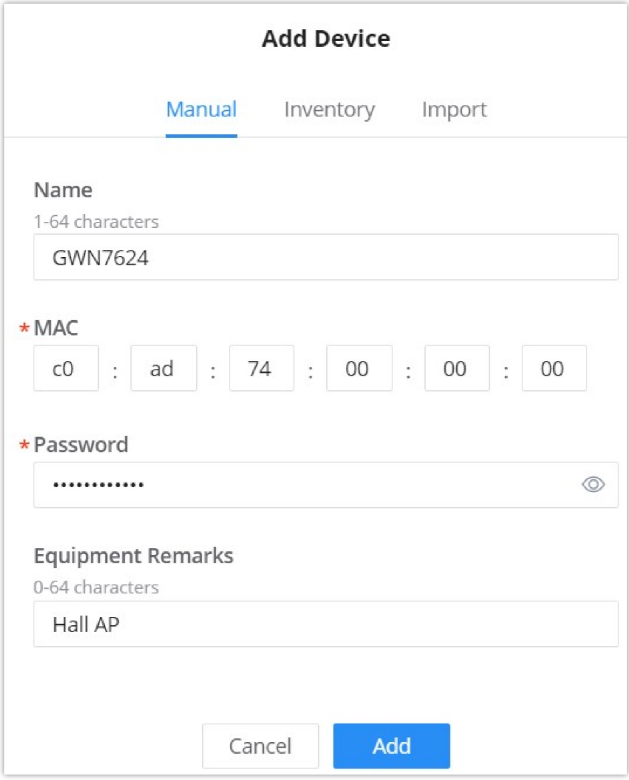
GWN device MAC and Password

3. Navigate to **Devices** and click on the "**Add**" button.



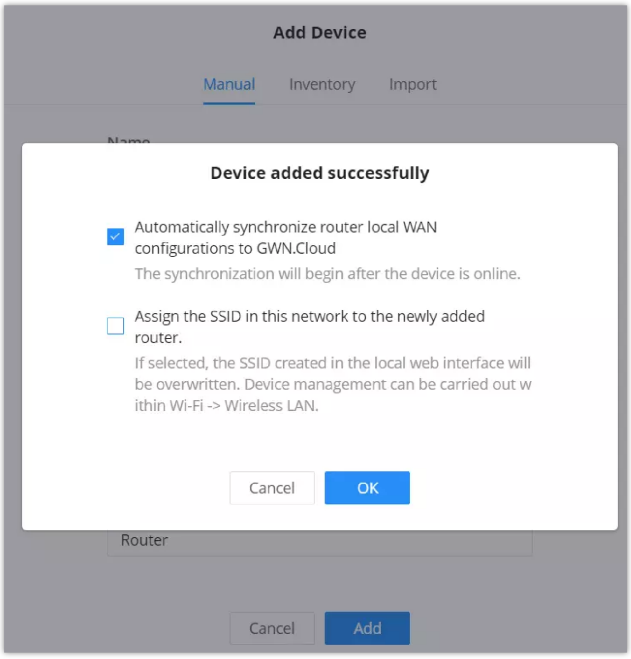
Adding a new GWN device to GWN.Cloud

4. Select a name for the device then enter the MAC address and Password, the user has also the option to add equipment remarks to easily identify the GWN devices when added to the GWN.Cloud or GWN Manager. Also, there is the option to select a device from the Inventory (previously claimed). Please, check the figures below:

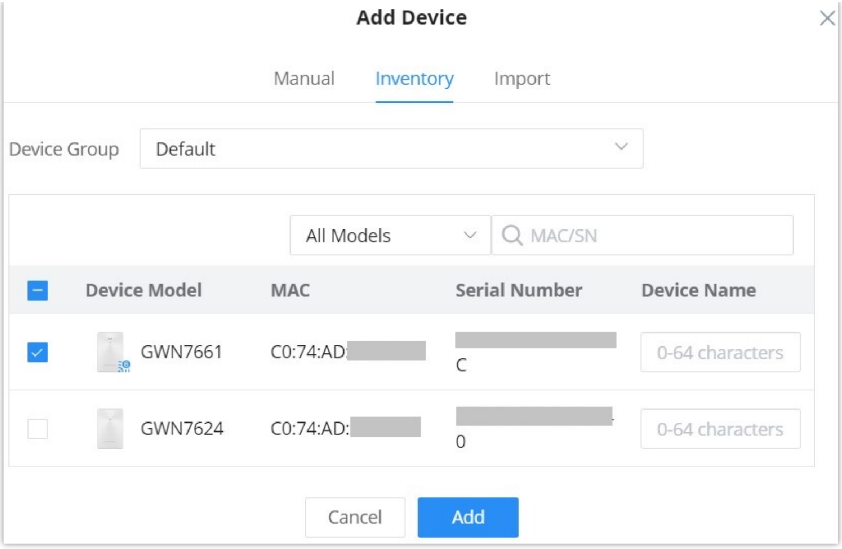


Adding a GWN device (AP) – Manually

If the GWN device is a router, the users will have to option to automatically synchronize router local WAN configurations to GWN.Cloud and also assign the SSIDs that are already in the network to the newly added router.



Adding a GWN Router – Manually



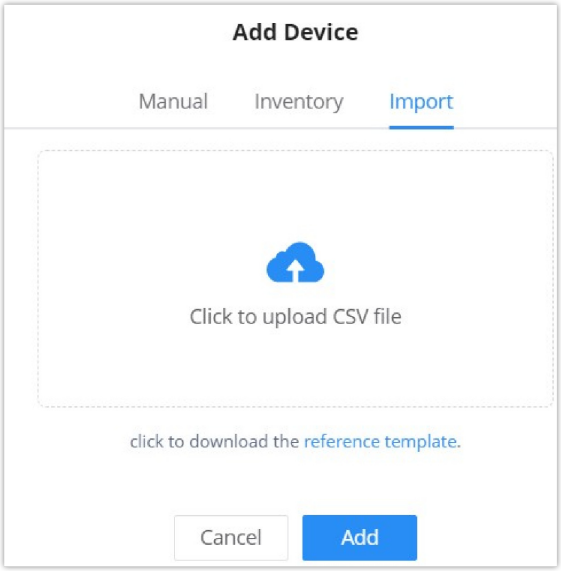
Adding a GWN device – Inventory

5. Click on the "**Add**" button, the device will be added automatically to your Cloud account and you will be able to monitor/manage it.

Bulk-add devices using CSV file import

Another option for bulk-add devices is to use CSV file upload.

After clicking on "**Add"** under the menu **Devices,** click on the **Import** Tab and click on the "**Add**" button to select a CSV file.



Import the CSV file for devices

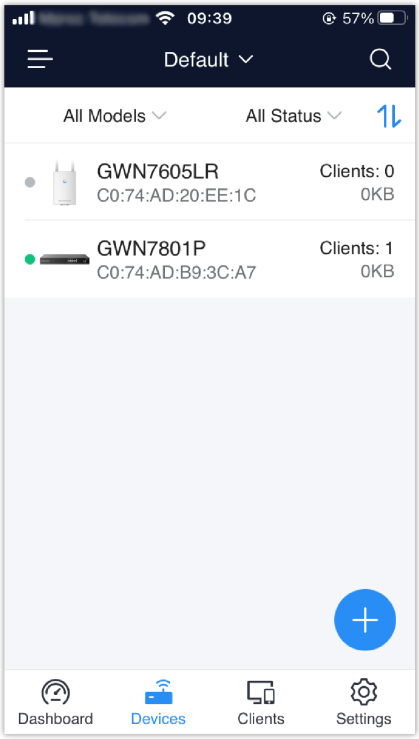
Method 2: Add a new GWN device using GWN.Cloud Application

An easy way to add a new device to your GWN.Cloud is to use GWN.Cloud Application.

> **Note:**
>
> GWN App is available on Google Play for Android and App Store for iOS.

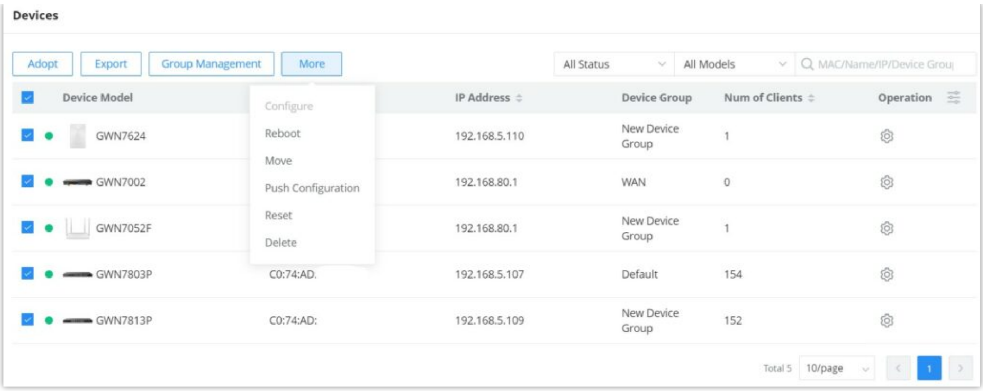
The operation is done by scanning the barcode from the GWN device's sticker.

Adding a device to GWN.Cloud using GWN App – part 1



Adding a device to GWN.Cloud using GWN App – part 2

Once added, the list of devices will be displayed on GWN.Cloud interface.



GWN devices list

Method 3: Transfer from Local Master

In the case where a local master is managing the Access points. Another method to add GWN devices (Access points slaves) to the cloud is by transferring them to the cloud from the local Master. Follow these steps to achieve this:

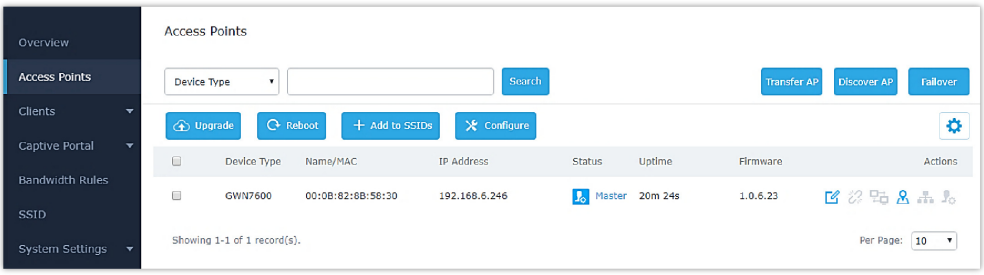
Note:

Transfer from the local master method is only available for GWN Access points.

Note:

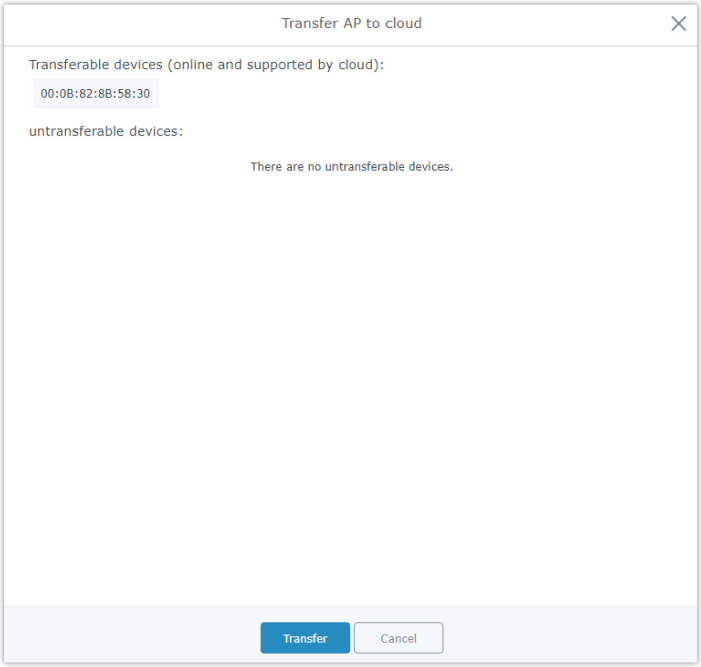
The following example is based on Access points where one of them is acting as a Local Master and the rest are Slaves.

1. Access the web UI of the local master and go to **Access Points**.



Master AP – Access Points

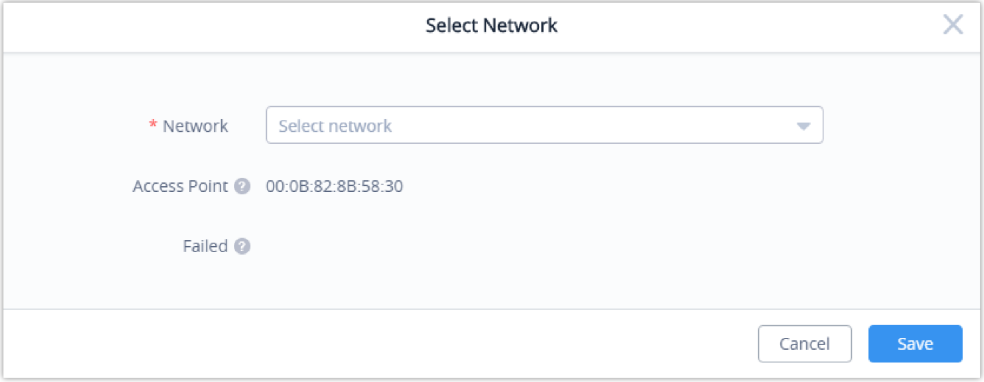
2. Press Transfer AP button. A new window will display the "Transferable devices" list as shown below.



Transfer AP to Cloud

3. Press Transfer button. The web browser will redirect to GWN.Cloud login page.

4. Once logged in to the cloud, the configuration page "Select Network" will be displayed:



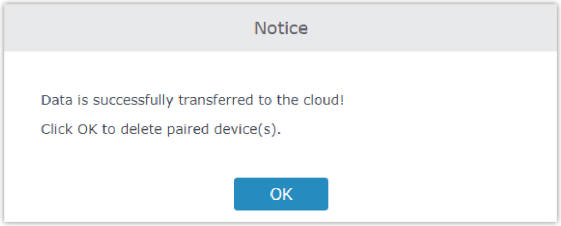
Select Network

- ***Access Point***: Shows the MAC address of the passed check device.
- ***Failed:*** Shows the MAC address of the authentication failed or added.

5. Select **Network** from the drop-down list to which the AP will be assigned.

6. Press the **Save** button to confirm.

7. Once added to the cloud, Master AP web UI will display following successful notice.

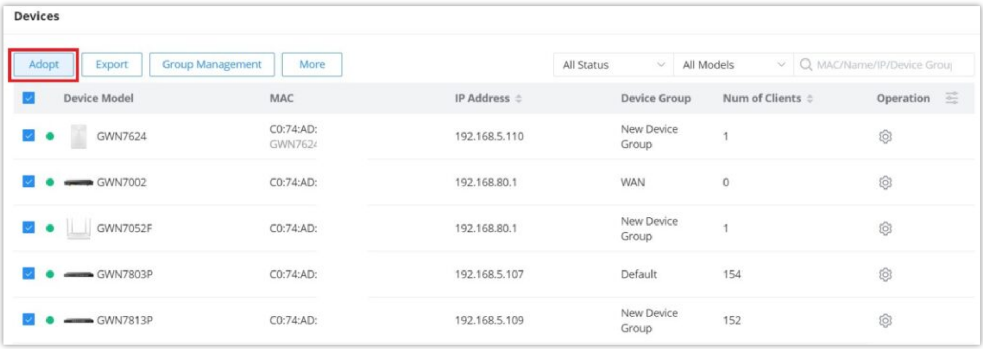


Transfer AP to Cloud – Success

Adopt a GWN Device to GWN Manager

To add GWN devices (router, switch, or access point) to the GWN manager:

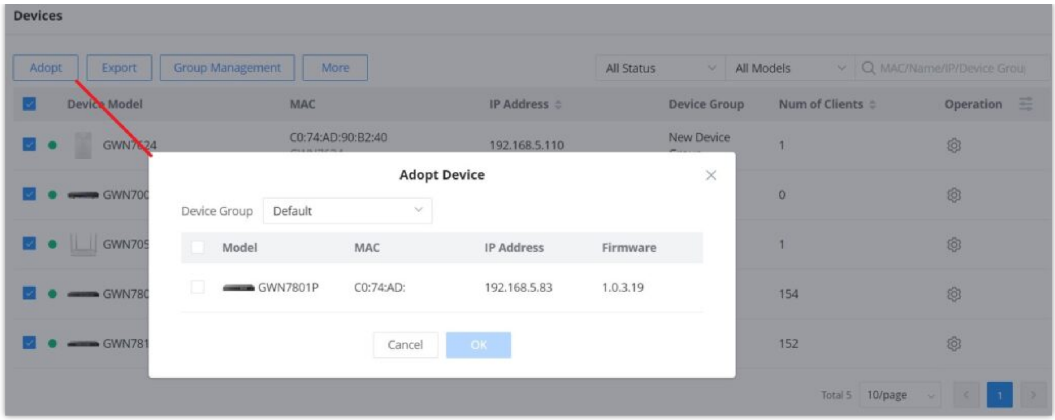
1. Navigate to **GWN Manager Web UI → Devices**
2. Click on the "**Adopt"** button.



Adding a new GWN device to GWN Manager

3. If GWN Manager connects to the same local subnet as GWN devices, it can discover the devices automatically via layer 2 broadcast. GWN devices accept DHCP option 224 encapsulated in option 43 to direct the controller. An example of DHCP option 43 configuration would be:

```
224(type)18(length)172.16.1.124:10014(value) translated into Hex as e0123137322e31362e312e3132343a3130303134
```



Auto-detect GWN devices

4. Select a device by checking the box on its left. Or select all by checking the top box. Then click the **"OK"** button.

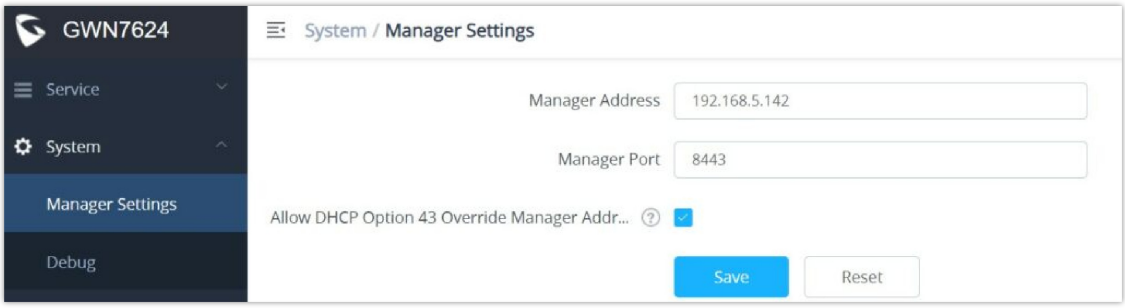
Adopting GWN devices manually

To manually configure the manager address and port on a GWN device, enable Manager Settings, fill in the Manager Address and Port, and finally click on the **"Save"** button. For each GWN device (AP, Router, or Switch), please check the steps below:

> **Note:**
>
> We are going to use the example of a Slave Access point.

You can log into the WebUI of a slave AP or an unpaired AP to set the Manager address and port.

For GWN APs, please log in to the GWN AP in slave mode, then navigate to **GWN AP Web UI → System → Manager Settings.**

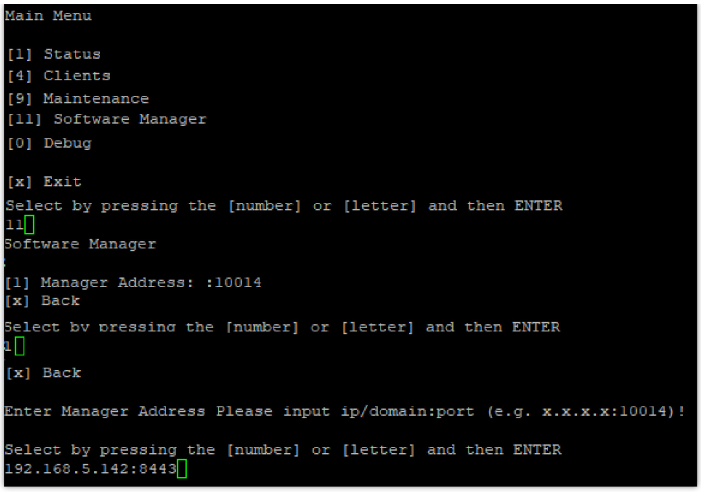


Manager Settings – Slave WebGUI

For GWN routers, please navigate to **GWN Router Web UI → System Settings → Basic Settings page → Manager Server Settings tab.**

For GWN switches, please navigate to **GWN Switch Web UI → System → Access Control page → Manager Settings tab.**

It's also possible to SSH a slave AP and use the GWN menu to set the Manager address and port (8443).



Manager Settings – SSH

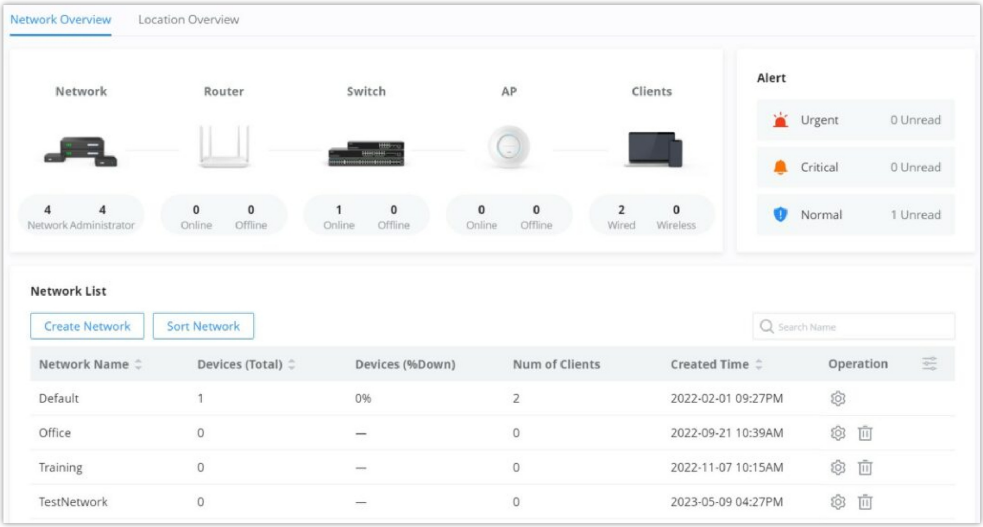
NETWORKS

The network page provides information regarding all the network groups created under your account, once the administrator selects one network all the other configuration pages will change to reflect the information related to the selected network.

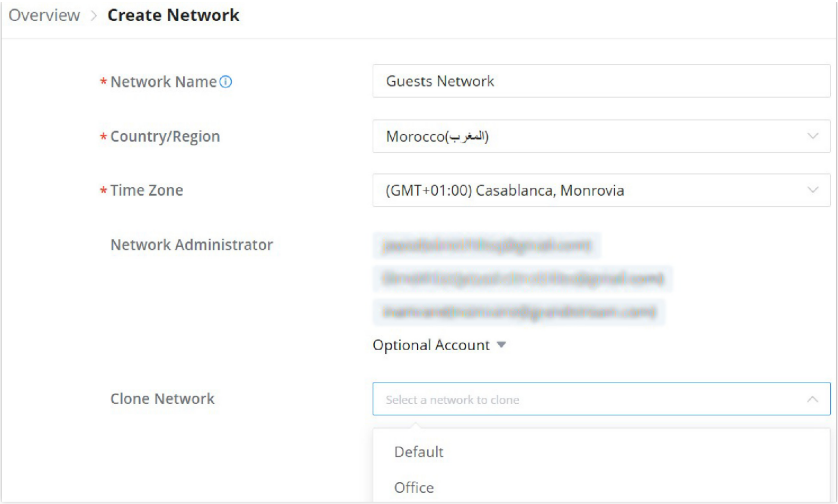
Create a new Network

To create a new Network:

1. Navigate to **GWN Manager Web UI** → **Organization** → **Overview** → **Network Overview Tab**, all the previously created networks will be displayed here.
2. Click on **the** "Create Network" button and enter the network name, country/region, time zone, and Network Administrator, and select a network in case you want to clone a previously created network.



Network list



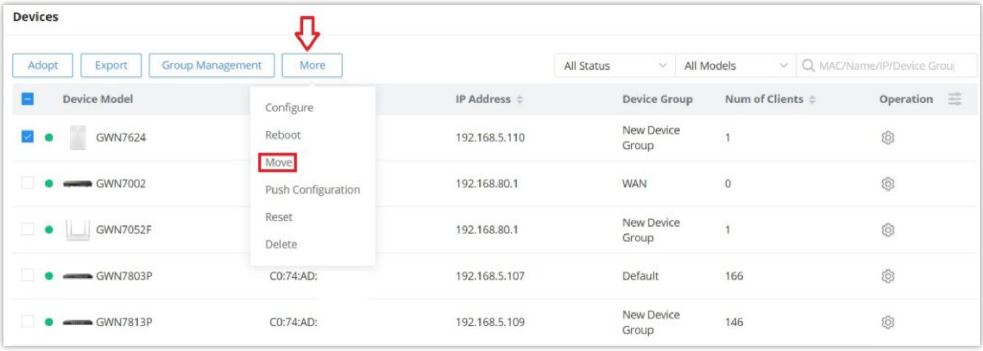
Create Network

Setting	Description
Network Name	Enter the Network Name to identify different networks in your environment.
Country/Region	Select the country/Region, this is required to set the Wi-Fi specifications of your country on GWN devices.
Time Zone	Select your time zone.
Network Administrator	This field displays the list of administrators that can manage this network.
Clone network	When you have an existing Network, you can choose to clone the new one with the already existing network.

Create a New Network Settings

Move a device to a Network

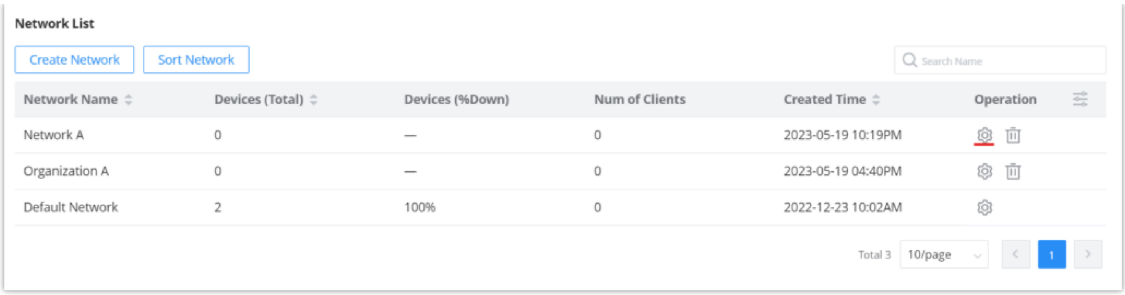
To move a GWN device to another Network, please navigate to the Devices page, select the desired devices, click on the **"More"** button then select **"Move"**, after that a pop window will appear to choose the destination network to which the selected devices will be moved.



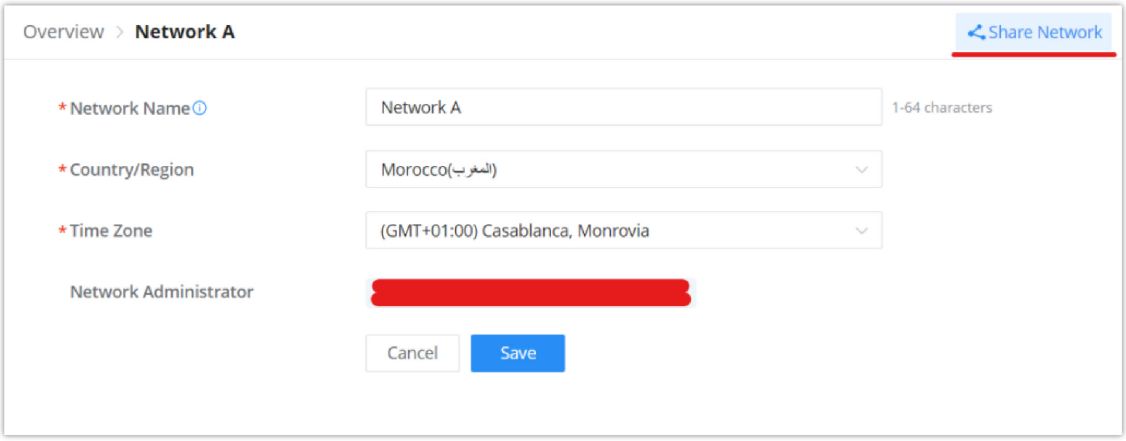
Move a Device to a different network

Share a Network

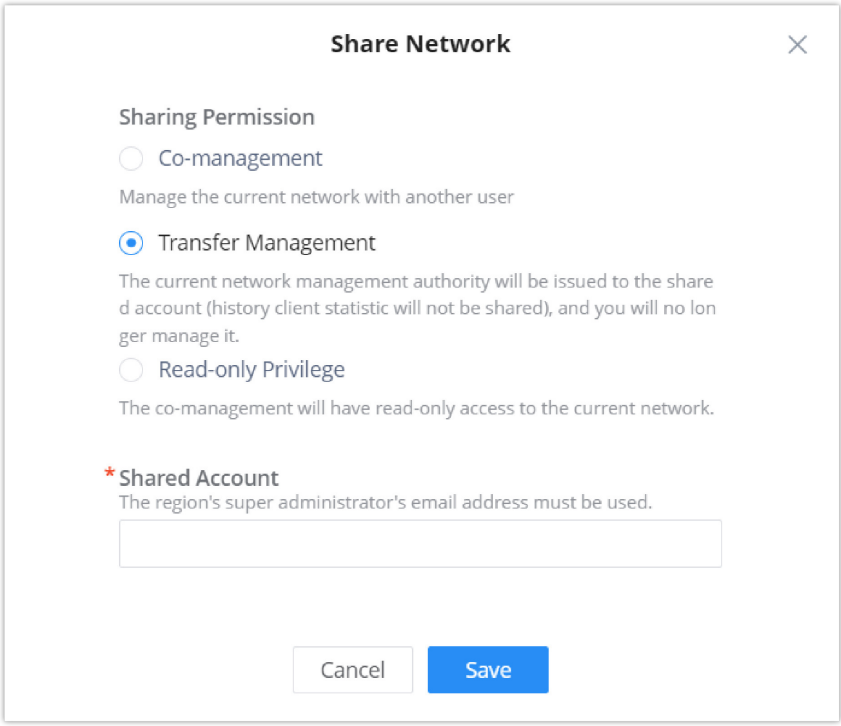
GWN Platforms allow sharing of a network among the administrators of the organization. To share a network please navigate to **Organization** → **Overview,** then click the configuration icon of the network you wish to share.



Network List



Edit Network



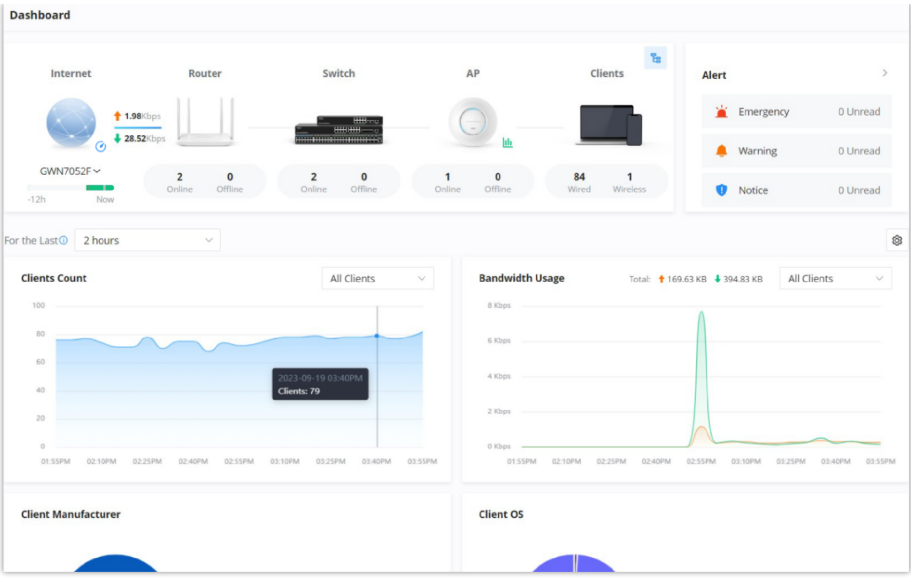
Share Network

DASHBOARD

The Dashboard page provides general information that can be used to monitor GWN devices (The Router with its WAN IP, Switches, and Access Points) and Clients. It also displays the number of Devices online and offline and as for Clients it displays the number of wired and wireless clients. It also displays an Alerts preview and the user can click on › icon to open the Alerts page with more details.

> **Note:**
>
> Clicking on one of the devices, will redirect the user to the Devices page, and clicking on Clients will redirect the user to the Clients page.

Click on this icon to get redirected to the Network Topology page.

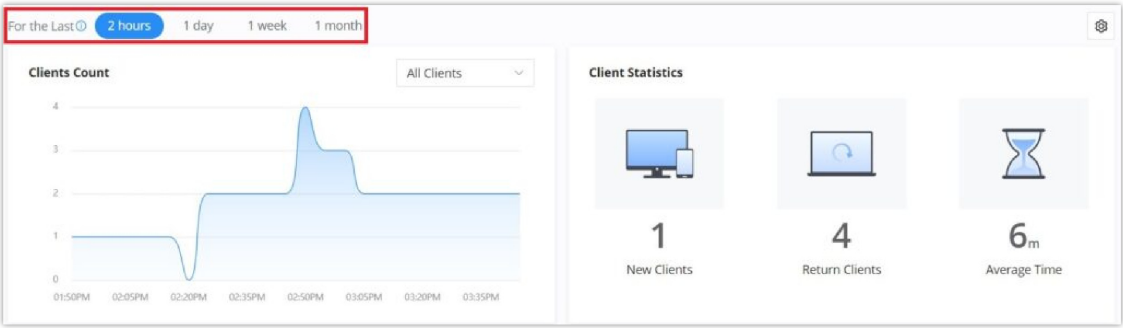


Dashboard

The user can choose the statistical duration of the data to review for the last 2 hours, 1 day, 1 week, 1 month, 3 months, or 6 months.

- **2 hours and one day:** Refresh and record data every 5 minutes.
- **1 week:** Refresh and record data every 30 minutes.
- **1, 3, and 6 months:** Refresh and record data every 3 hours.

> **Note:**
>
> 3 months and 6 months duration are available on GWN Manager.



Charts Time

To customize the Dashboard page by adding or removing charts, please click on this icon, and refer to the figure below:

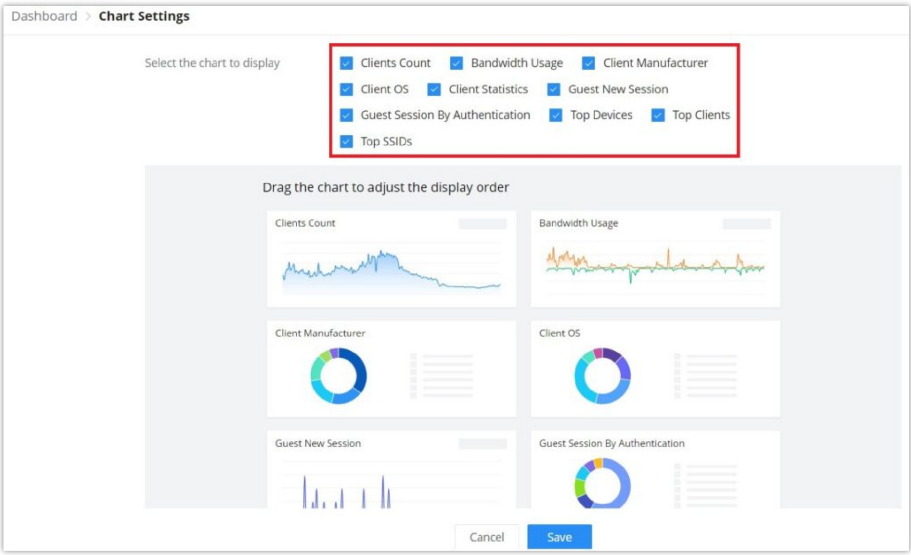
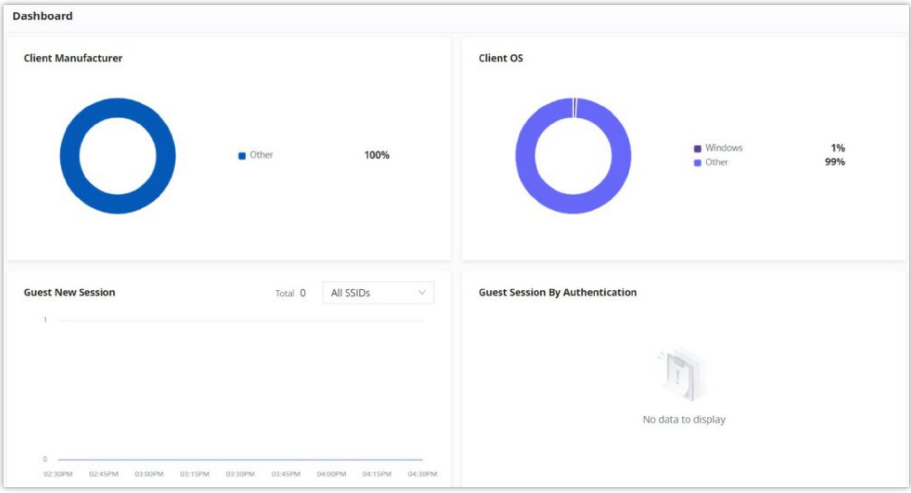


Chart Settings

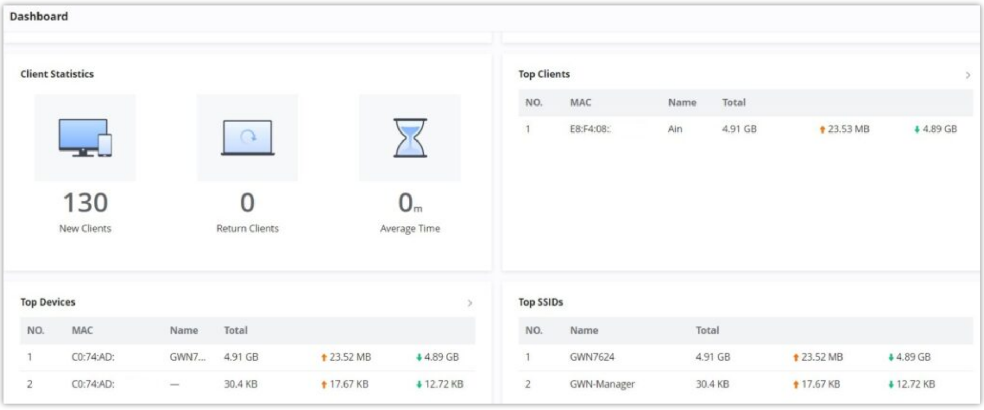
Client Count	It shows the number of clients connected at a specific period of time.
Client OS	It shows the Operating Systems used by Clients and the percentage of each.
Clients Statistics	Displays New Clients, Return Clients, and Average Time.
Top SSIDs	Displays the SSIDs that are mostly used by clients.
Bandwidth Usage	This section shows the bandwidth usage (Upload/Download) by all the clients, it provides the BW statistics for both Download and upload.
Guest New Session	Displays the period of time, when a new Guest session started and ended.
Top Clients	Lists the clients that downloaded/uploaded the max of data
Client Manufacturer	Displays the percentage of each Manufacturer used by Clients.
Guest Session by Authentication	Displays the percentage of a Guest session by Authentication
Top Devices	Lists the devices by the amount of the total usage.

Chart Settings

Example:



Example 1

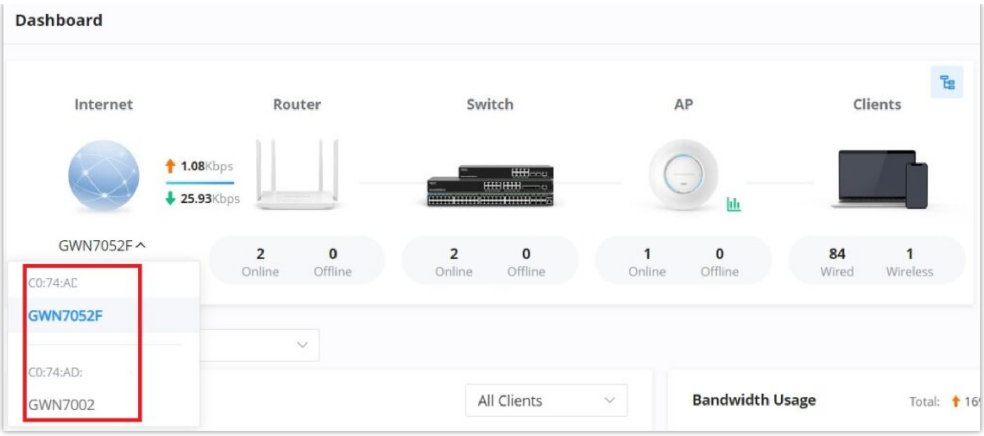


Example 2

Network Health Monitor

Network Health Monitor is a feature that monitors the WAN (WAN ports or Device group) and displays the WAN status for the last 12 hours for each WAN with color code.

On the Dashboard page, under Internet section select the WAN port. Please refer to the figure below:



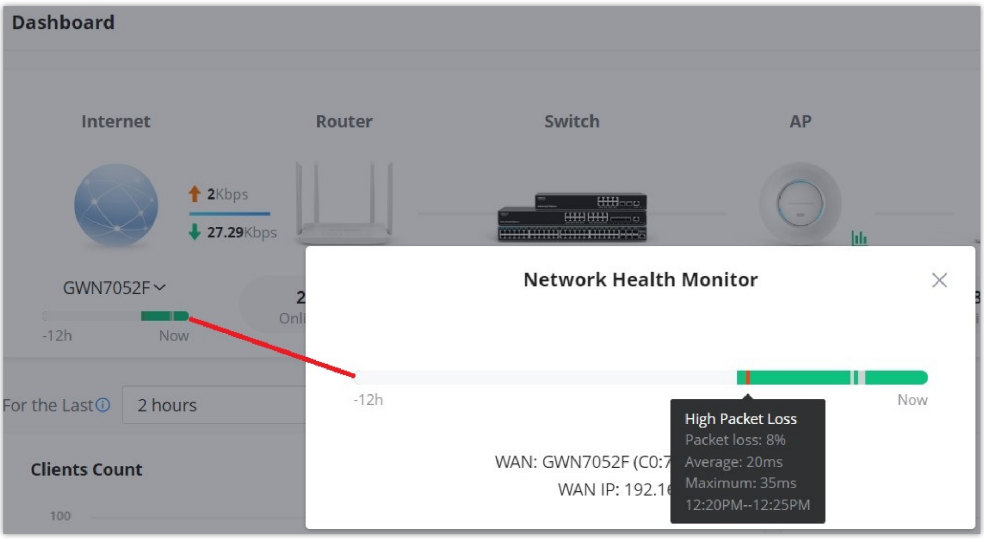
Network Health Monitor

Then, Click on the time bar to get a full view of the last 12 hours' status, and hover the cursor over the color to get more details and the duration. Please check the color code meaning below:

Green: Online

Grey: Offline

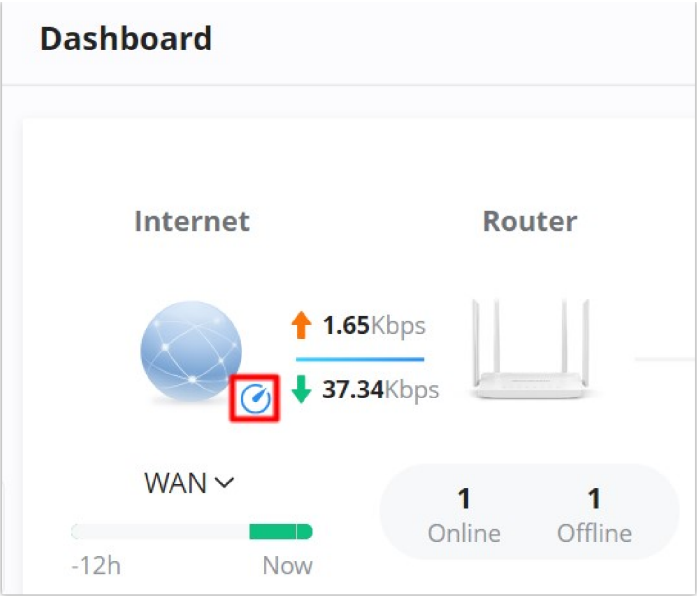
Red: High Packets Loss



Network Health Monitor

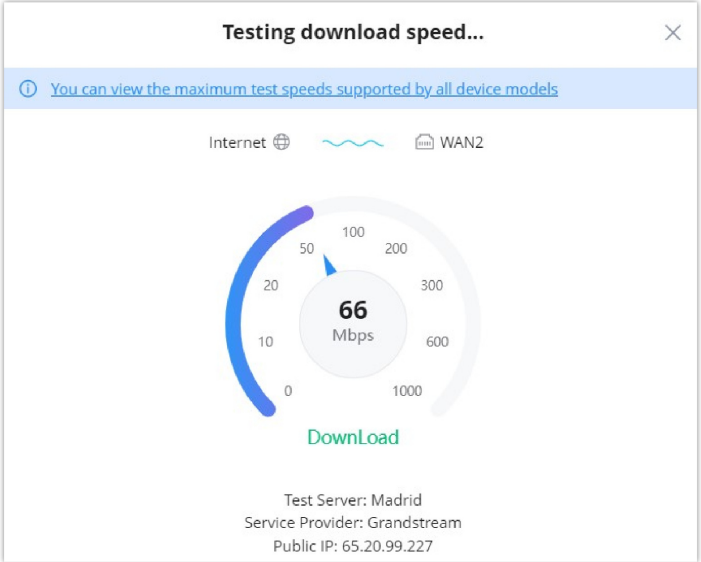
WAN Speed Test

When a GWN router is added to the GWN Management and the WAN is added under **Settings → Internet → WAN**, The user can click on the speed test icon as shown below to run the speed test of the select WAN.



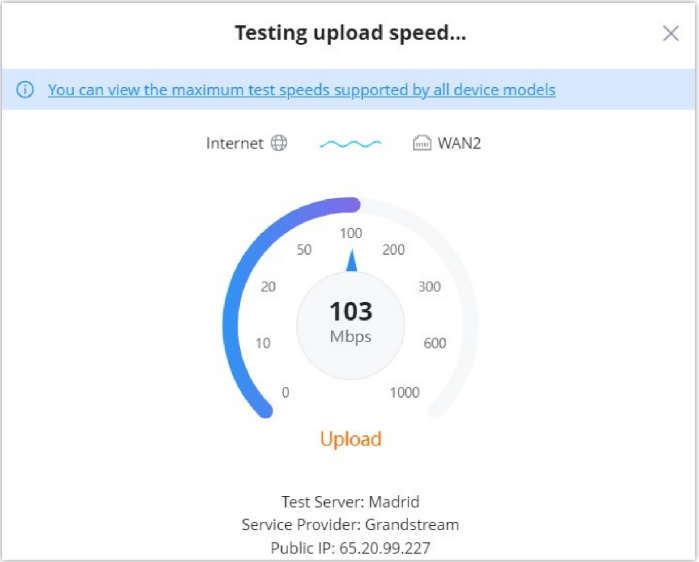
WAN Speed test

First, select the WAN under internet, then click on the speed test icon, then the download test will start.



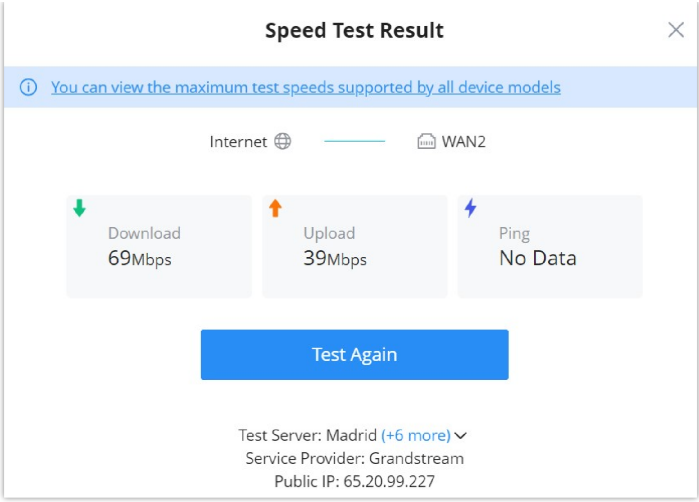
WAN Speed test – Download test

Once the download test is over, the upload test will start next.



WAN Speed test – Upload test

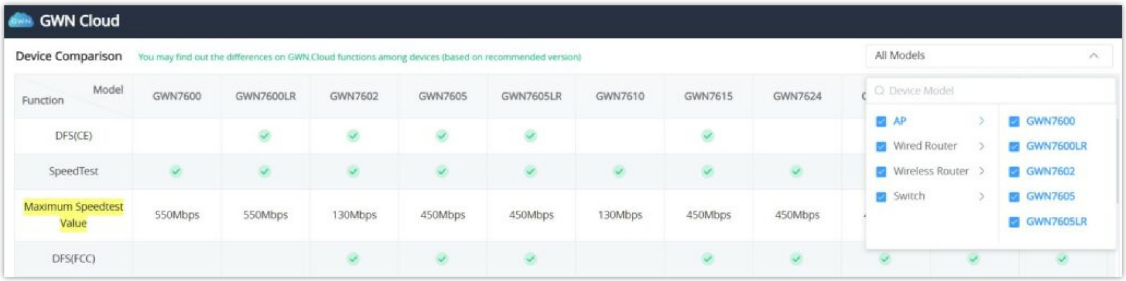
Finally, the speed test result will be shown with download, upload rates.



WAN Speed test – result

Note:

The speed test result could be affected by the hardware limitation, for more details about the maximum speed rate for each GWN device, click on the link as shown in the figure above or visit Device Comparison page.

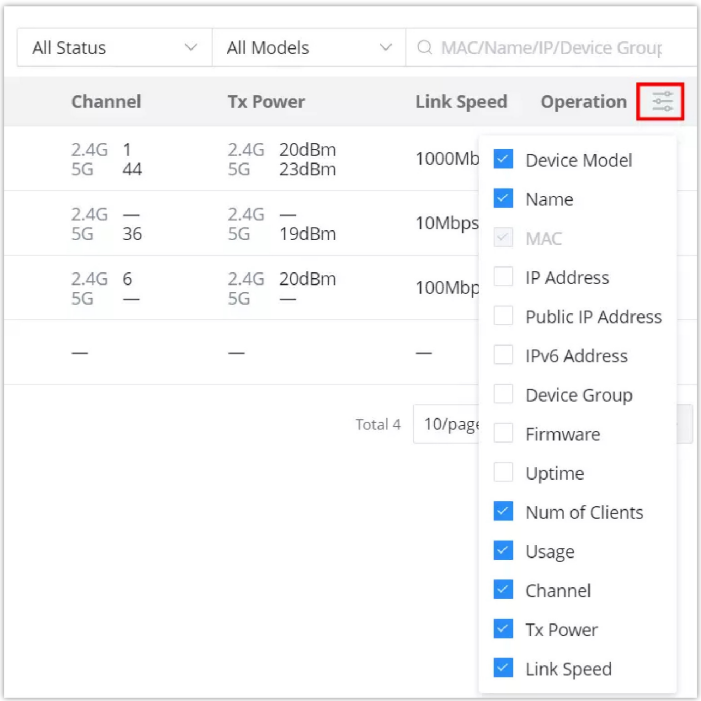


Device Comparison – Maximum Speedtest Value

DEVICES

On this page, users can Add (GWN.Cloud) or Adopt (GWN manager), export a list of devices, move to a different network/Device group, reset, delete, configure, reboot, or push configuration.

Also displays all the related information for the GWN devices on the current network, to add/remove columns, click on "**Parameters icon**" as shown below:

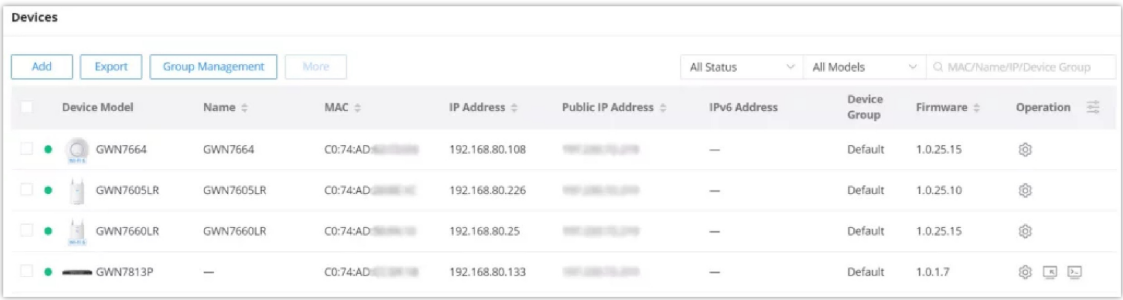


Devices list – part 1

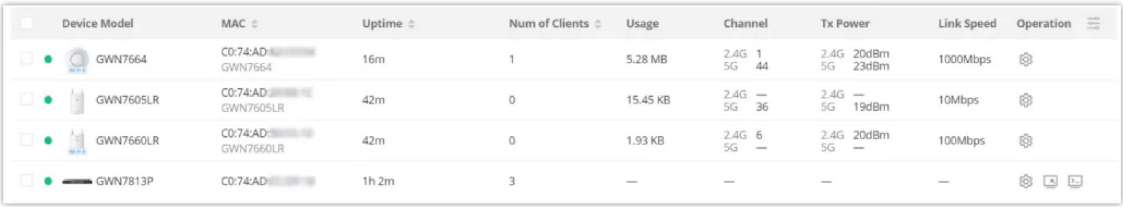
Many information can be viewed from this page:

- **Device Model**
- **Name**
- **MAC address**
- **IP address**
- **Public IP address**
- **IPv6 address**
- **Device group**
- **Firmware**
- **Uptime**
- **Number of Clients**
- **Usage**
- **Channel**: displays GWN APs used channels on all bands.
- **TX Power**: displays transmission power on wireless devices e.g. GWN APs in dBm.
- **Link Speed:** if a GWN AP is connected for example to GWN Switch on a 1Gbps port, then the link speed will be 1Gbps.

For reference, please check the examples below:



Devices list – part 2

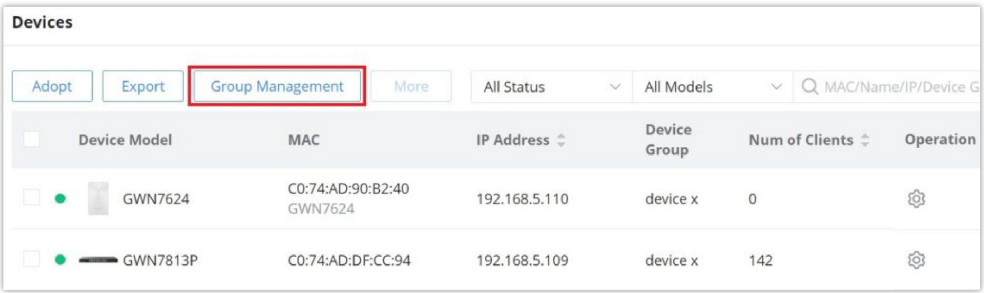


Devices list – part 3

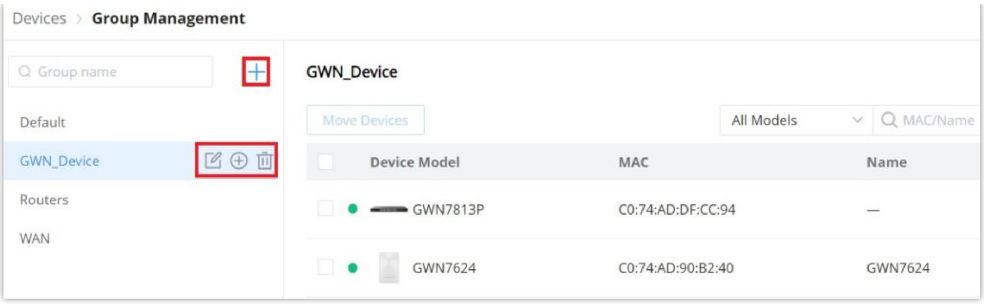
Group Management

Group management is a logical group that contains devices either for the same model or different models. This helps to make GWN devices management even easier, for example, there is a pre-set features for switches when added to a group, or when the user wants to apply certain configurations on many devices at the same time, he can apply them on the device group that contains these devices, etc.

To create or edit a Device group, please navigate to the **Web UI** → **Devices** page then click on the "**Group Management**" button.

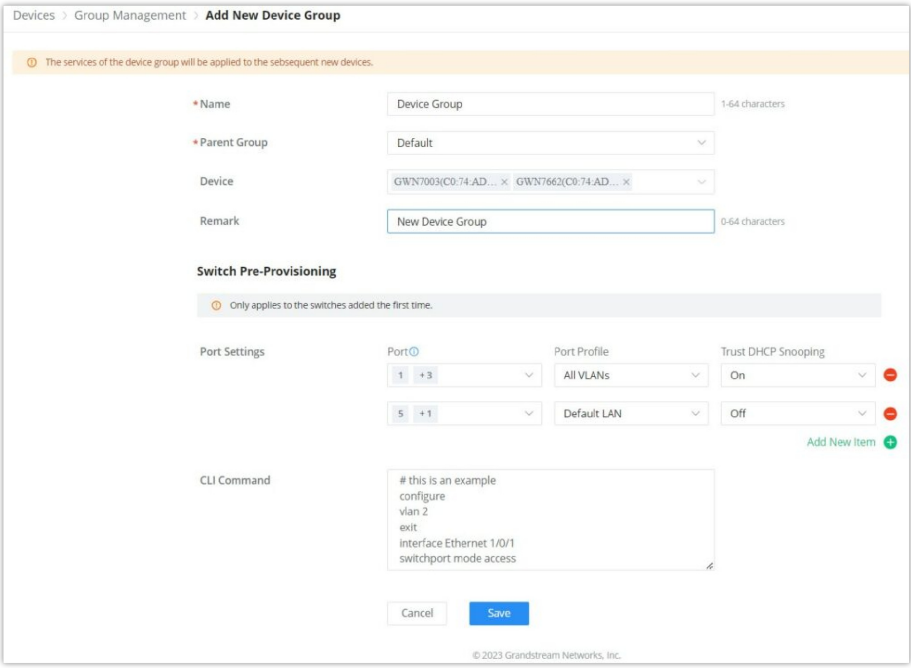


Group Management



Group Management list

To add a new Device group or add devices to a previously created Device group click on "**+**" icon, to delete or modify a Device group click on the "**Edit**" or "**Delete**" icons respectively.



Add a Device Group

Note:

Please note that device group depends on the configuration for example:

- For Wireless LAN (Wi-Fi or SSID), the device group must only contain wireless devices e.g.: GWN APs.
- For the Router parameter under Settings → Internet → Add WAN, the device group must contain only routers of the same mode.

Switch Pre-Provisioning

The switch Pre-Provisioning feature allows the user to pre-configure port settings and CLI commands for the switches that belong to the same device group. Once the GWN switches are added to the device group the pre-configurations will take effect.

Note:

Only applies to the switches added the first time.

- **Port Settings**

In this section, the user can pre-configure the switch ports with a port profile and Trust DHCP Snooping (On or Off).

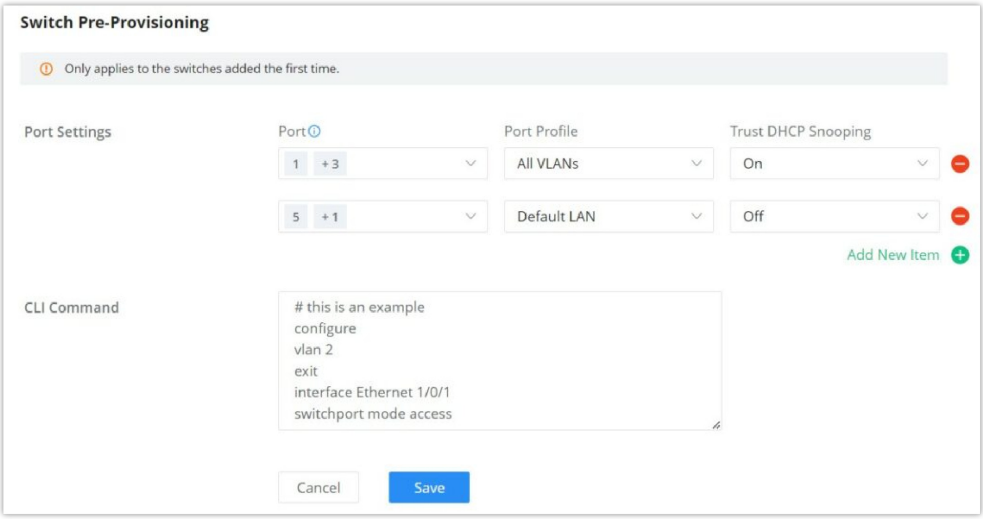
Click on "**+**" or "**–**" icons to add or delete port settings. Please refer to the figure below:

Note:

If the port is not selected on the device, it will not take effect.

- **CLI Command**

The user can enter the CLI commands here, separated by "**Enter**". Please use English and characters only, and use the "**#**" key for the comment line.



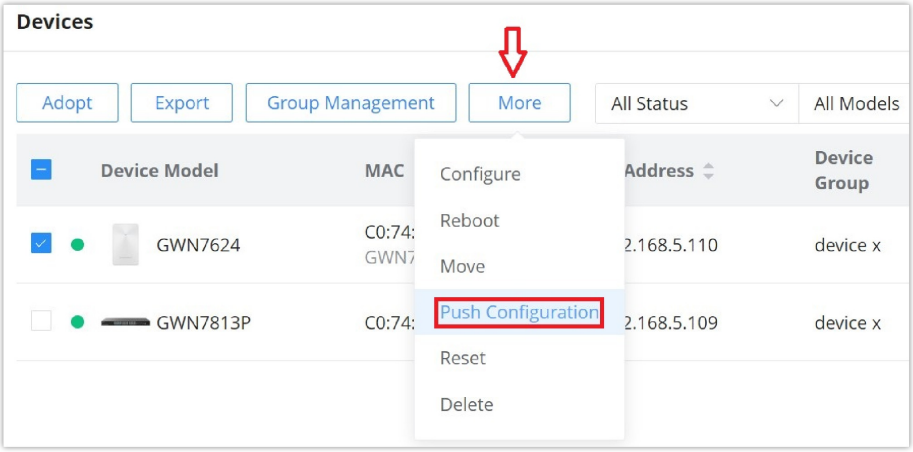
Switch Pre-Provisioning

Push Configuration

The push configuration feature helps to push GWN.Cloud or GWN Manager configuration to the local side of added GWN devices either manually or automatically.

Manual Method

To manually push the GWN.Cloud/GWN Manager configuration to the local side of a GWN device, please navigate to **Web UI** → **Devices** page, then select a device and click on the "**More**" button, next click on "**Push Configuration**".

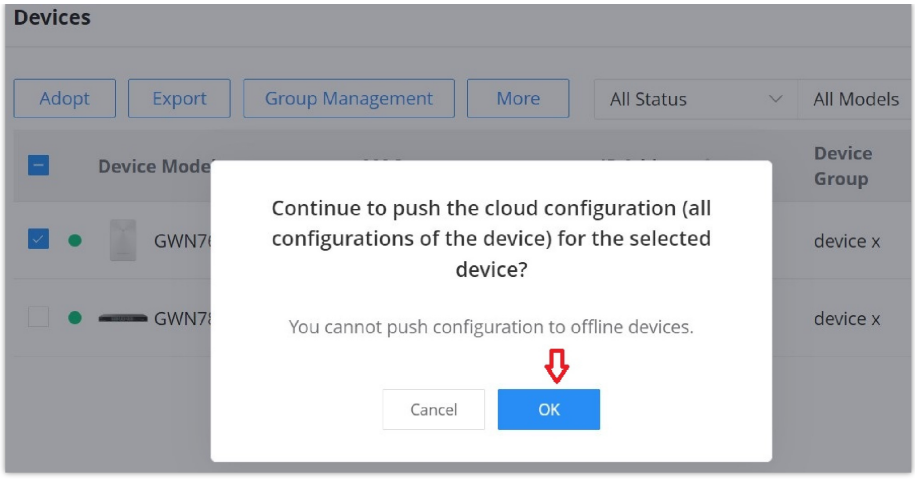


Devices page – Push configuration – part 1

A confirmation dialog will pop up to confirm the push configuration, to proceed click on the "**OK**" button.

Note:

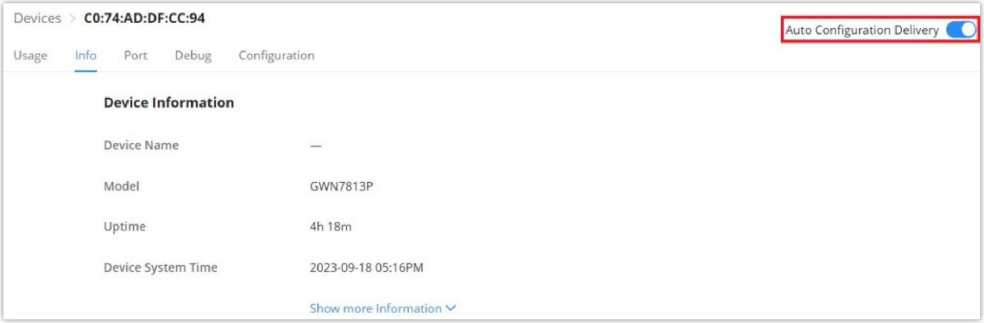
Push configuration does not work with offline GWN devices.



Devices page – Push configuration – Part 2

Automatic Method

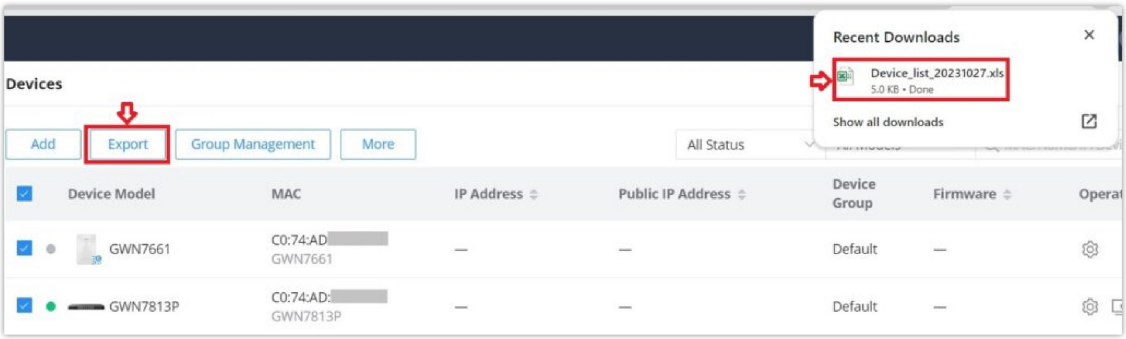
If the user wants to push the GWN.Cloud/GWN Manager configuration automatically for the selected GWN device, navigate to **Web UI → Devices** page, then click on a GWN device or configuration icon, on the top of the page toggle ON "**Auto Configuration Delivery**", please refer to the figure below:



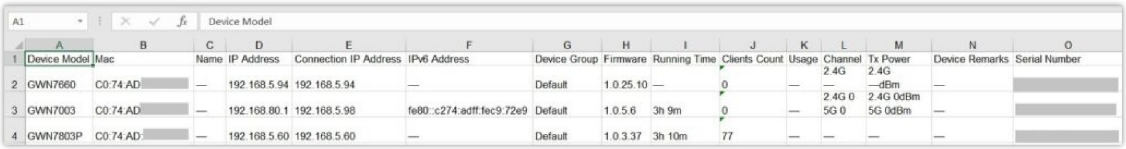
Auto Configuration Delivery

Export

The user can click on the "**Export**" button to download a file (Excel file) that contains all the devices on this network with details. Please refer to the figures below:



Devices Export



Devices Export – Excel file

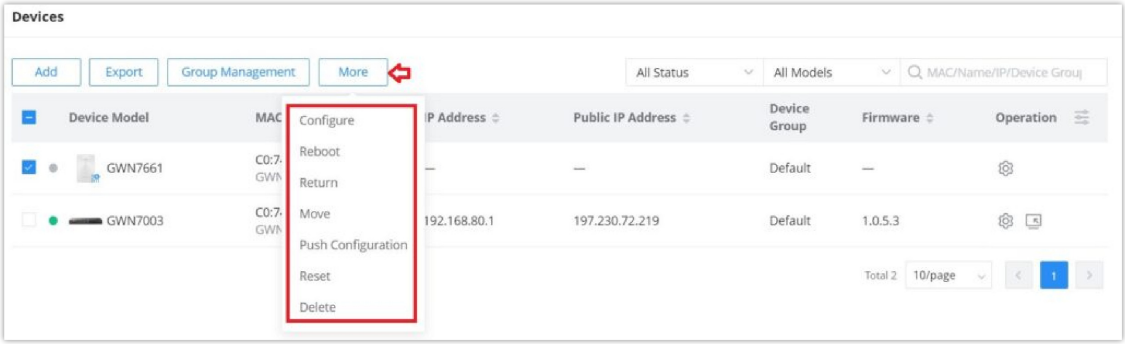
The exported file contains the following information about all the devices:

- Device Model
- MAC Address
- Name

- IP Address
- Connection IP Address
- IPv6 Address
- Device Group
- Firmware Version
- Running Time
- Clients Count
- Usage
- Channel (For GWN APs & GWN Wireless Routers)
- Tx Power
- Device Remarks
- Serial Number

More

To view more options, please click on the "**More**" button as shown below:



Devices – More

Reboot: to reboot the GWN device.

Return: Returning a device will transfer it from its current network to the inventory, where it can be reassigned.

Move: to move a device from the current network to another network.

Reset: to reset a device.

Delete: to delete a device.

Operation

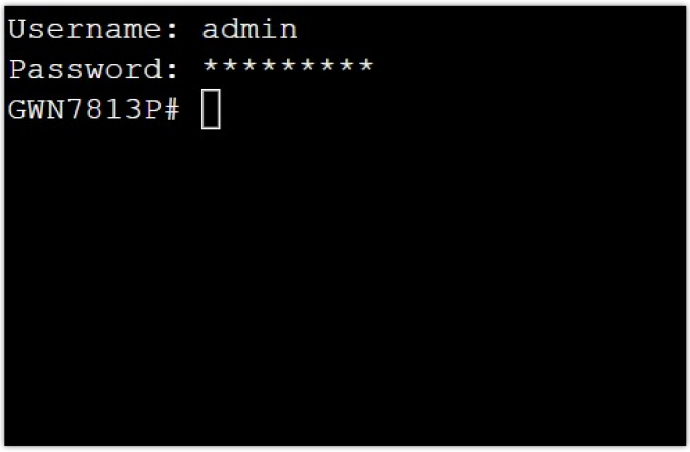
Under Operation, the user can find more tools that can help with managing GWN devices.

Devices – Operation

: Click to configure the GWN device.

: Remove access to the GWN device Web UI.

: Web CLI.



Web CLI

Configure a device

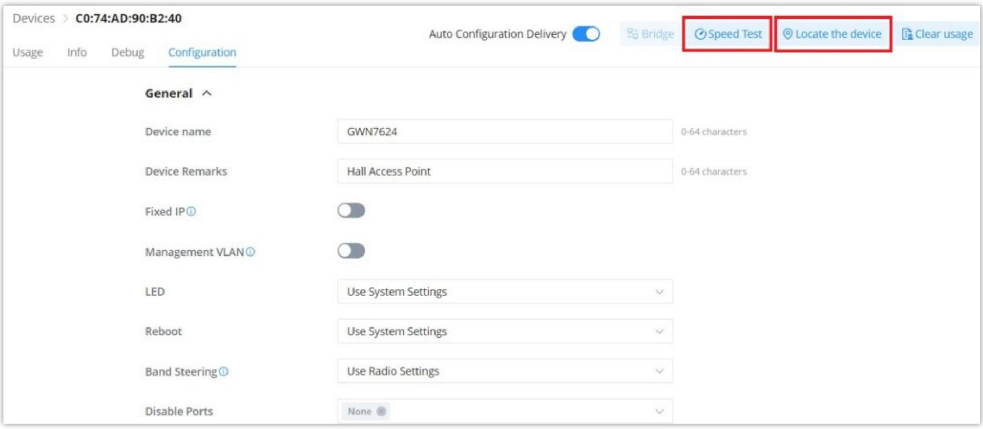
The configuration page allows the administrator to name, reboot, configure, etc. GWN devices.

> **Note:**
>
> This page is dependent on the device, each GWN device may require different configurations.

Navigate to the **Web UI** → **Devices** page, then click on a GWN device entry or click on the configuration icon.

Configure a GWN Access Point

On the Devices page, when the user clicks on a GWN Access point, there are many options on the top of the page dedicated only to GWN Access points:

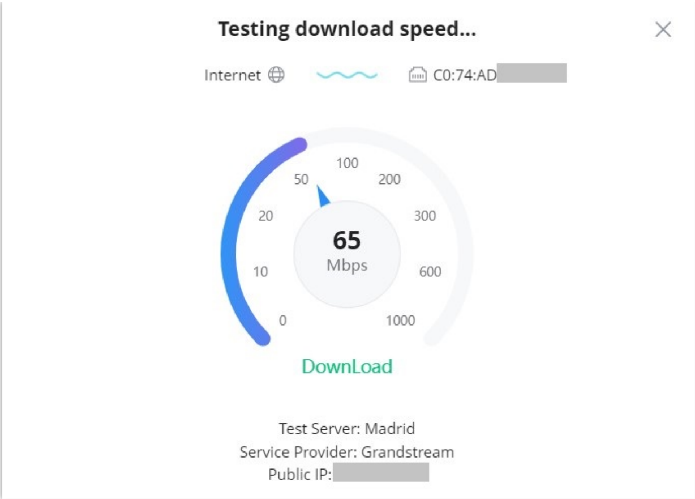


Devices – GWN AP

- **Speed Test:** is a feature on GWN APs to run a speed test directly from GWN.Cloud or GWN manager, making it easier for the administrators to check many GWN APs' performance from one single interface. For more details, please refer to the figures below:

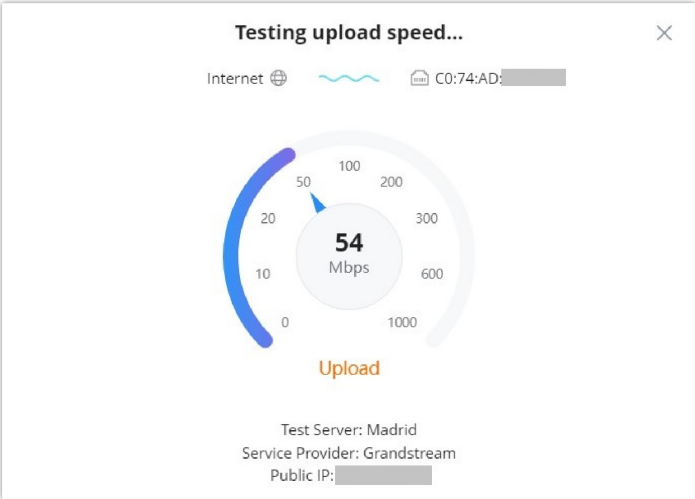
To start running the speed test, click on the "**Speed Test**" button, refer to the figure above.

The first speed test is testing download speed.



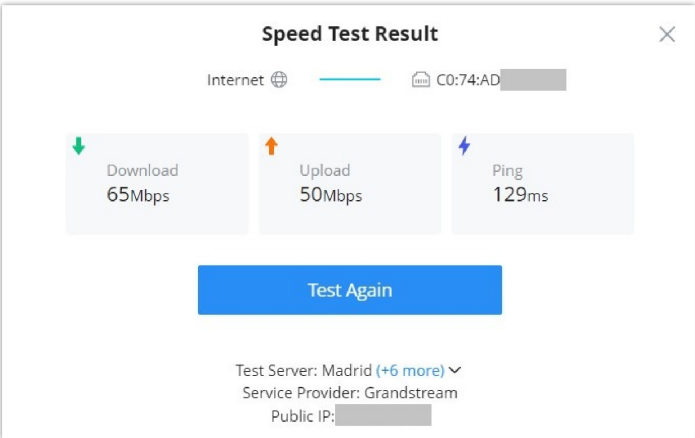
GWN APs Speed Test – Download

Once, the download speed test is over, the second test is testing upload speed.



GWN APs Speed Test – Upload

Finally, the user will be able the see the final result, including Download/Upload speed and also the Ping response time in ms (Millisecond). To run the speed test again, click on the "**Test Again**" button.



GWN APs Speed Test – Result

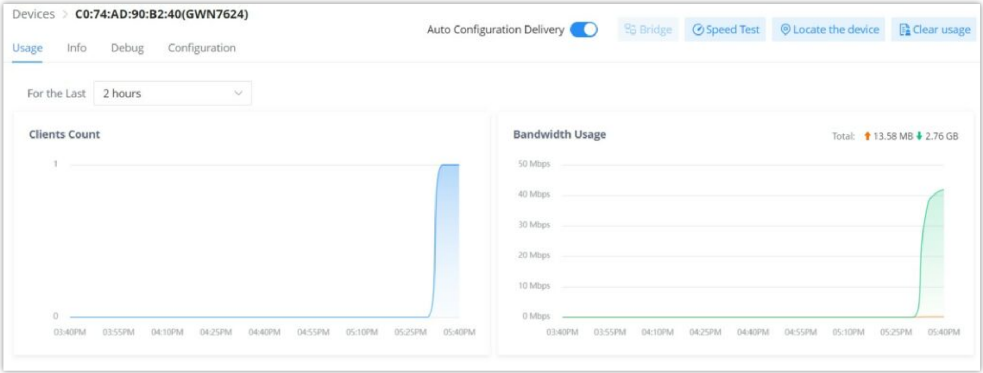
Note:

Speed Test feature is not supported on GWN7610 and GWN7602 APs.

- **Locate the device:** easily locate the device by clicking on the "**Locate the device**" button, a white light will flash for 2 minutes, or click on the "**Close**" button.
- **GWN Access Point – Usage**

This page shows the usage of the GWN AP (Bandwidth usage and Client Count) the data shown can be filtered from 2 hours up to 1 month.

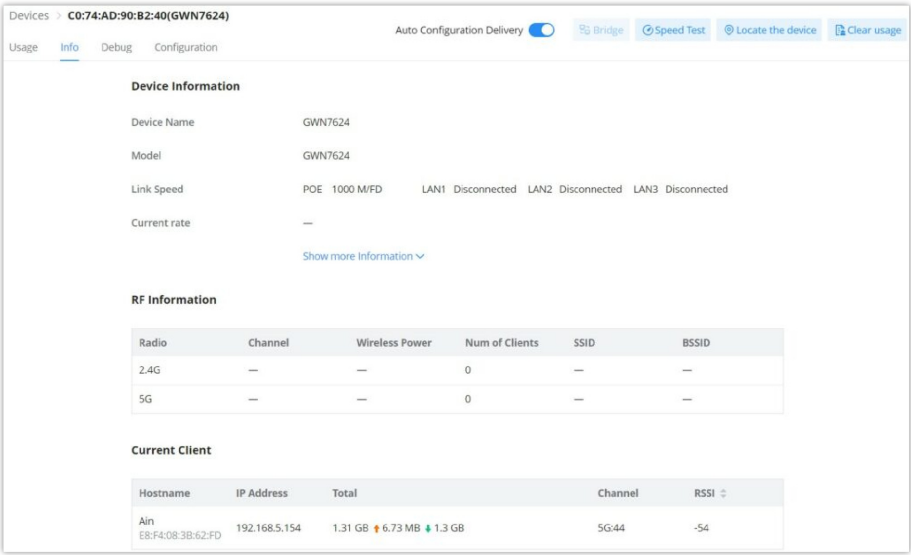
Clear usage: to clear collected data from the AP (Bandwidth usage and Client Count).



GWN AP – Usage

- **GWN Access point – Info**

On this page, info related to the GWN AP information (firmware, UPtime, etc), RF (Radio Frequency), and Current Client can be found here.



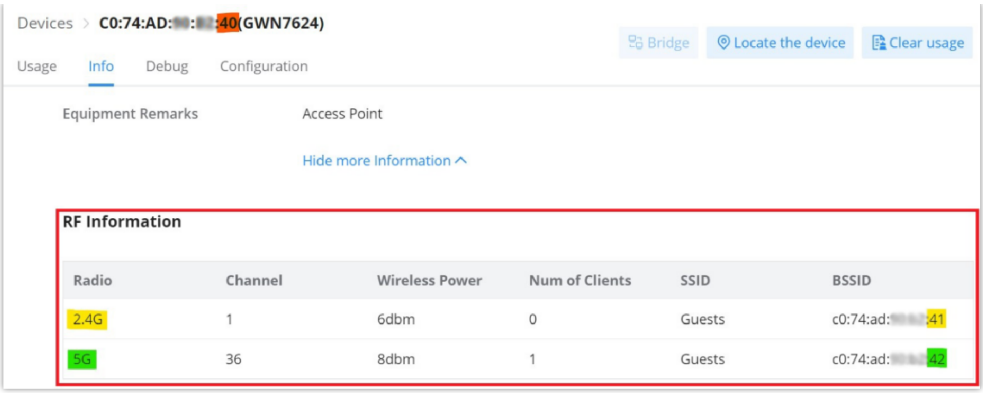
GWN AP – Info

RF Information (BSSID)

The Basic Service Set Identifier (BSSID) is the MAC address of the wireless interface or precisely the radio antenna (2.4GHz or 5GHz). For example, on the GWN7624 access point, we will have two BSSIDs, one for the 2.4GHz antenna and another BSSID for the 5GHz antenna. The two MAC addresses for both antennas will be based on the original device MAC address. In our example, GWN7624 MAC address is C0:74:AD:XX:XX:40 then the 2.4GHz antenna BSSID is C0:74:AD:XX:XX:41, and for the 5GHz antenna is C0:74:AD:XX:XX:42. Access points include the BSSID in their beacons and probes responses.

Navigate to **web UI** → **Devices** → **Info** then scroll down to RF Information (BSSID). Refer to the image below.

> **Note:**
>
> RF Information is only available for devices with wireless signal (Wi-Fi) like GWN access points or GWN wireless routers.

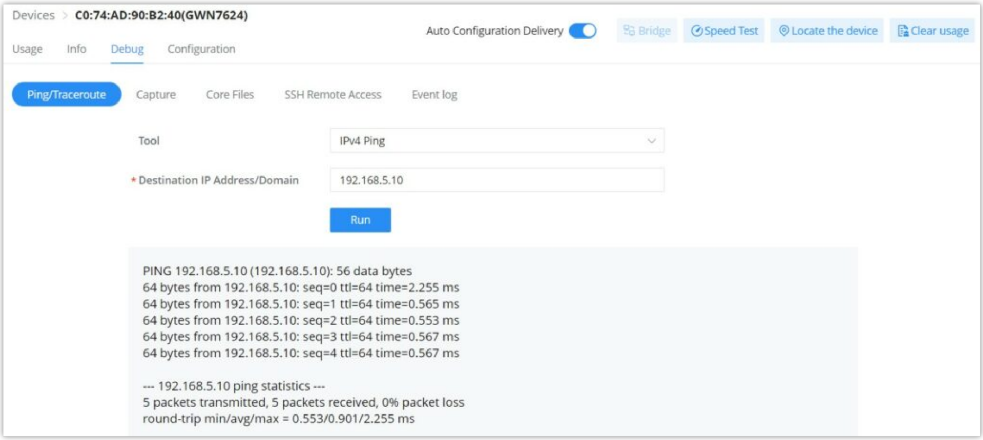


BSSID

- **GWN Access point – Debug**

GWN APs have many debug tools to help diagnose the issues:

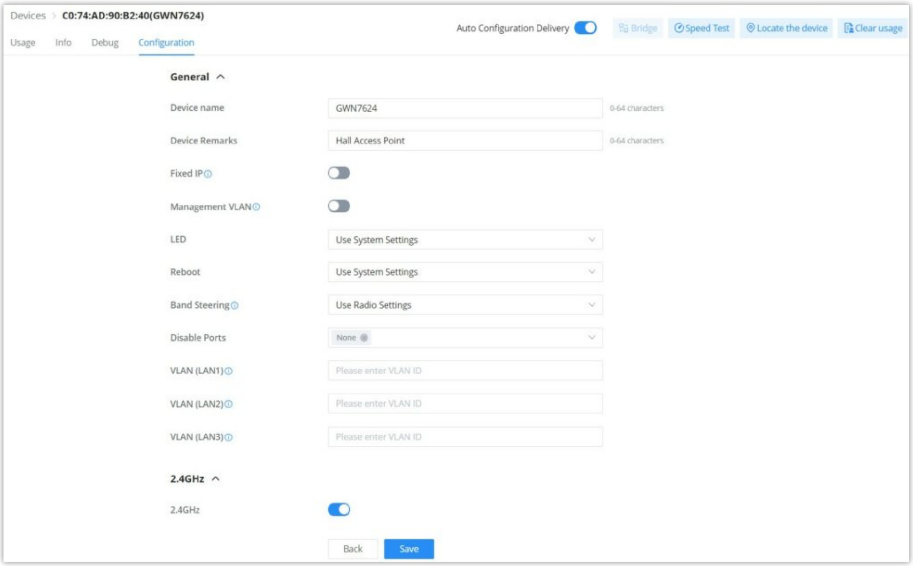
- **Ping/Traceroute:** Ping and traceroute to check the reachability or the trace of an IP/Domain.
- **Capture:** to capture the traffic of GWN AP or GWN.Cloud/Manager (a file will be downloaded to your local machine).
- **Core Files:** Core Files will be listed here when generated.
- **SSH Remote Access:** to allow SSH remote access
- **Event log:** a list of events related to the GWN AP.



GWN AP – Debug

- **GWN Access point – Configuration**

On this page, the administrator can configure GWN AP-related settings like (name, band steering, VLAN, RF, etc). This configuration is only limited to this GWN AP.



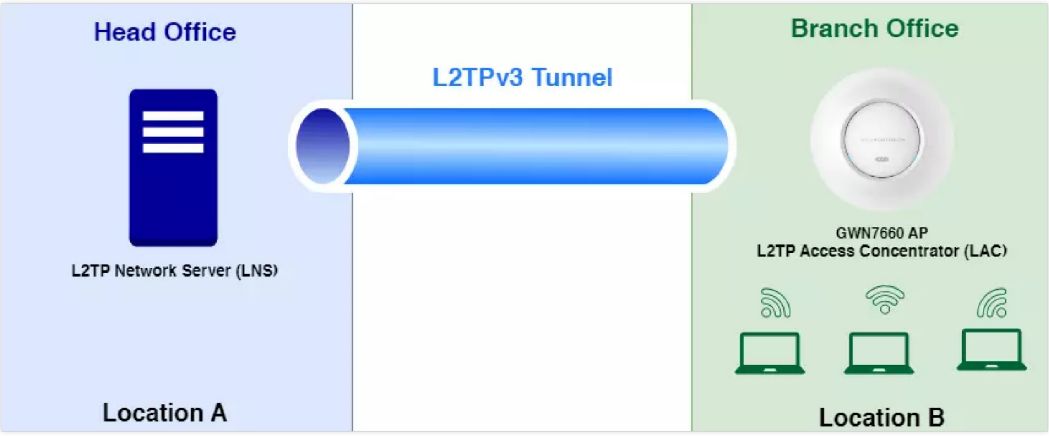
GWN AP – Configuration

Note:

To configure the Global Radio Settings, navigate to **Web UI → Settings → Wi-Fi page → Global Radio Settings page**.

- **GWN AP L2TPv3**

L2TPv3 (Layer 2 Tunneling Protocol version 3) is a versatile protocol widely utilized for tunneling Layer 2 traffic over IP networks. When implemented on GWN Access Points acting as L2TP Access Concentrators (LACs) connecting to a central L2TP Network Server (LNS), it enables seamless and secure communication for wireless clients.



L2TPv3 Diagram

GWN Access Points, known for their reliability and performance, acting as LACs establish tunnels to the LNS, facilitating the encapsulation and transmission of all wireless clients' Layer 2 traffic. This architecture proves particularly beneficial in centralized network models where VLANs extend from corporate environments to remote branch sites.

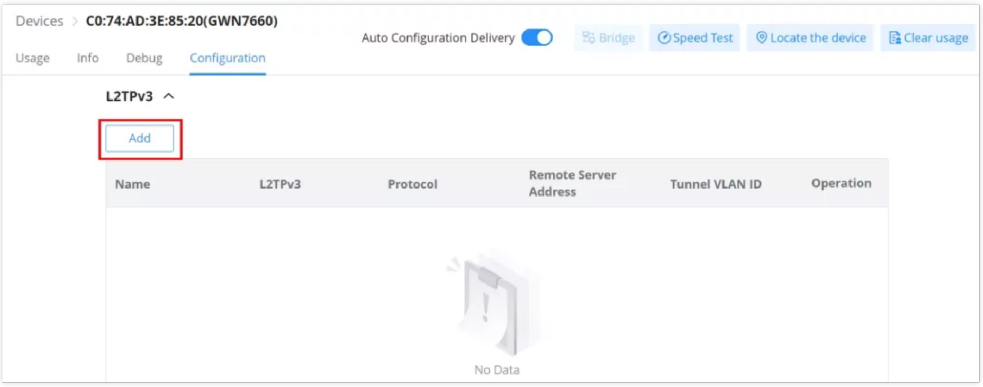
By leveraging L2TPv3, wireless clients associated with GWN Access Points are seamlessly integrated into the corporate network infrastructure. They receive IP addresses dynamically from the DHCP server hosted on the LNS, ensuring efficient network resource allocation and management.

This integration empowers organizations with scalable and secure wireless connectivity solutions, optimized for various deployment scenarios. Whether for small businesses or enterprise environments, the utilization of L2TPv3 on GWN Access Points offers a robust framework for extending network capabilities while maintaining high levels of performance and security.

Note:

This feature is only supported on GWN7660 and GWN7660LR.

To add a L2TPv3 tunnel, click on "**Add**" button as shown below:

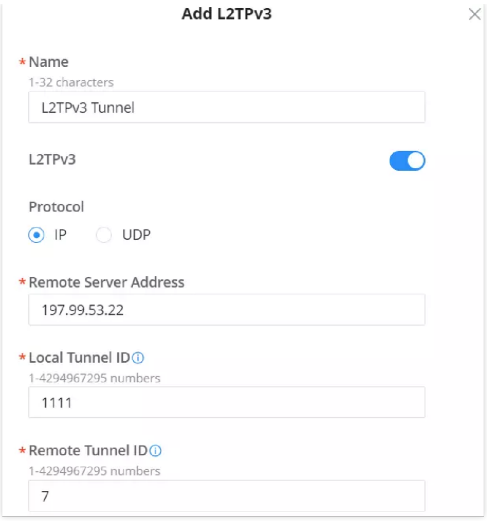


L2TPv3

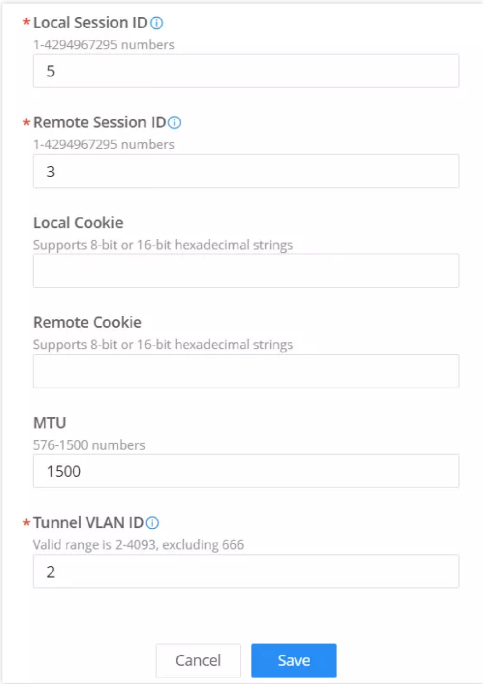
Note:

It is best to set the MTU to match the server to avoid network connectivity issues.

Please refer to the figure and table below:



Add L2TPv3 – part 1



Add L2TPv3 – part 2

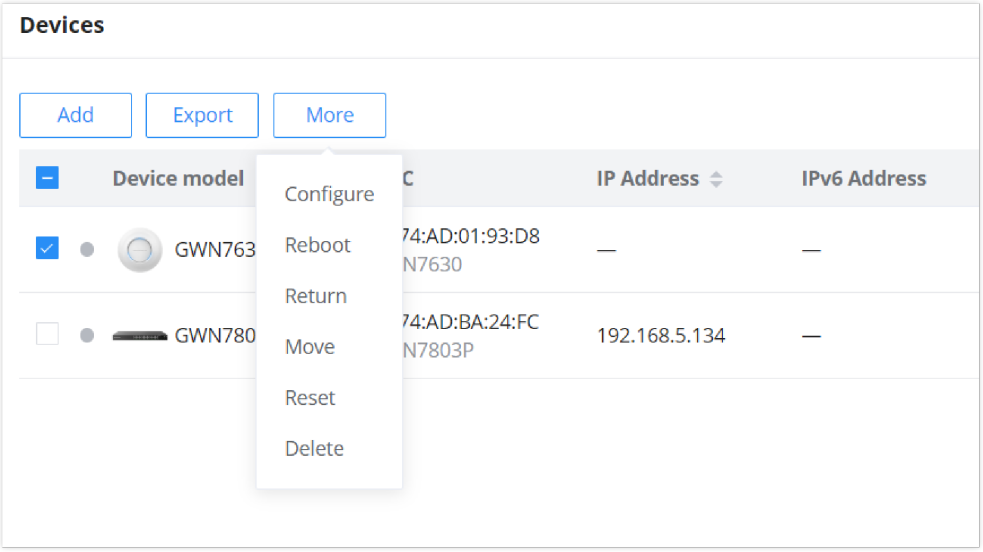
Name	Set the name of the tunnel.
L2TPv3	Enable/Disable the tunnel.
Protocol	Set the encapsulation type of the tunnel. Valid values for encapsulation are: **UDP, IP.**
Remote Server Address	Set the IP address of the remote peer.
Local Tunnel ID	Set the tunnel id, which is a 32-bit integer value. This uniquely identifies the tunnel.
Remote Tunnel ID	Set the peer tunnel id, which is a 32-bit integer value assigned to the tunnel by the peer.
Local Session ID	Set the session id, which is a 32-bit integer value. This uniquely identifies the session being created. The value used must match the peer_session_id value being used at the peer.
Remote Session ID	Set the peer session id, which is a 32-bit integer value assigned to the session by the peer. The value used must match the session_id value being used at the peer.

Local Cookie	Set an optional cookie value to be assigned to the session. This is a 4 or 8 byte value, specified as 8 or 16 hex digits, e.g. 014d3636deadbeef. The value must match the peer_cookie value set at the peer. The cookie value is carried in L2TP data packets and is checked for expected value at the peer. Default setting is no cookie used.
Remote Cookie	Set an optional peer cookie value to be assigned to the session. This is a 4 or 8 byte value, specified as 8 or 16 hex digits, e.g. 014d3636deadbeef. The value must match the cookie value set at the peer. It tells the local system what cookie value to expect to find in received L2TP packets. Default is no cookie used.
MTU	Set the MTU. ***Note:*** *Please make sure the MTU values are consistent with the INS values.*
Tunnel VLAN ID	Specify the VLAN ID ***Note:*** *The tunnel ID must be set in SSID, and make sure that SSID only has the AP(s) who enabled L2TPv3.*

Add L2TPv3

Configure GWN Access Points in Batches

GWN Management platforms allow configuring GWN access points in batches, to do that please select the access points, click on "More", then click "Configure" as shown in the figure below.



Batch Configuration of GWN Access Points

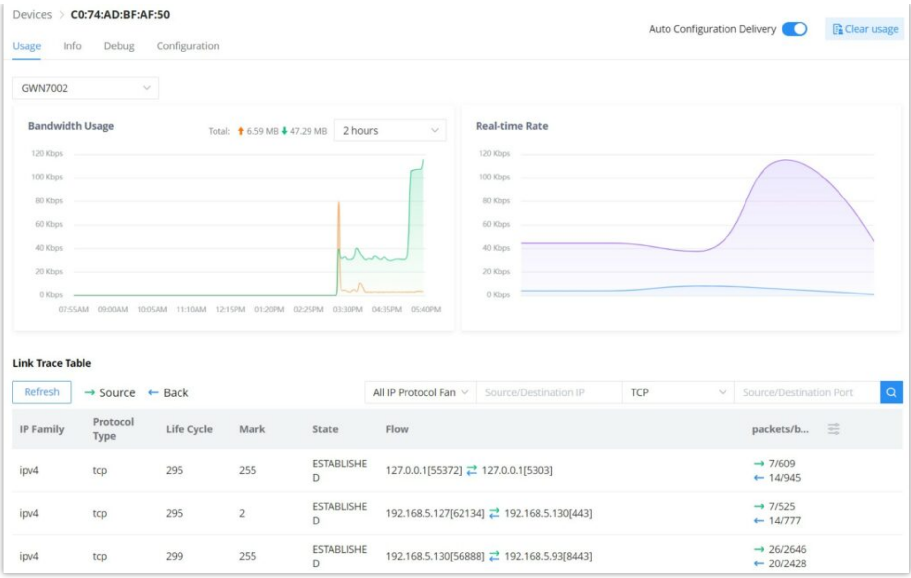
Note:

Batch configuration of GWN Access Points is for the same model only.

Configure a GWN Router

- **GWN Router – Usage**

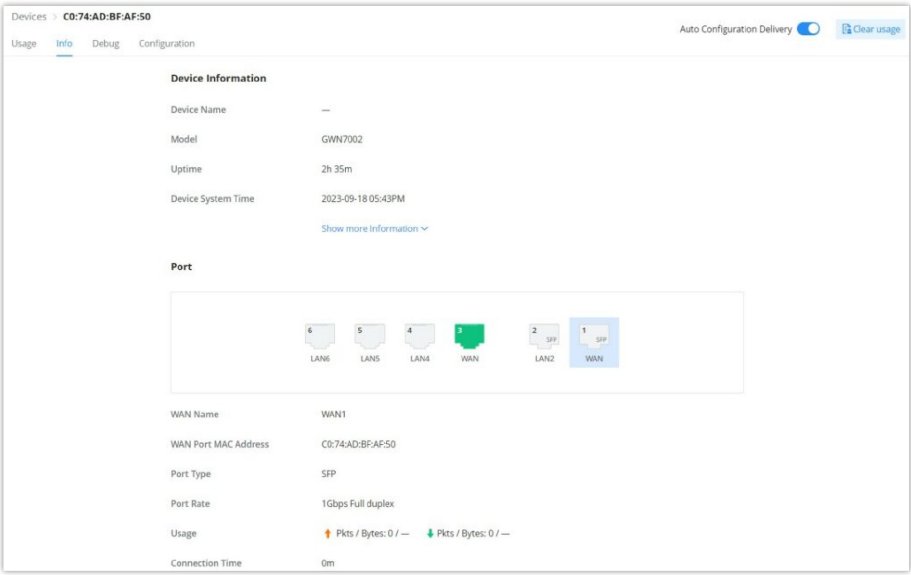
Same as the GWN AP usage tab, on this page, the user can find usage related to the GWN Router, like bandwidth usage, Real-time Rate, and even a Link Trace Table for detailed traffic data. Please refer to the figure below:



GWN Router – Usage

- **GWN Router – Info**

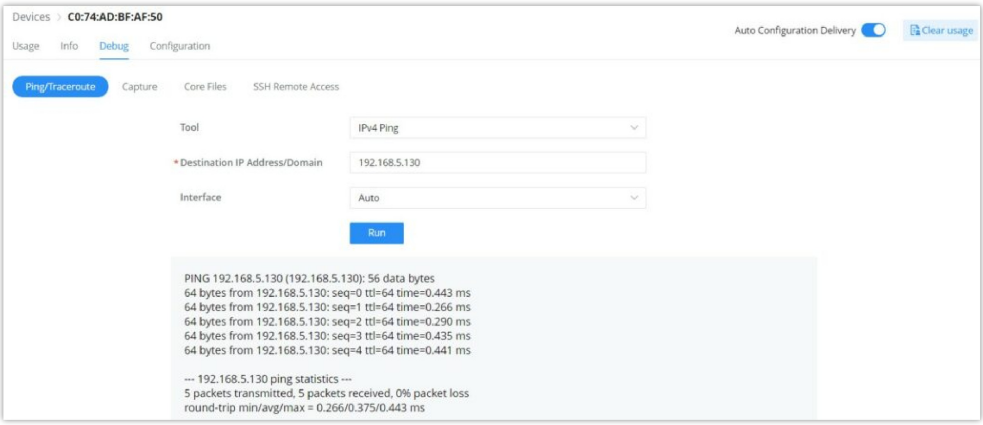
All the information related to the GWN router can be found here, including Device information (name, firmware, etc), GWN router ports' status (active ports), and information about IPv4 and IPv6 (IP address, DNS, etc).



GWN Router – Info

- **GWN Router – Debug**

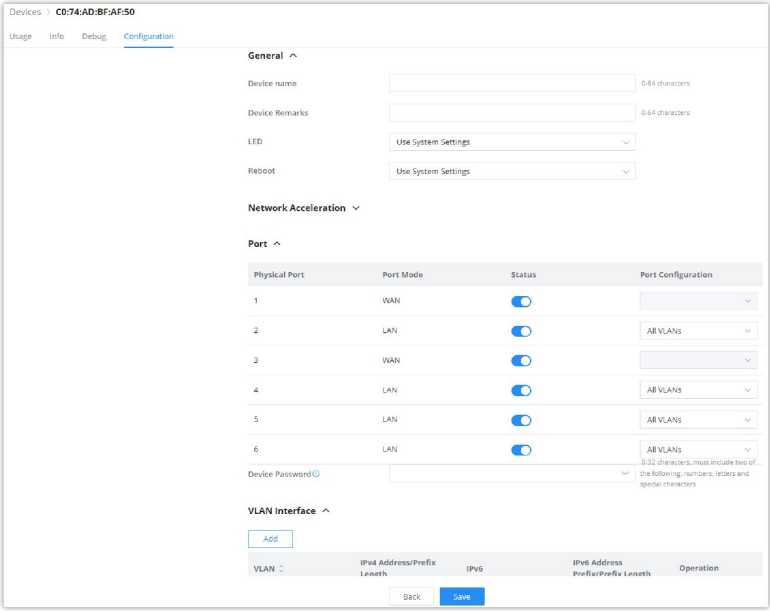
The same debug tools found on GWN APs can be found here, please check GWN Access Points.



GWN Router – Debug

- **GWN Router – Configuration**

On the GWN router configuration tab, the user can configure the GWN router like device name, and Network Acceleration, enable disable physical ports (WAN/LAN), and add/edit VLAN interfaces. Please refer to the figure below:



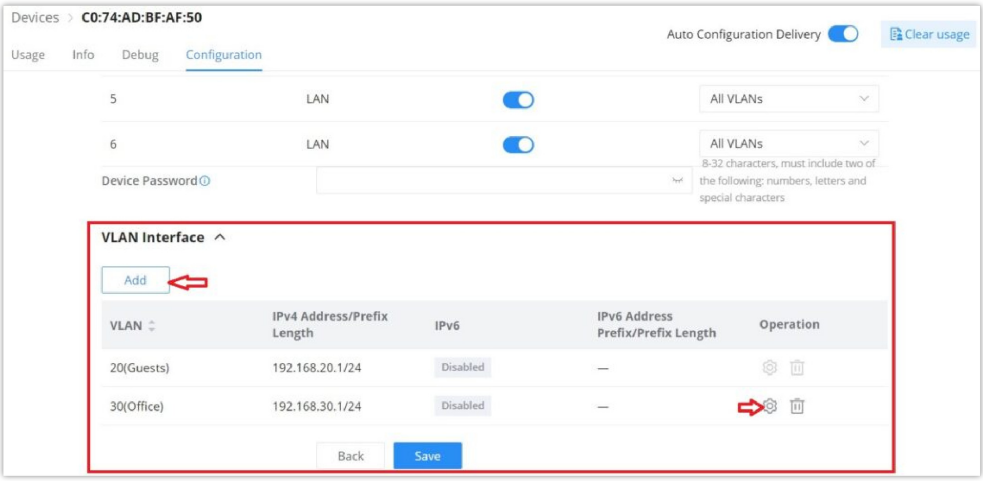
GWN Router – Configuration

Note:

To configure the Global Radio Settings for wireless routers, navigate to **Web UI → Settings → Wi-Fi page → Global Radio Settings page**.

VLAN Interface (interface for GWN routers)

VLAN Interface as the name suggests turns a VLAN into a virtual interface that can be routed using layer 3 routing by giving this interface an IP address. To add a VLAN interface for GWN routers, please click on the "**Add**" button or configure a previously created one by clicking on the "**Configure icon**" under operation, refer to the figure below:



GWN Router configuration – VLAN Interface

Then, select the VLAN from the list or visit the LAN page to create a VLAN (with or without DHCP Server) first in case there are no VLANs listed, then specify an IPv4 or IPv6 Address/Prefix for this VLAN interface.

GWN router – Add/Edit VLAN Interface

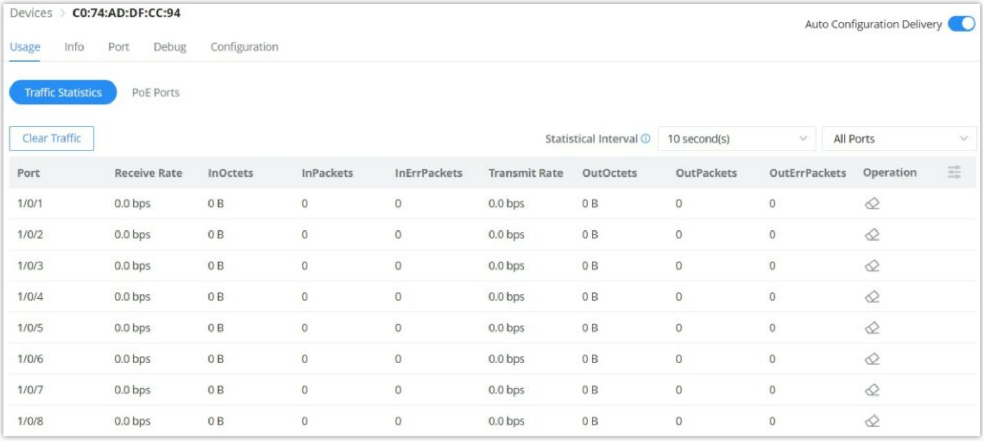
Note:

Before configuring the IP address, configure the default route for the device in the static route to prevent the VSwitch from losing the default route and unable to connect to the cloud.

Configure a GWN Switch

- **GWN Switch – Usage**

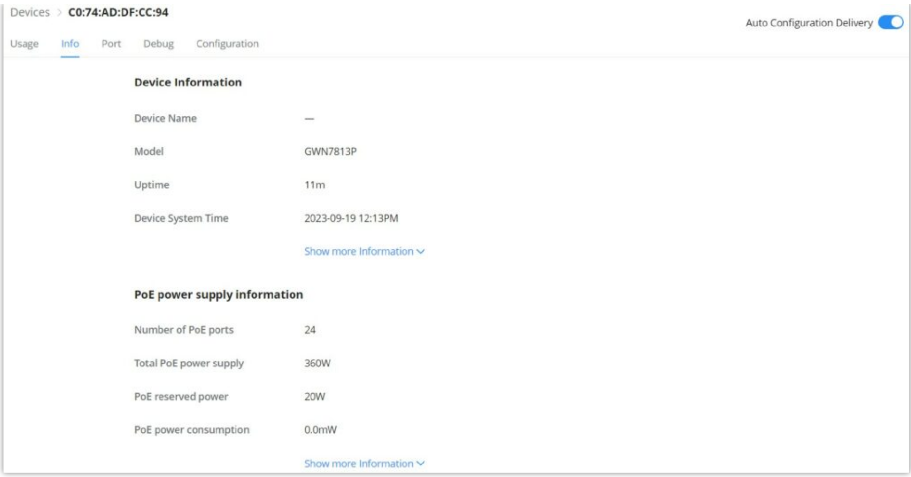
As for the GWN Switches usage tab, traffic statistics or PoE Ports power usage can be found here. The user can click on the "**Clear Traffic**" button to clear all the traffic or click on the "**clear**" icon under operation to clear traffic only for a specific port.



GWN Switch – Usage

- **GWN Switch – Info**

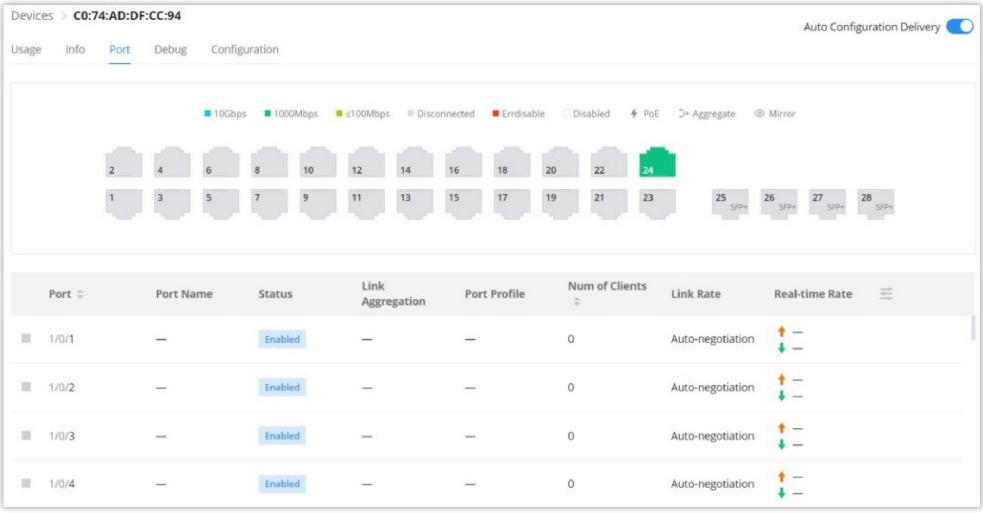
Relevant GWN switch information or PoE power supply information can be found here.



GWN Switch – Info

- **GWN Switch – Port**

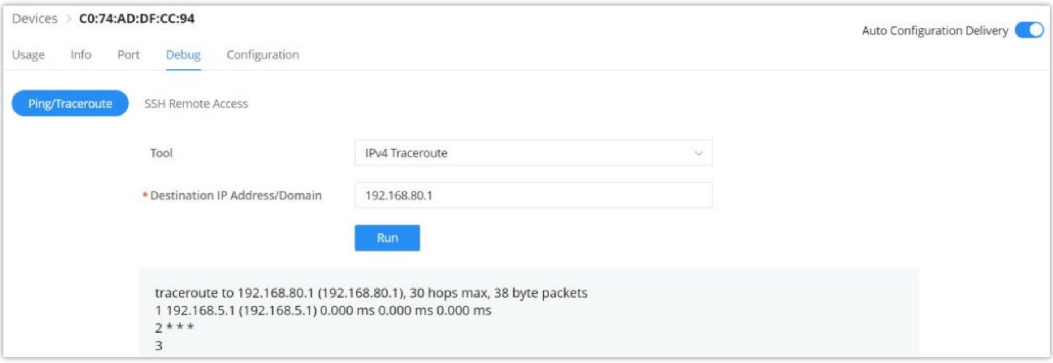
On the Port tab, under devices configuration only for GWN switches, the user can view GWN switch ports status and also configure them (enable/disable a port, Link Aggregation, Port Mirroring, etc). Please refer to the figure below:



GWN Switch – Port

- **GWN Switch – Debug**

Debugging tools like ping/traceroute are also available for GWN switches, as well as SSH Remote Access.

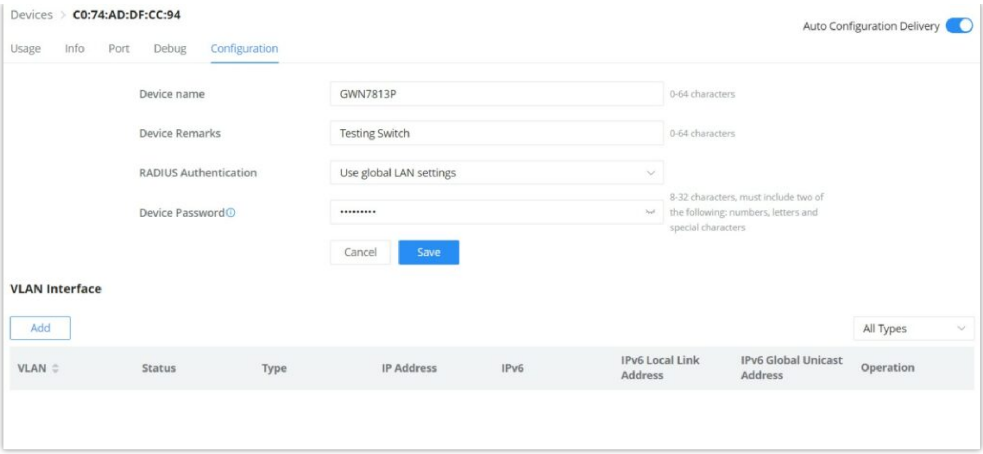


GWN Switch – Debug

- **GWN Switch – Configuration**

On this tab, under devices (only for GWN switches), the user can configure GWN switch-related configurations like switch name, RADIUS Authentication, and VLAN interfaces.

Device Password: Set the device's SSH remote login password other than APs, which is also the device's web login password.



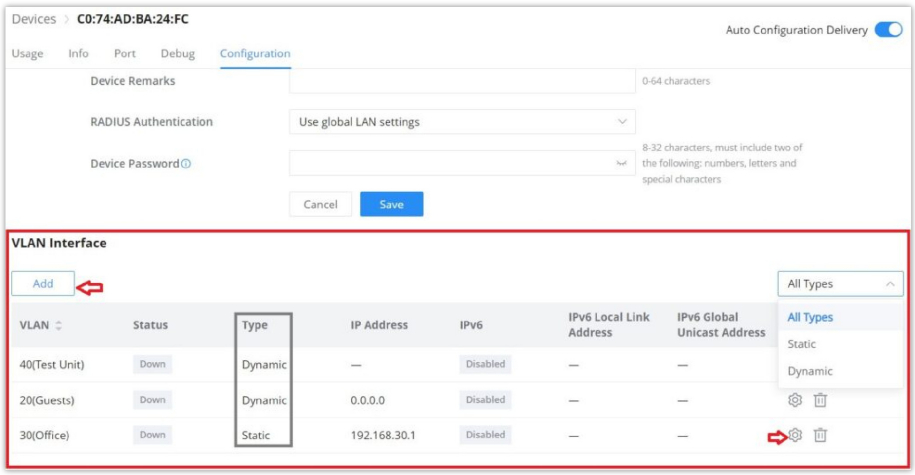
GWN Switch – Configuration

VLAN Interface (interface for GWN switches)

Hosts in different VLANs cannot communicate directly and need to be forwarded through routers or layer 3 switching protocols.

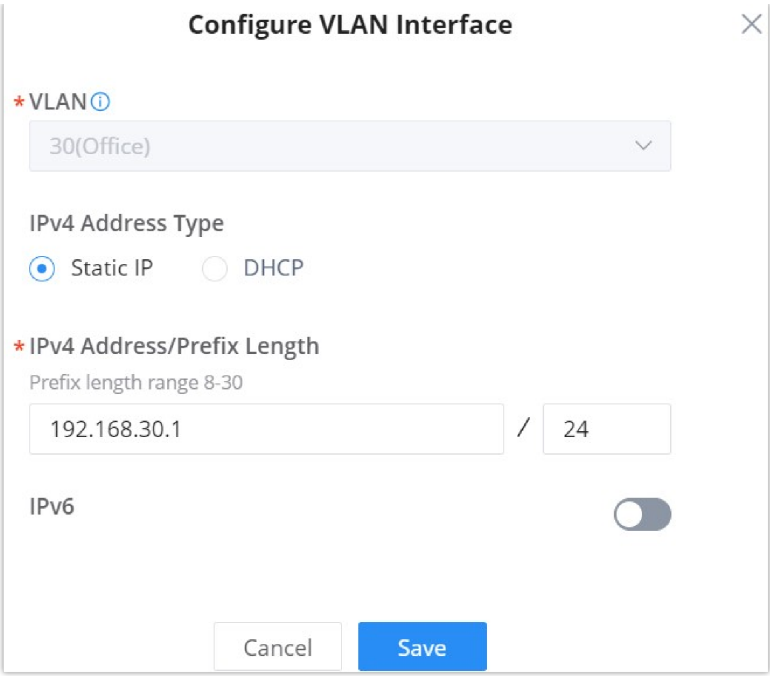
A VLAN interface is a virtual interface in Layer 3 mode and is mainly used to implement Layer 3 communication between VLANs, it does not exist on the device as a physical entity. Each VLAN corresponds to an interface by configuring an IP address for it, it can be used as the gateway address of each port in the VLAN so that packets between different VLANs can be forwarded to each other on Layer 3 routing through the VLAN interfaces. GWN switches support IPv4 interfaces as well as IPv6.

To add a VLAN Interface for GWN switches, click on the "**Add**" button or click on the **"Configure icon"** to edit a previously added one. Refer to the figure below:



GWN Switch configuration – VLAN Interface

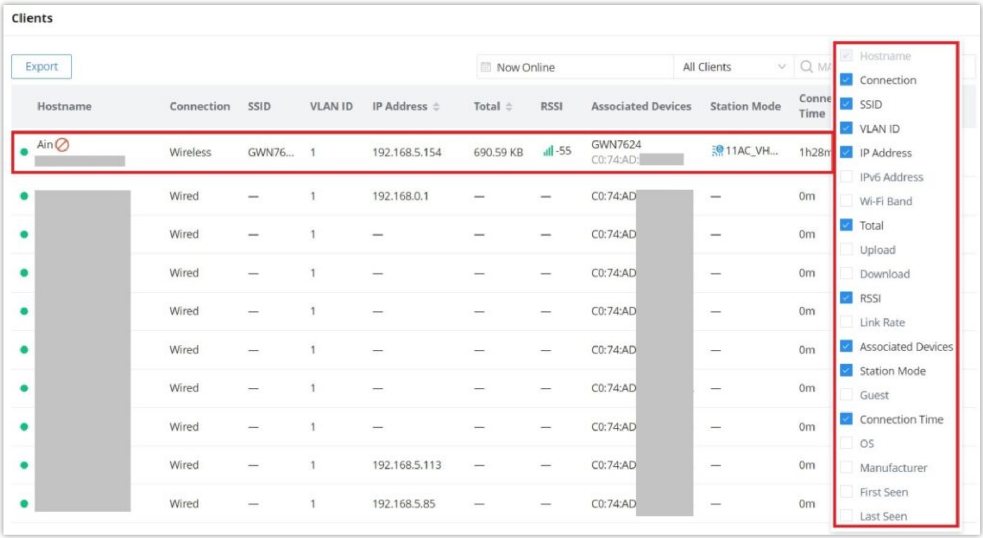
- **If DHCP is selected:** hosts will obtain IP addresses automatically from whatever DHCP pool is configured for example a router.
- **If Static IP is selected:** for hosts to obtain IP addresses, the user must configure a VLAN with DHCP Server, and create or edit VLAN first LAN.



GWN Switch – Add/Edit VLAN Interface

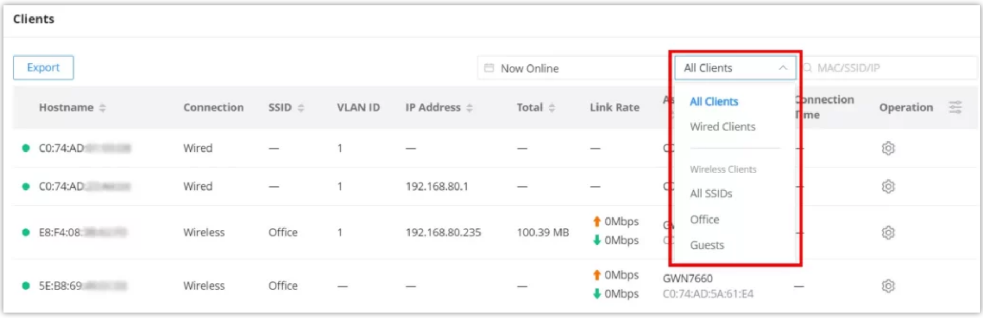
CLIENTS

From The client's page, the administrator can monitor and manage all the clients connected to the network/GWN devices. A list of all connected clients with their related info like connection type, IP Address, Total bandwidth, Associated Devices (GWN AP, Router or switch), etc. will be also displayed, for more info about the client or related configuration please click on the client or click on the configuration icon. Please refer to the figure below:



Clients Page

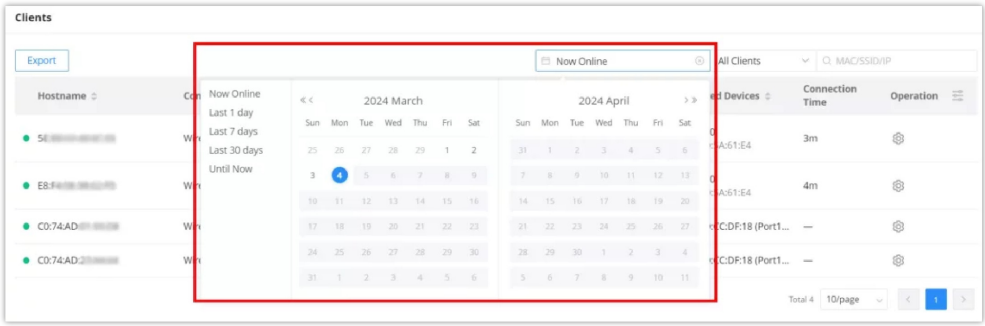
To make it easier for the users to find the connected clients, it's possible to filter by wired clients or wireless clients and even by SSID e.g. (Office, Guests …), please refer to the figure below:



Clients Page – sorting

The same way, users can filter clients by wired and wireless connections, they also can filter by time (calendar), many options are available:

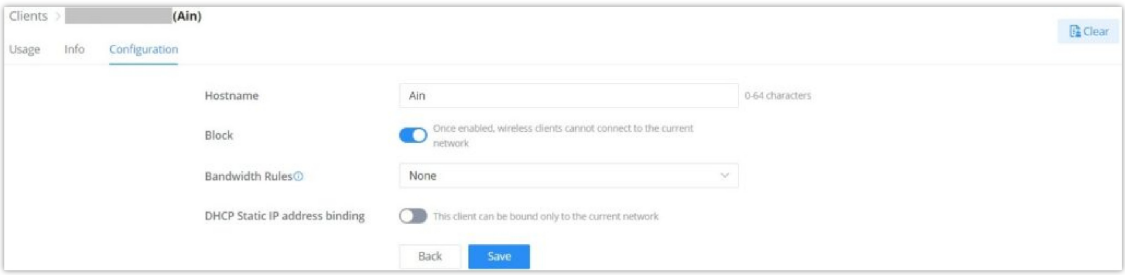
- **Now Online:** displays currently connected clients.
- **By day:** displays connected clients from a past day selected from the calendar.
- **Last 1 day:** displays connected clients of the last day.
- **Last 7 Days:** displays connected clients of the last 7 days.
- **Last 30 days:** displays connected clients of the last 30 days.
- **Until Now:** displays all connected clients until the current moment.



Clients Page – calendar

Configure a Client

Per client configuration is available to assign a name or block (only wireless clients) access to the network, also specifying bandwidth rules or enabling DHCP Static address binding.

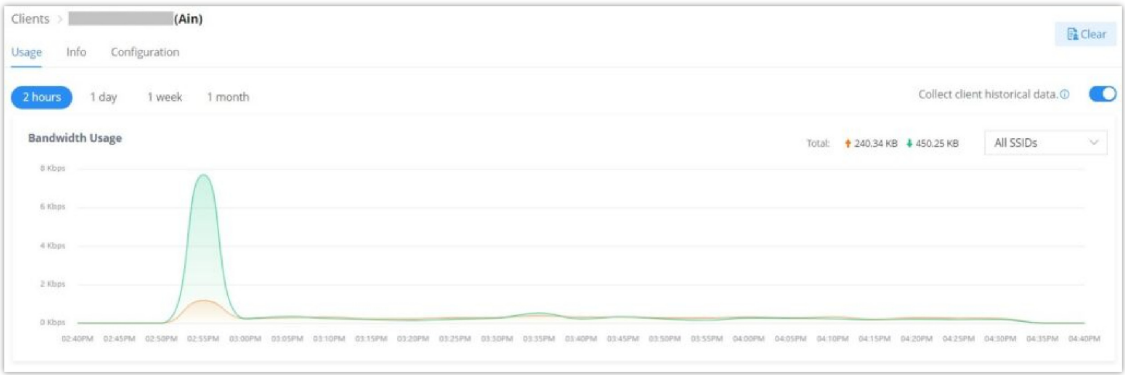


Client – Configuration

Client usage

To get more info about the client usage please navigate to **Web UI → Clients → Usage**, Bandwidth usage per SSID, or All SSIDs can be displayed here with the option to specify the duration 2 hours, 1 day, 1 week or 1 month.

Click on  to clear the data.

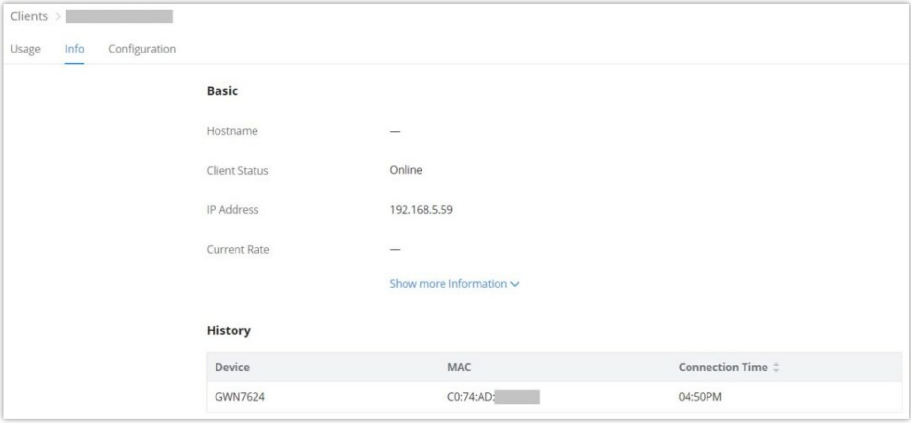


Client Usage

Client info

On this page, info about the current client will displayed showing the client's Hostname, Client Status, IP Address, Current rate, etc.

Click on **"Show more information"** to get more info about the client.



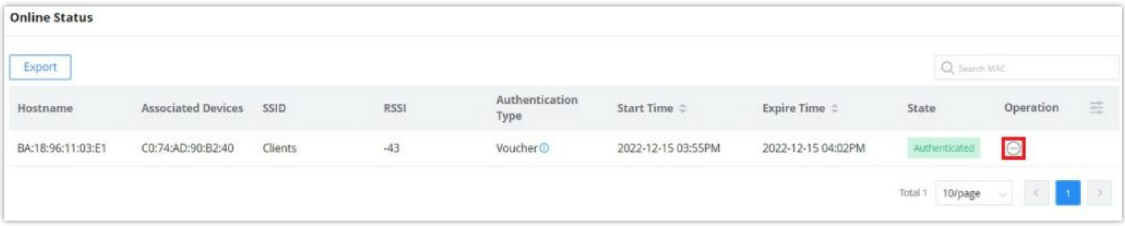
Client Info

GUESTS

Online Status

This page displays information about the clients connected via the Captive portal including the MAC address, Hostname, Authentication Type, the device they are connected to, Certification state, SSID as well as the RSSI and Data usage.

The administrator can also export a *.csv* file containing all the guest information (Client MAC address; Authentication Form when choosing Custom Field, Last Visit…etc.) by clicking on the "Export" button, and selecting the export time period for all users which connected to the captive portal during that period.



Guests – Online Status

Voucher

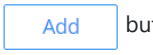
The voucher feature will allow clients to have internet access for a limited duration using a code that is randomly generated from the platform controller.

As an example, a coffee shop could offer internet access to customers via Wi-Fi using voucher codes that can be delivered on each command. Once the voucher expires the client can no longer connect to the internet.

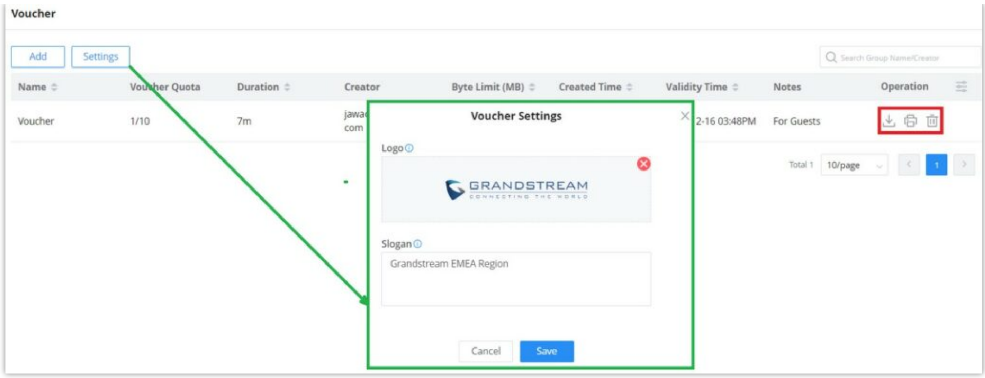
Note that multiple users can use a single voucher for connection with the expiration duration of the voucher that starts counting after the first successful connection from one of the users that are allowed.

Another interesting feature is that the admin can set data bandwidth limitations on each created voucher depending on the current load on the network, users' profile (VIP customers get more speed than regular ones, etc….), and the internet connection available (fiber, DSL or cable, etc….) to avoid connection congestion and slowness of the service.

Each created voucher can be printed and served to the customers for usage, and the limit is 1000 vouchers.

Click on 

button to add a new voucher.



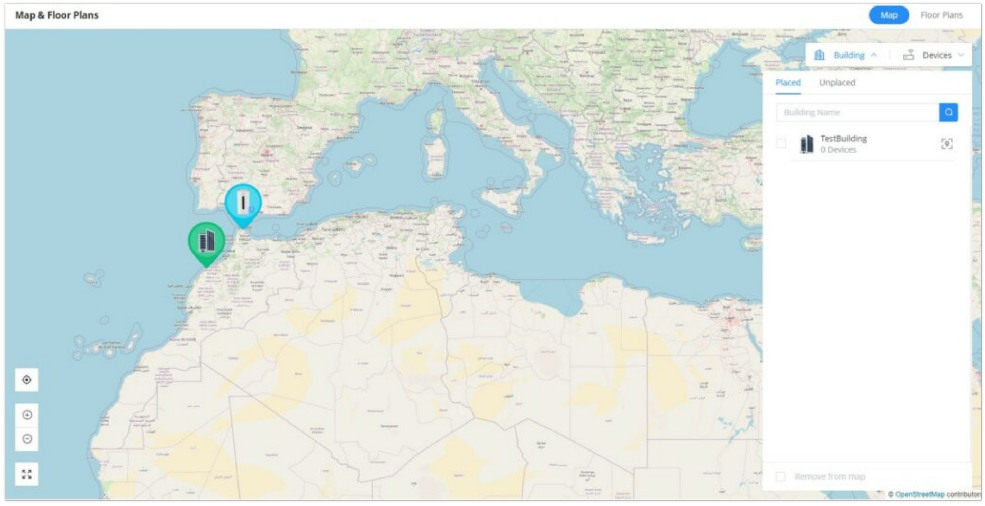
Voucher page

MAP & FLOOR PLANS

Map

With the Map feature, the administrators can link GWN devices or buildings to certain places on the Map, either manually on the Map or automatically using the device IP address, which will help to geolocate GWN devices or to link them to a different location (ex: company branch).

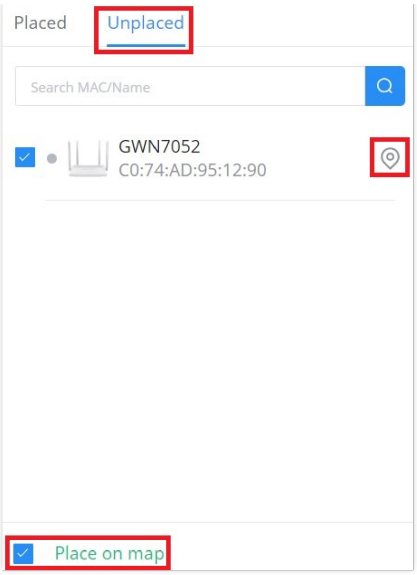
To place GWN Devices/Building on the Map, please navigate to **Web UI** → **Map & Floor Plans** (under Map tab). Please refer to the figure below:



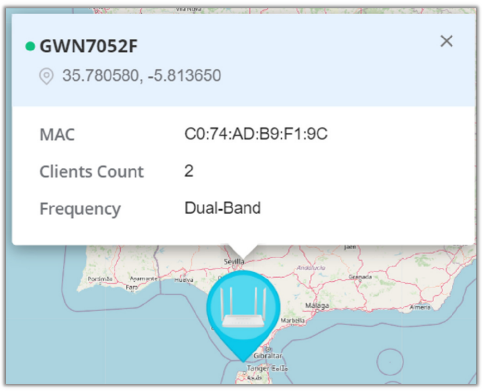
Map

> **Note:**
>
> Map feature on GWN.Cloud/GWN Manager supports both OpenStreetMap and Google Maps.

Select "**Building**" or "**Devices**" and under "**Unplaced**" select the device/building then click on the "**Map**" icon to manually place the GWN device on the map, or click on "**Place on map**" to be placed based on the IP address.

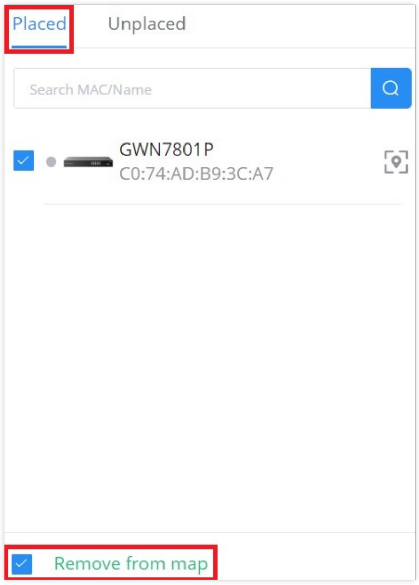


Unplaced devices



Placed GWN device

To remove the GWN device/building from the Map, please select the device/building and then click on "**Remove from map**".



Placed devices

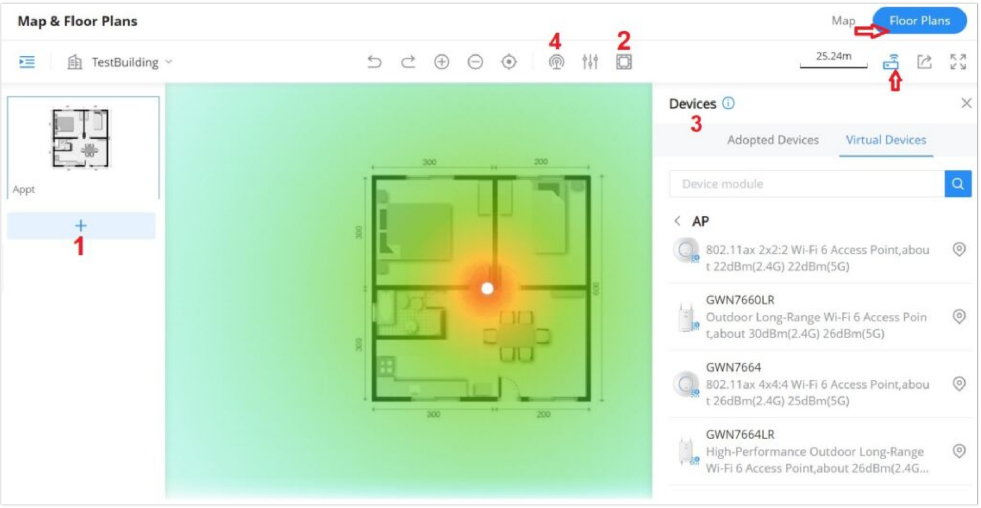
Note:

GWN management supports Open Street and Google Maps.

Floor Plans

The Floor Plans feature is a very convenient way to deploy devices in the right places within the building this way the wireless signal will be able to cover the area, and an RF heat map preview helps the user to easily predict the best place to deploy a GWN device, and this can be even done using a virtual GWN device like GWN access points or GWN wireless routers. In the case of a large deployment of GWN APs in a building with many walls, Glass, etc., and a large surface area, this feature helps the deployment team to accurately and easily pinpoint the appropriate spots to deploy GWN APs for Wi-Fi signal to cover all the building areas and satisfy the users' wireless experience.

Please navigate to **Web UI** → **Map & Floor Plans** (under Floor Plans tab). Please refer to the figure below:

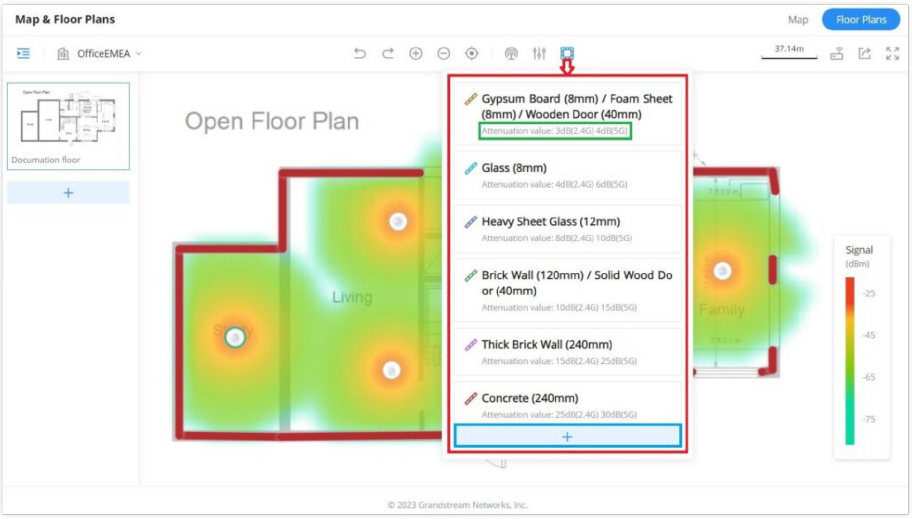


Floor Plans

1. First, Upload the Floor Plan image by clicking on the "**+**" icon on the left side of the page.
2. Then, optionally you can add walls and dividers to the floor plan or click on the "**+**" button to add a custom wall or divider with 2.4G and 5G attenuation values (dB).

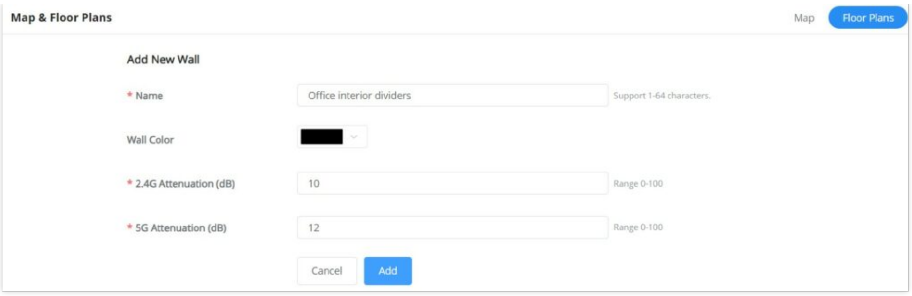
The walls and dividers available are:

- **Gypsum Board** (8mm) / **Foam Sheet** (8mm) / **Wooden Door** (40mm)
  Attenuation value: 3dB(2.4G) 4dB(5G)
- **Glass** (8mm); **Attenuation value:** 4dB(2.4G) 6dB(5G)
- **Heavy Sheet Glass** (12mm); **Attenuation value:** 8dB(2.4G) 10dB(5G)
- **Brick Wall** (120mm) / **Solid Wood Door** (40mm); **Attenuation value:** 10dB(2.4G) 15dB(5G)
- **Thick Brick Wall** (240mm); **Attenuation value:** 15dB(2.4G) 25dB(5G)
- **Concrete** (240mm); **Attenuation value:** 25dB(2.4G) 30dB(5G)



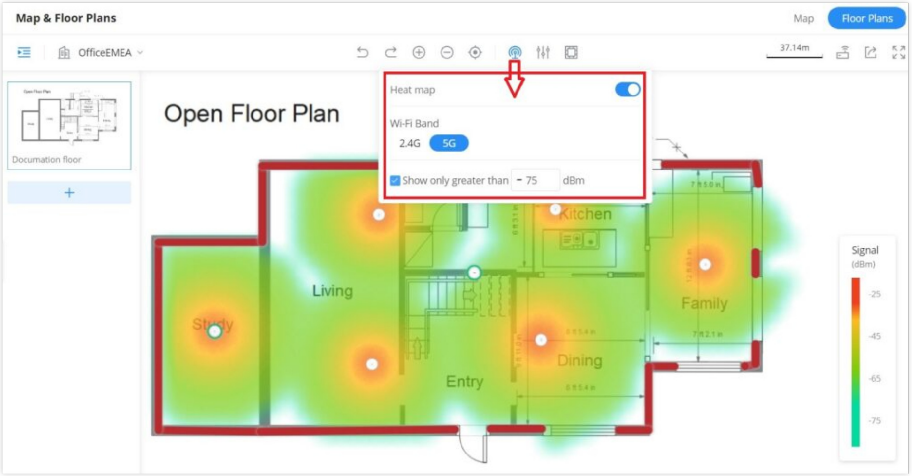
Floor Plans – Wall Types

Click on the "+" button as shown above to add a custom wall or a divider.



Floor Plans – Custom wall or divider

1. Under devices, please select the GWN device either from adopted ones or virtual ones then place it on the floor building accordingly.
2. Finally, click on the "**Heat Map**" icon and select either 2.4G or 5G wireless signal to be able to see the full range of the wireless signal. Also, it's possible to show only signals greater than the specified dBm, this way the user can hide the weak signal from the heat map.

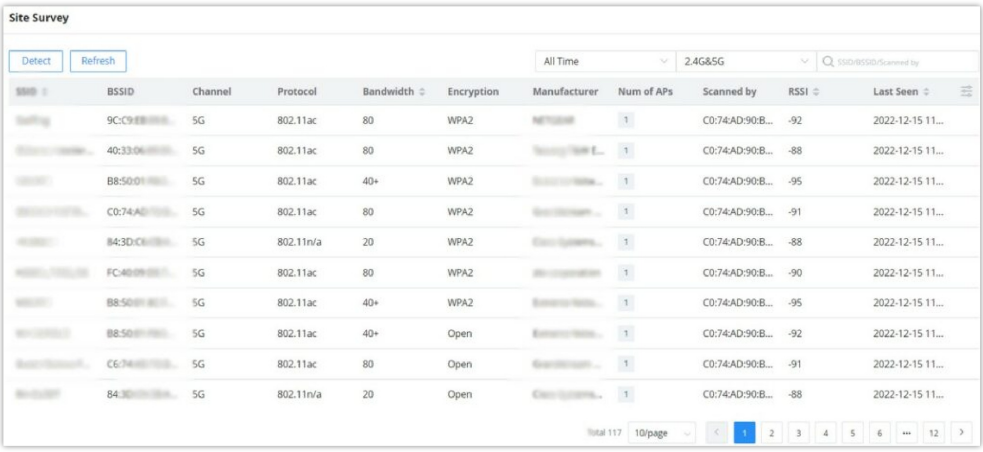


Floor Plans – Heat map

INSIGHTS

Site Survey

An integrated Wi-Fi Scanner is supported on GWN Management Platforms to help the administrator scan the wireless networks in the area and to display extensive information including SSID's name, AP's MAC address, Channel used, Wi-Fi Standard, Bandwidth, security standard used, Manufacturer, RSSI, … and more.



Site Survey

Users can press the **"Detect"** button to run the Wi-Fi scanner or press the **"Refresh"** button to refresh the results page.

Network Topology

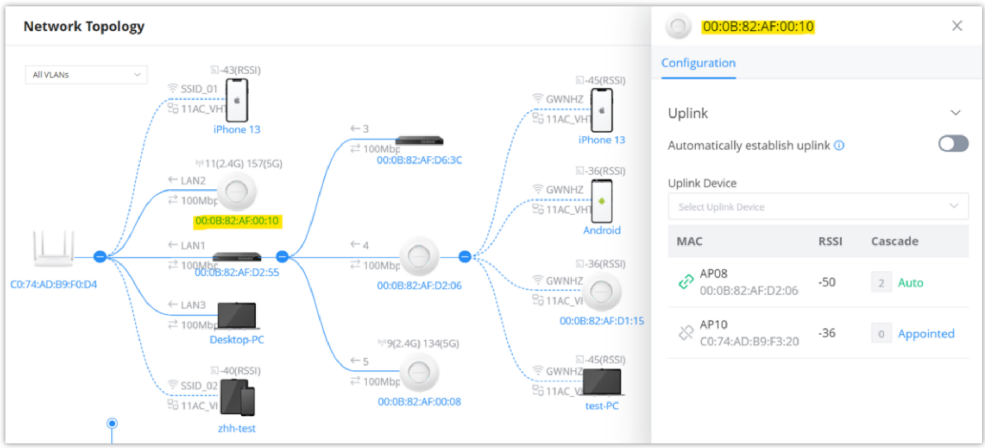
Network Topology shows an overview of the whole network starting from the GWN Router (Internet access) including GWN Switches and Access Points as well as Clients, this way the administrator/monitor can have very quickly an overview of the network at a glance. By clicking on a GWN device or a Client more information can be displayed.

Features overview:

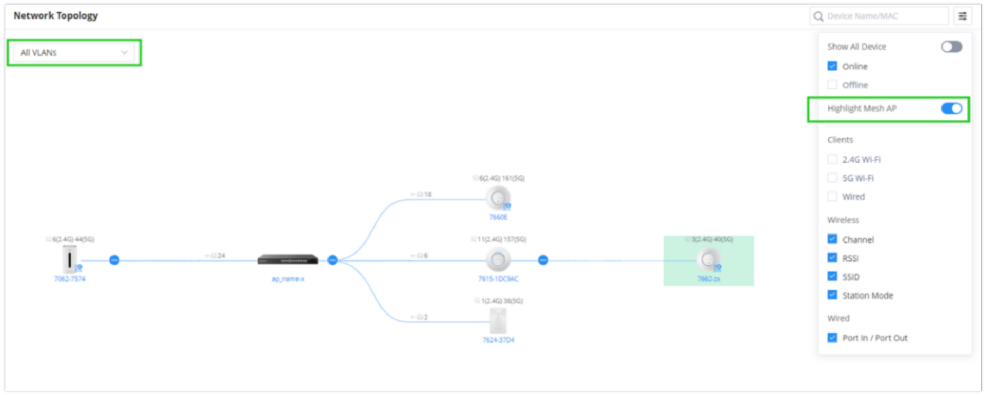
- Display network layout
- Visualize gateway, switch, access point, and connected client device information
- The topology map can be zoomed in, and out, and nodes are retractable
- Support Mesh AP and also the option to Highlight Mesh AP
- VLAN information filtering

Notes:

- Click on to collapse that part of the network.
- Dashed lines mean wireless connection while solid lines mean wired connection.



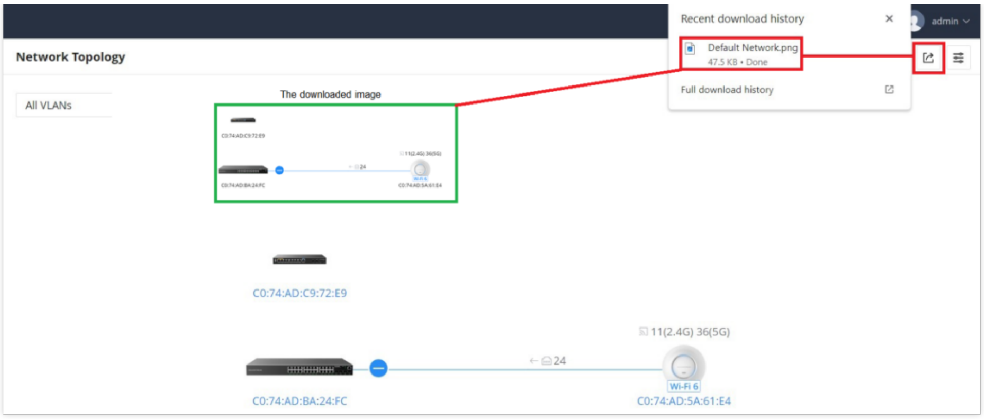
Network Topology



Network Topology – Highlight mesh

To backup the current topology or share it, on the top right corner of the page, click on the "**Export**" button, and a PNG image will be downloaded.

> **Note:**
>
> For the best result adjust the network topology to the best viewable size before exporting.



Network Topology – Export

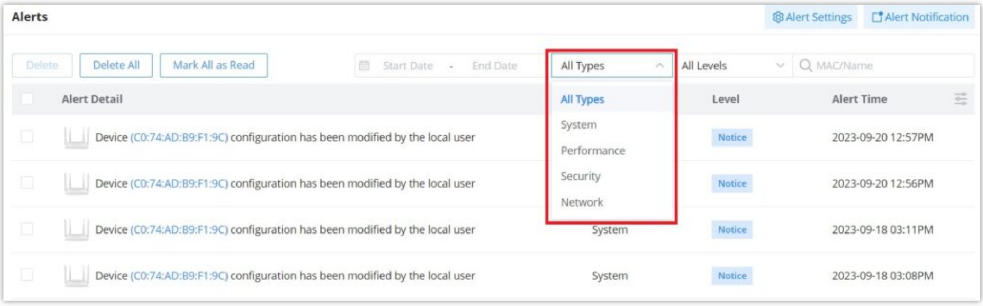
ALERTS

The Alerts page displays alerts about the network, the user can specify to display only certain types like (**System, Performance, Security, or Network**) or the levels. To check the alerts that have been generated, please navigate to **the Web UI → Alerts** page.

The alerts can be displayed either by type or level. However, that is not the only way to display them. The user can filter through the alert log using a date interval or search by MAC address or device name.

- **Alert Types**

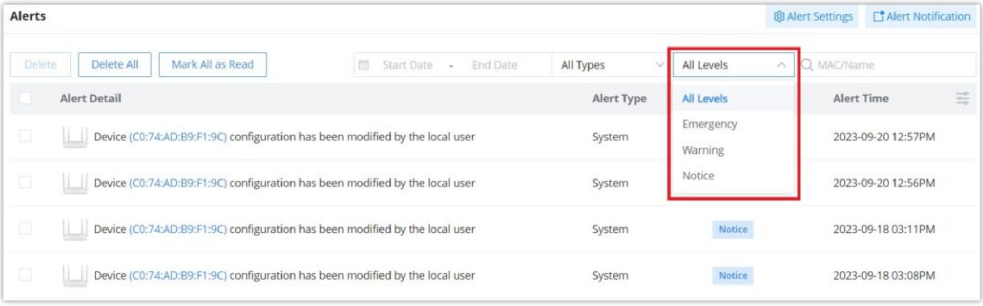
The available types are **System, Performance, Security, and Network**, or the user can choose to display all the types.



Alerts Types

- **Alert Levels**

The user can filter the alert level by the following levels: **All Levels, Emergency, Warning or Notice**.



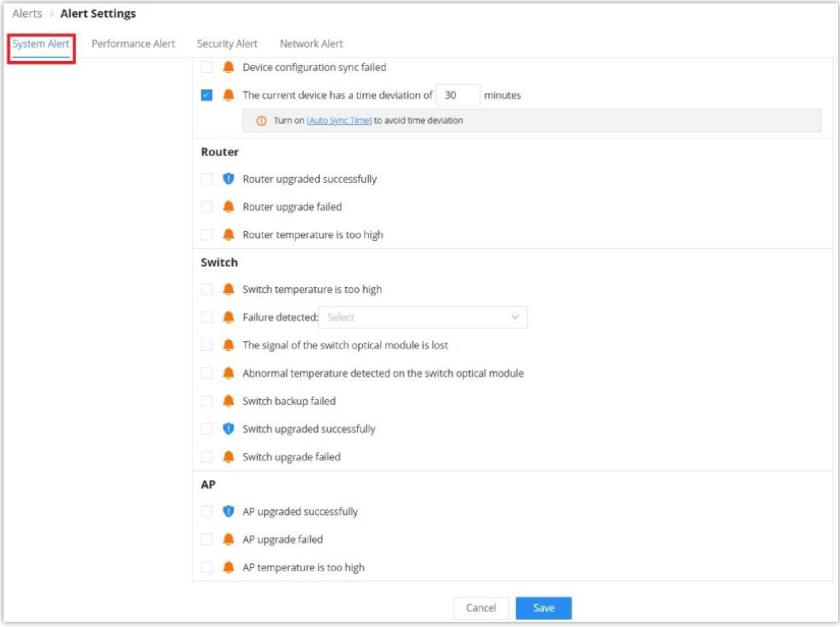
Alerts Levels

Alert Settings

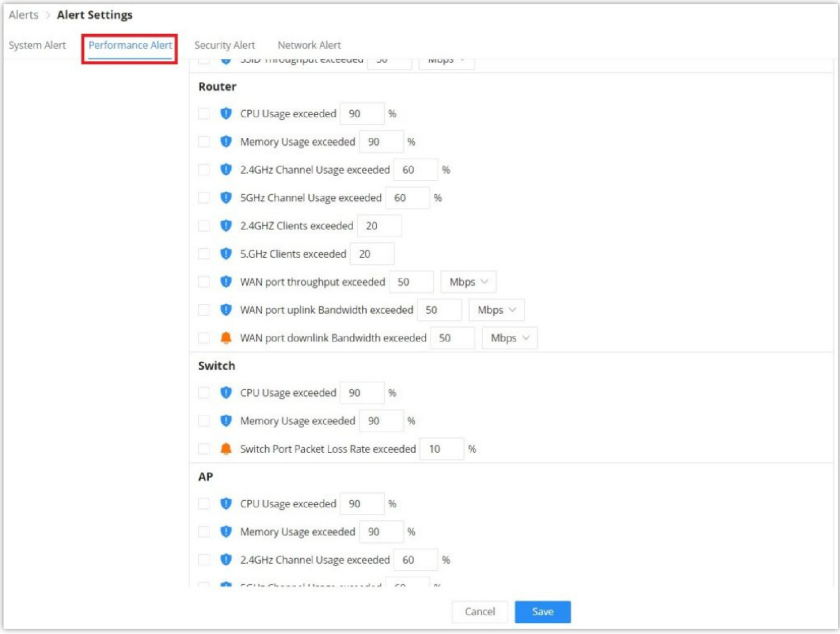
On this page the user can select the alerts to be displayed, four categories or alerts are available (**system, performance, security, and network**) and each category has even more options. Please check the figures below:

- **System Alert** includes GWN.Cloud/GWN Manager, GWN Routers, GWN Switches, and GWN Access points.
- **Performance Alert** includes GWN.Cloud/GWN Manager, GWN Routers, GWN Switches, and GWN Access points.
- **Security Alert**: GWN Access points (Rogue AP).

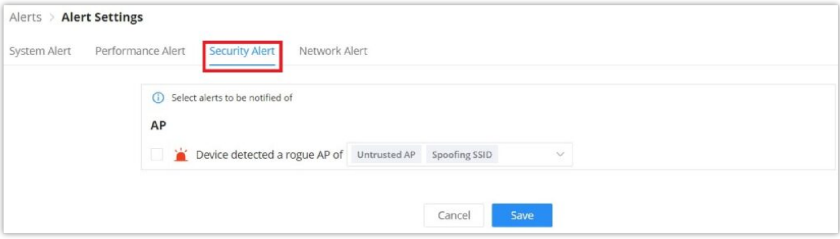
- **Network Alert** includes GWN Routers, GWN Switches, GWN Access points, and Clients.



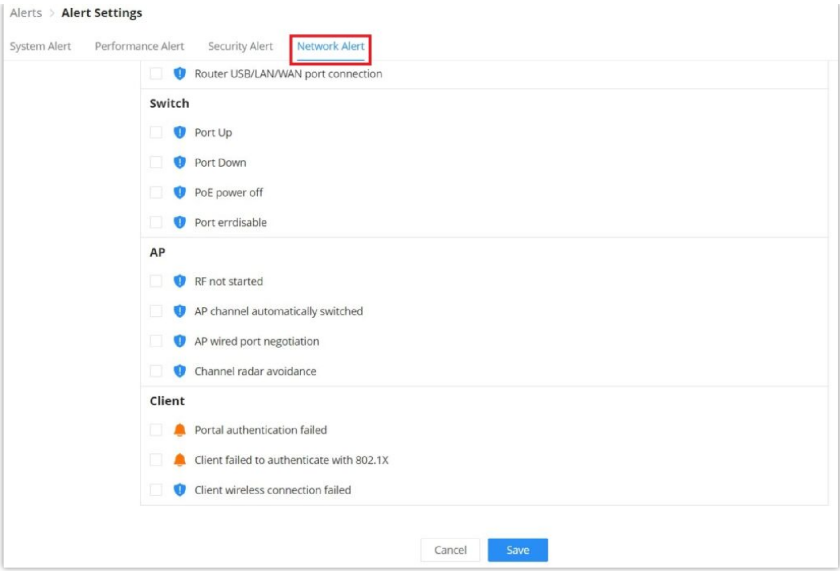
Alert Settings – part 1



Alert Settings – part 2



Alert Settings – part 3



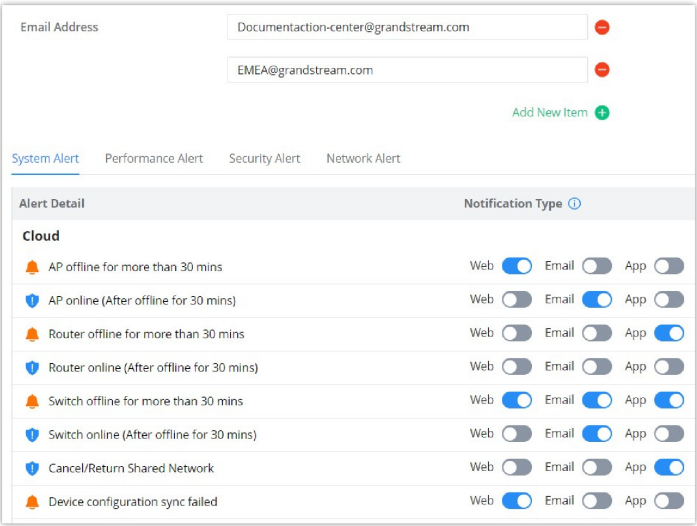
Alert Settings – part 4

Alert Notification

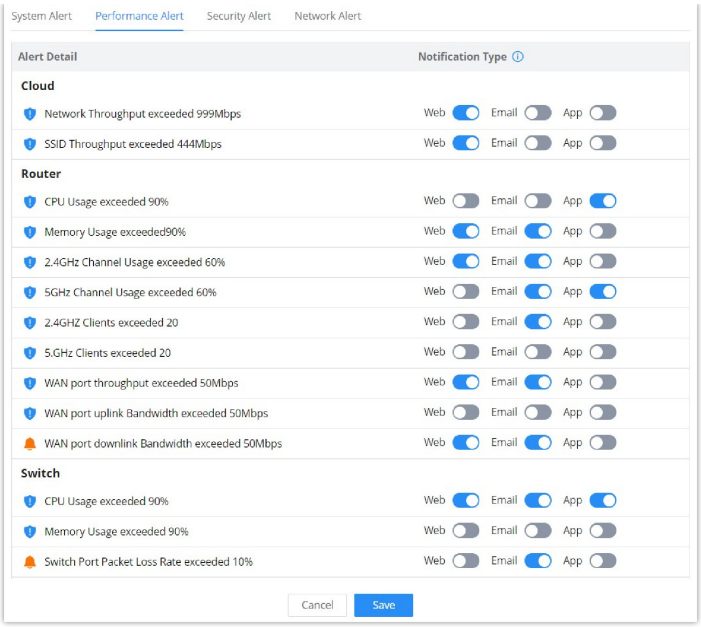
On this page, Email addresses can be specified to receive notifications for the selected alerts, the notifications can be sent to the configured emails, web, or App.

Note:

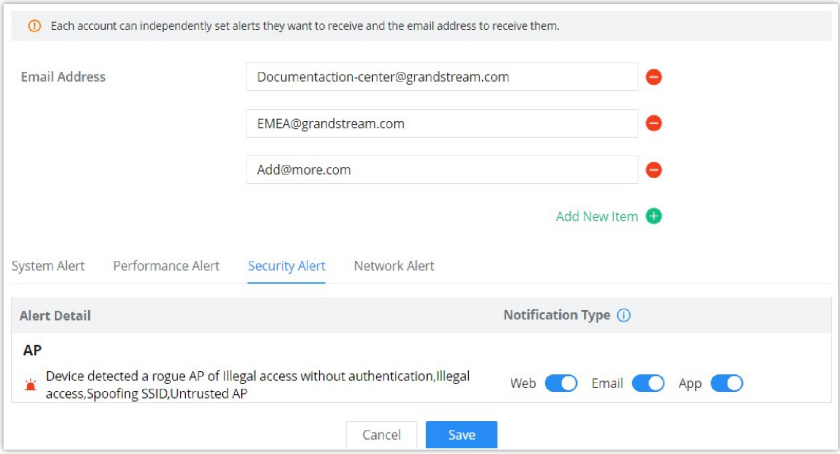
Each account can independently set alerts they want to receive and the email address to receive them.



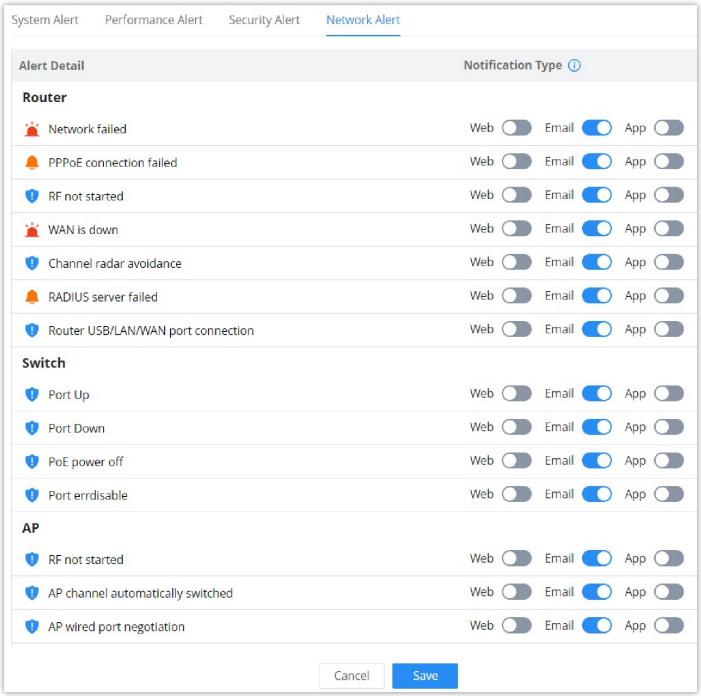
System Alert Notifications



Performance Alert Notifications



Security Alert Notifications



Network Alert Notifications

SETTINGS

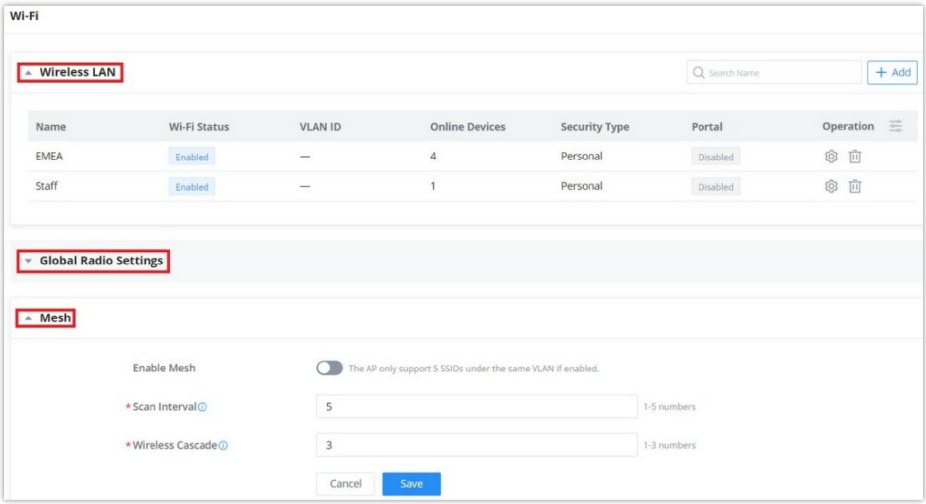
Wi-Fi

All the related settings about Wi-Fi can be found on this page, split into 2 sections Wireless LAN, Global Radio Settings, and Mesh.

Wireless LAN

Under the Wireless LAN section, SSIDs will displayed with Wi-Fi Status and Online Devices, etc. for configuration click on the SSID or configuration icon.

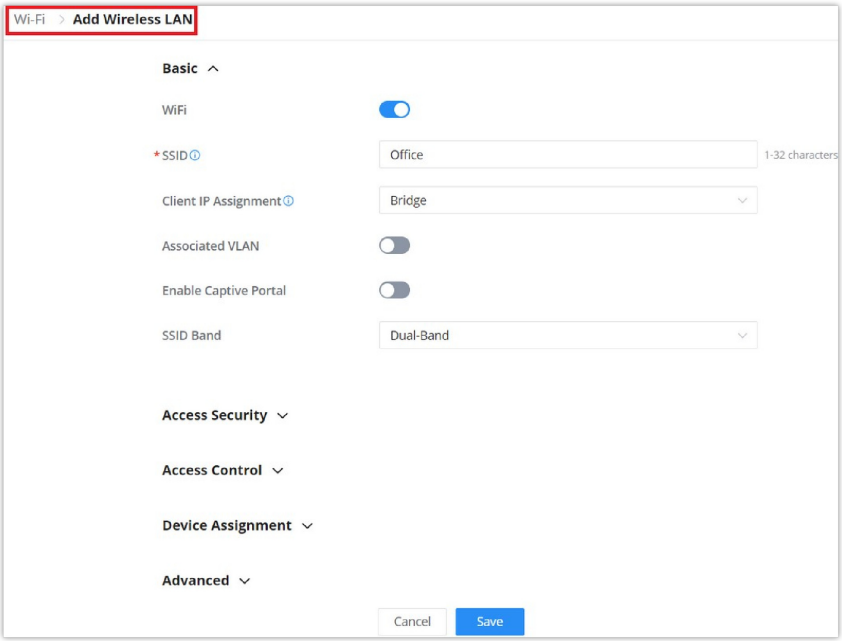
the user can also click on + Add button to add a new SSID, the configuration can be only specific to this SSID, to configure radios for all SSIDs please click on section two **"Global Radio Settings"**.



Wi-Fi page

Add an SSID

To add a new SSID, navigate to Web UI → Settings → Wi-Fi page → Wireless LAN section then click the "Add" button. A new page will pop up, enter different settings to add a new SSID.



Add wireless LAN

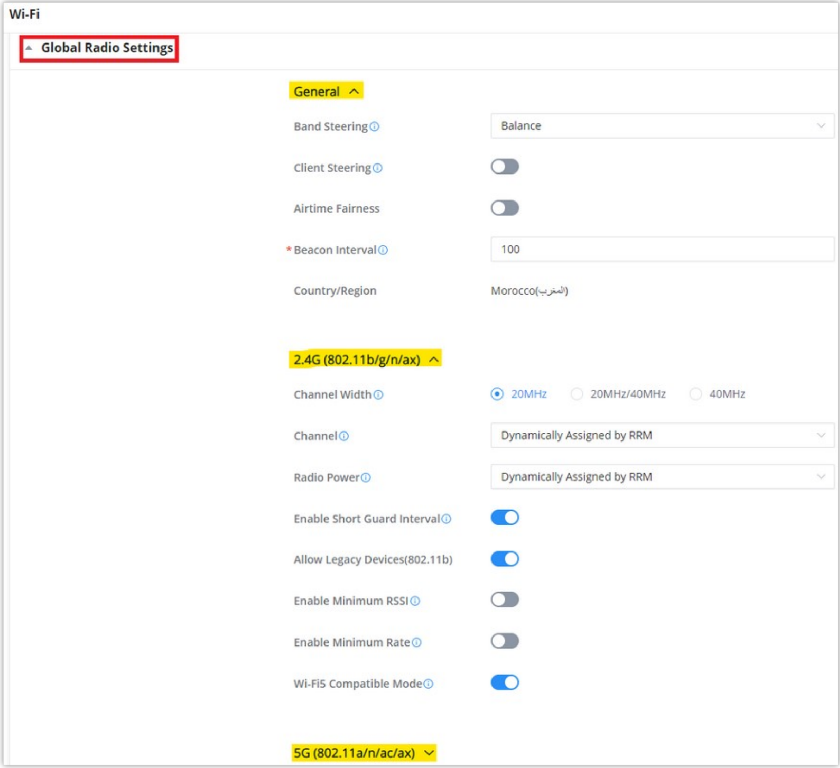
Basic	
WiFi	Check to enable Wi-Fi for the SSID
SSID	Set or modify the SSID name.
Client IP Assignment	Select between Bridge or NAT
Associated VLAN	Check to Enable VLAN and enter VLAN ID, otherwise, this SSID will be using the default network group.
Enable Captive Portal	Click on the checkbox to enable the captive portal feature.
SSID Band	Select the Wi-Fi band the GWN will use, three options are available: Dual-Band, 2.4GHz or 5GHz
Access Security	
Security Type	Set the security type, 5 options are available: ● Open : no security is required ● Personal: Select the WPA Pre-Shared Key and the WPA Mode ● Enterprise: Select Radius Authentication and WPA Mode. ● PPSK: Select the PPSK Group. ● Hotspot2.0 OSEN: Select the RADIUS Authentication
802.11w	**Disabled**： disable 802.11w; **Optional:** either 802.11w supported or unsupported clients can access the network; **Required:** only the clients that support 802.11w can access the network.
Access Control	
MAC Filter	Choose Blacklist/Whitelist to specify MAC addresses to be excluded/included from connecting to Wi-Fi. Default is Disabled.
Client Isolation	Client isolation feature blocks any TCP/IP connection between connected clients to GWN76xx's Wi-Fi access point. Client isolation can be helpful to increase security for Guest networks/Public Wi-Fi. Available modes are: ● **Radio Mode:** Wireless clients can access to the internet services, GWN7xxx router and the access points GWN76xx but they cannot communicate with each other. ● **Internet Mode:** Wireless clients will be allowed to access only the internet services and they cannot access any of the management services, either on the router nor the access points GWN76xx. ● **Gateway MAC Mode:** Wireless clients can only communicate with the gateway, the communication between clients is blocked and they cannot access any of the management services on the GWN76xx access points.
Client Time Policy	Configures the client time policy. Default is None.
Bandwidth Control	Select Bandwidth Control (Per-SSID or Per-Client), then select from the Bandwidth rules previously created.
Schedule	Select a schedule that will be applied to this SSID, schedules can be managed from the menu "**Settings → Profiles → Schedule**".
Device Assignment	
Select from the Devices list the ones to be part of this SSID. ***Note:*** *If an AP or router that uses the Wi-Fi network is selected, new APs will be automatically added to the network.*	

Advanced	
SSID Hidden	Select to hide SSID. 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.
DTIM Period	Configures the frequency of DTIM (Delivery Traffic Indication Message) transmission per each beacon broadcast. Clients will check the AP for buffered data at every configured DTIM Period. You may set a high value for power saving consideration. Default value is 1, meaning that AP will have DTIM broadcast every beacon. If set to 10, AP will have DTIM broadcast every 10 beacons. Valid range: 1 – 10.
Wireless Client Limit	Configure the limit for wireless client. If there's an SSID per-radio on a network group, each SSID will have the same limit. So, setting a limit of 50 will limit each SSID to 50 users independently. 0 means limit is disabled.
Client Inactivity Timeout	AP will remove the client's entry if the client generates no traffic at all for the specified time period. The client inactivity timeout is set to 300 seconds by default.
Multicast/Broadcast Suppression	**Disable:** all of the broadcast and multicast packages will be forwarded to the wireless interface. **Enable**: all of the broadcast and multicast packages will be discarded except DHCP/ARP/IGMP/ND; **Enable with Proxy ARP enabled:** enable the optimization with Proxy ARP enabled in the meantime.
Convert IP multicast to unicast	Once selected, AP will convert multicast streams into unicast streams over the wireless link. Which helps to enhance the quality and reliability of video/audio stream and preserve the bandwidth available to the non-video/audio clients.
Enable Voice Enterprise	Enable this feature to help clients connected to the GWN76xx to perform better roaming decision. ● **The 802.11k** standard helps clients to speed up the search for nearby APs that are available as roaming targets by creating an optimized list of channels. When the signal strength of the current AP weakens, your device will scan for target APs from this list. ● When your client device roams from one AP to another on the same network, 802.11r uses a feature called Fast Basic Service Set Transition (FT) to authenticate more quickly. FT works with both pre-shared key (PSK) and 802.1X authentication methods. ● **802.11v** allows client devices to exchange information about the network topology, including information about the RF environment, making each client network aware, facilitating overall improvement of the wireless network. ***Note:*** *11R is required for enterprise audio feature, 11V and 11K are optional.* Enable Voice Enterprise is only available under **"WPA/WPA2"** and **"WPA2"** Security Mode.
Enable 802.11r	Check to enable 802.11r
Enable 802.11k	Check to enable 802.11k
Enable 802.11v	Check to enable 802.11v
ARP Proxy	Once enabled, AP will avoid transferring the ARP messages to Stations, while initiatively answer the ARP requests in the LAN.
Enable Bonjour Gateway	Click to enable Bonjour Gateway ***Note:*** *If enabled, client Bonjour requests on SSID can be forwarded to the VLAN of Bonjour services (such as Samba).*
Enable U-APSD	Configures whether to enable U-APSD (Unscheduled Automatic Power Save Delivery)

Add Wireless LAN

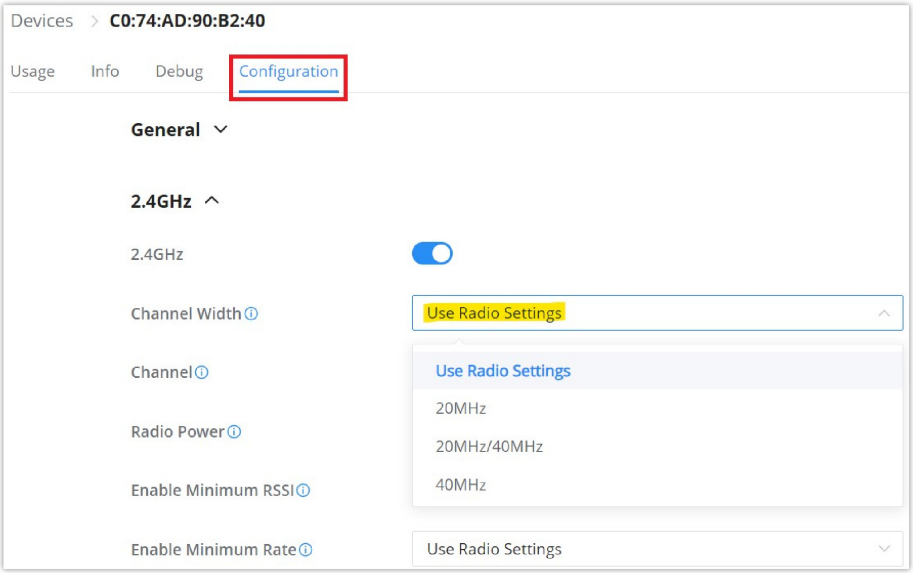
Global Radio Settings

On this page the Administrator can configure the global radio settings which will affect all the GWN devices with the wireless signal, it's a convenient way to configure all the device's wireless signal at once.



Global Radio Settings

To configure a specific device (GWN AP or Wireless GWN router), navigate to **Web UI → Devices**, then click on the device or the configuration icon then select the Configuration Tab. Refer to the figure below:



Device Configuration

Selecting the option **"Use Radio Settings"** from the drop-down list will use the settings configured on the **Global Radio Settings section**.

Please refer to the table below:

General	
Band Steering	Select from the drop-down list, four options are available: • **Disable Band Steering:** Band steering is disabled

	● **2.4G in priority:** steer clients to 2.4G ● **5G in priority:** steer clients to 5G ● **Balance:** balance between 2.4G and 5G.
Client Steering	This feature will help Wi-Fi client to roam to other APs within same Network. Steering happens when clients is inactive or active clients with the standards 802.11K&V support.
RSSI Threshold	It will start monitoring the RSSI for the clients in order to redirect them to another GWN AP in the same network. This prevents clients from remaining associated with AP with less than ideal RSSI, which can cause poor connectivity and reduce performance for other clients. *Default is -75.*
Client Access Threshold	It will start monitoring the number of clients' connections with the AP, once reaching configured threshold, it will roam to the other. *Default is 30.*
Airtime Fairness	Allows faster clients to have more airtime than slower clients.
Beacon Interval	Configures interval between beacon transmissions/broadcasts. The Beacon signals help to keep the network synchronized and provide main information about the network such as SSID, Timestamp… ● **Using High Beacon Interval:** AP will be sending beacon broadcast less frequently. This will help to get better throughput, thus better speed/performance. It also helps to save WiFi clients energy consumption. ● **Using Low Beacon Interval:** AP will be sending beacon broadcast more frequently. This can help in environments with weak signal areas; sending more frequently beacons will increase chances to be received by WiFi clients with weak signal. **Notes:** ● When AP enables several SSIDs with different interval values, the max value will take effect. ● When AP enables less than 3 SSIDs, the interval value which will be effective are the values from 40 to 500. ● When AP enables more than 2 but less than 9 SSIDs, the interval value which will be effective are the values from 100 to 500. ● When AP enables more than 8 SSIDs, the interval value which will be effective are the values from 200 to 500. ● Mesh feature will take up a share when it is enabled. *Default value is 100ms. Valid range: 40 – 500 ms.*
Country/Region	Displays the country/region of the AP.
2.4G/5G	
Channel Width	Choose the Channel Width, note that wide channel will give better speed/throughput, and narrow channel will have less interference. 20MHz is suggested in very high-density environment.
Channel	Select "Auto" or a Dynamically Assigned by RRM. *Default is "Auto".*
Custom Channel	Select a custom channels. ***Note:*** *that the proposed channels depend on Country Settings under Settings → System.*
Radio Power	Set the Radio Power, it can be Low, Medium, or High or Custom or Dynamically assigned by RRM or Auto. ***Note*** *: Dynamically assigned by RRM activates TPC and CHD:* ● **Transmit Power Control:** TPC algorithm runs every 10 minutes. AP acquires the RSSI information of the neighbor by wireless scanning and establishes the neighbor table. The algorithm requires that there must be at least 3 neighbor APs with RSSI larger than -70dbm. Otherwise, power will not be adjusted. ● **Coverage Hole Detection:** CHD enables AP to decide whether to increase the AP power by the current SNR and SNR threshold of the connected clients. **Custom:** allows users to set a custom wireless power for both 5GHz/2.4GHz band, the value of this field must be between 1 and 31.

Enable Short Guard Interval	Check to activate this option to increase throughput.
Allow Legacy Devices (802.11b)	Check to support 802.11b devices to connect the AP in 802.11n/g mode. (2.4GHz setting)
Enable Minimum RSSI	Check to enable RSSI function, this will lead the AP to disconnect users below the configured threshold in Minimum RSSI (dBm).
Minimum RSSI (dBm)	Enter the minimum RSSI value in dBm. If the signal value is lower than the configured minimum value, the client will be disconnected. The input range is from "-94" or "-1".
Enable Minimum Rate	Specify whether to limit the minimum access rate for clients. This function may guarantee the connection quality between clients and AP.
Minimum Rate (Mbps)	Specify the minimum access rate. Once the client access rate is less than the specified value, AP will kick it off. Available values are: 1Mbps, 2Mbps, 5Mbps, 6Mbps, 9Mbps, 11Mbps or 12Mbps.
Wi-Fi5 Compatible Mode	Some old devices do not support Wi-Fi6 well and may not be able to scan the signal or connect poorly. After turning on this switch, it will switch to Wi-Fi5 mode to solve the compatibility problem. At the same time, it will turn off Wi-Fi6 related functions.

Global Radio Settings

Mesh

Wireless Mesh Network is a wireless extension of the traditional wired network using multiple access points connected through wireless links to areas where wired access is not an option while also expanding the coverage of the WLAN network.

In the traditional WLAN network, the uplink of the AP is a wired network (usually an Ethernet Link):

- The advantages of a wired network are security, anti-interference, and stable bandwidth.
- The disadvantages are high construction cost, long periods of planning and deployment, and difficulty of change in case a modification is needed.

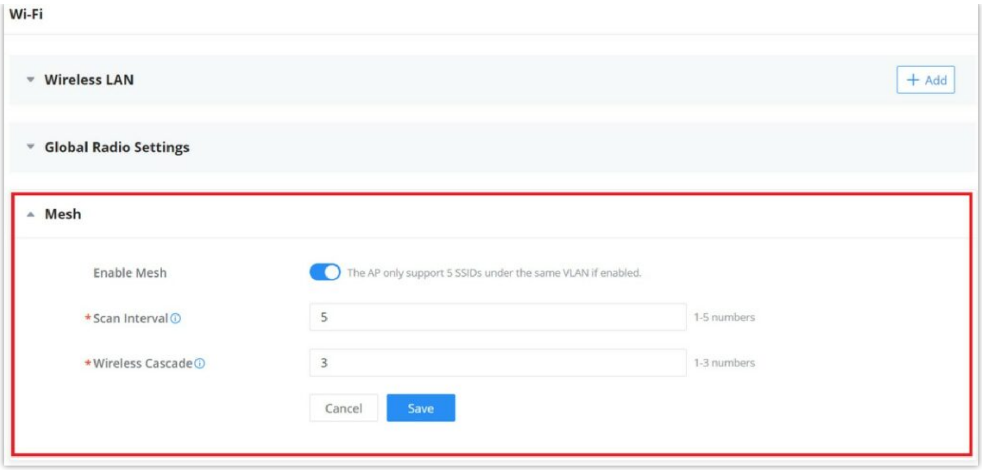
However, these are precisely the advantages of wireless networks. As a result, a Wireless Mesh Network is an effective complement to wired network.

In addition, Mesh networking provides a mechanism for network redundancy. When an abnormality occurs in a wired network, an AP suffering the uplink failure can keep the data service continuity through its Mesh network.

For more details about the GWN Mesh Network feature, please don't hesitate to read the following technical paper:

> GWN76xx Mesh Network Guide

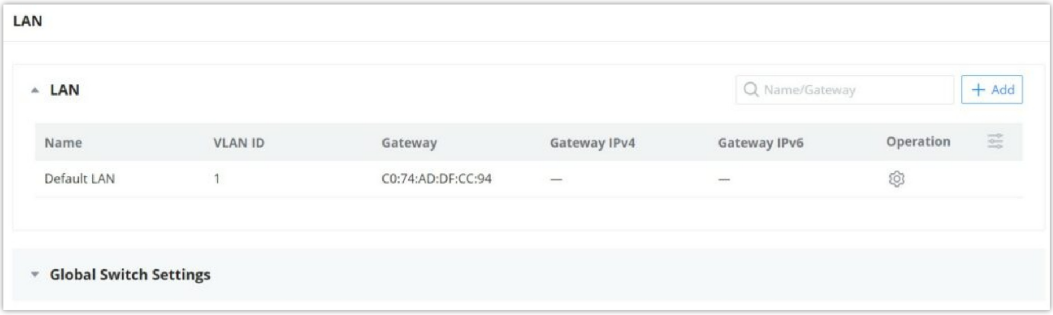
Users can set some Mesh Network parameters under the menu **"Settings → Wi-Fi → Mesh"**, as shown in the figure below:



Mesh

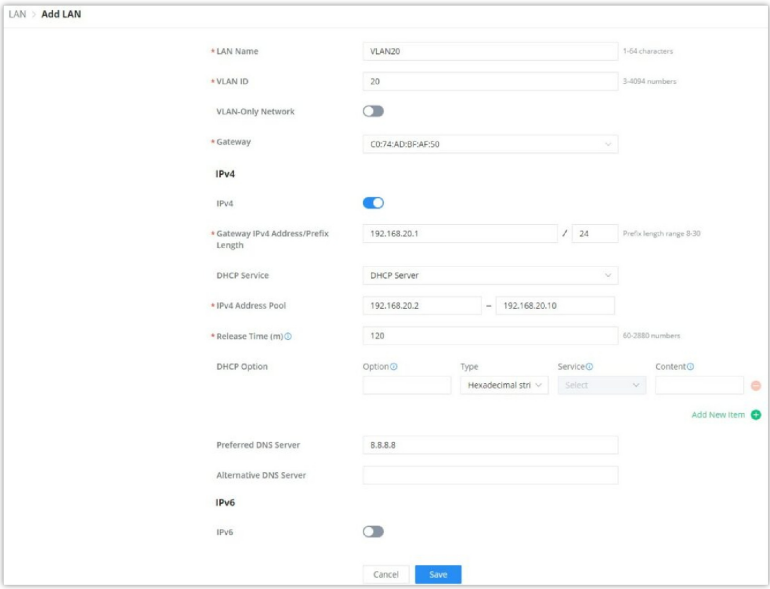
LAN

This page shows all the created VLANs as well as the Default VLAN (Default LAN), as well as the global switch settings that affect all the added GWN switches.



LAN page

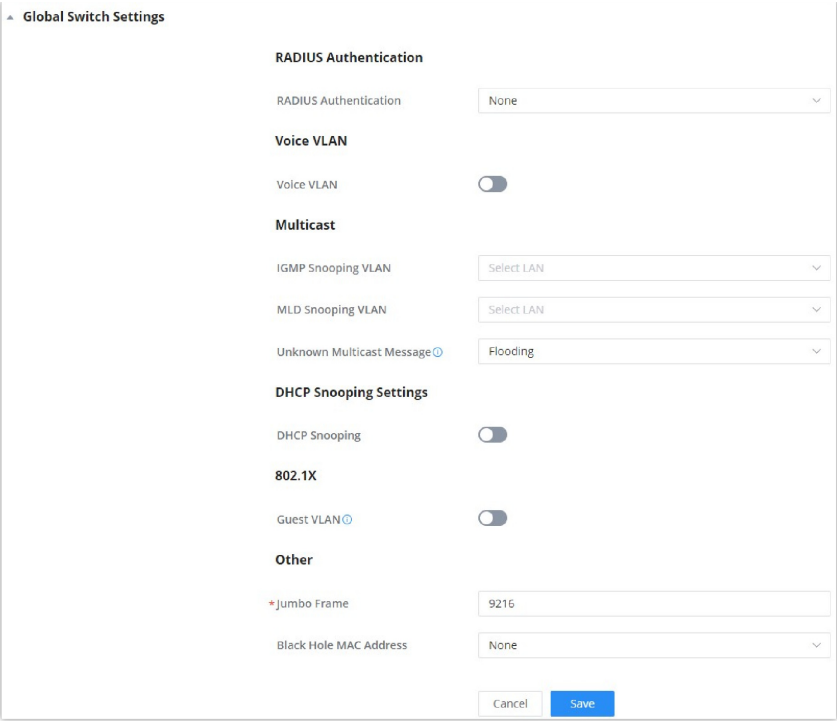
The user can click on + Add button to add a LAN/VLAN, then specify the name, VLAN ID, Gateway, and IPv4/IPv6.



Add VLAN

Global Switch Settings

Global Switch Settings allow the user to configure the general settings for all the GWN78XX switches which have been added to the account, instead of configuring the settings individually for each switch.



Global Switch Settings

Radius Authentication	
Radius Authentication	Select a Radius server or click Add New RADIUS
Voice VLAN	
Voice VLAN	Toggle voice VLAN on/off.
Multicast	
IGMP Snooping VLAN	Select the IGMP Snooping VLAN.
MLD Snooping VLAN	Select the MLD Snooping VLAN.
Unknown Multicast Message	Configures how the switch (IGMP Snooping/MLD Snooping) handles packets from unknown groups.
DHCP Snooping Settings	
DHCP Snooping	Toggle DHCP Snooping on/off
802.1X	
Guest VLAN	Configures whether to enable the guest VLAN function for the global port.
Other	
Jumbo Frame	Enter the size of the jumbo frame. **Range:** 1518-10000
Black Hole MAC Address	Select a Black Hole MAC Address from the list or click Add New MAC group

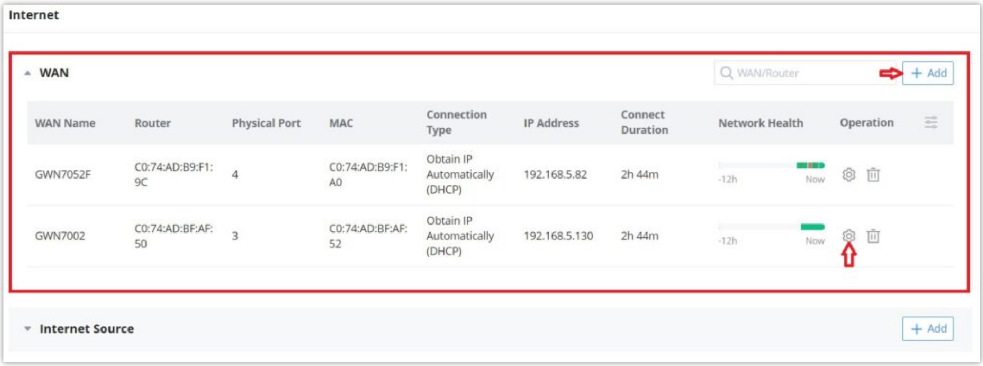
Internet

Internet configurations like adding/configuring WAN ports or configuring Load-balancing/backup (Failover) between the WANs port are found here, please navigate to **Web UI → Settings → Internet** page.

WAN

In this section, the user can add WAN (router WAN port or a device group) or edit previously created WAN ports, and the number of WAN ports is determined by how many GWN routers are added/adopted to GWN.Cloud/GWN Manager accordingly. Once, the WAN/Device group is added, then the user can monitor the network health for the last 12 hours.

Please navigate to **Web UI → Settings → Internet page → WAN section**.



WAN

- **Network Health**

Network Health is a feature that monitors the WAN (WAN ports or Device group) and displays the status for the last 12 hours for each WAN/device group with color code.

Network Health

Hover with the cursor over the color to see more details like Packet loss percentage, duration etc.

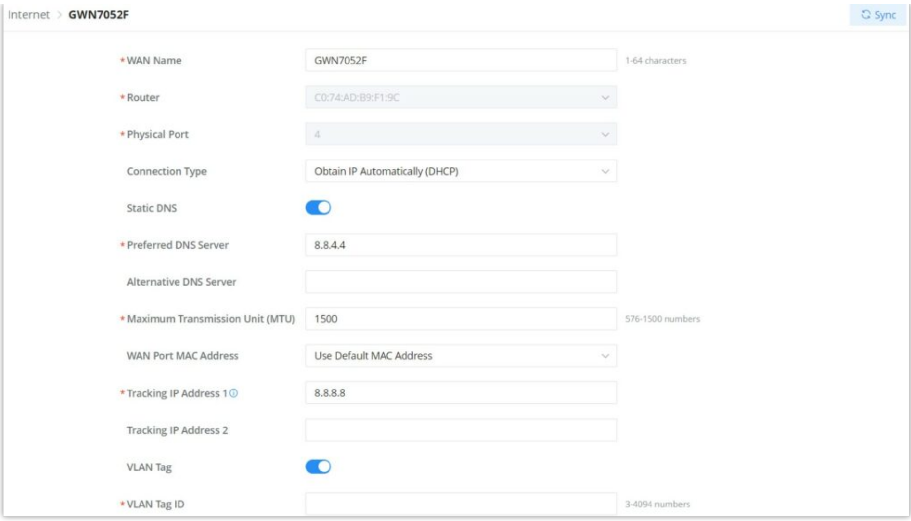
Green: Online

Grey: Offline

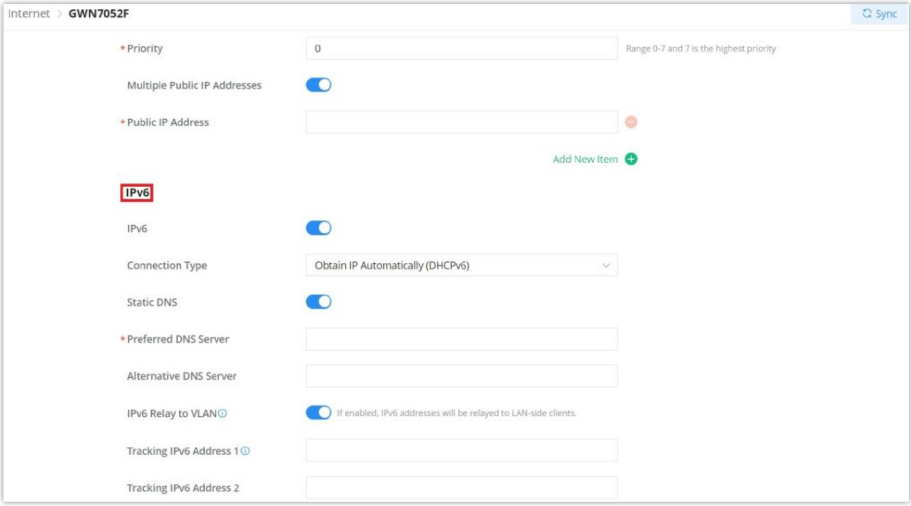
Red: High Packets Loss

- **Add or Edit a WAN/Device group**

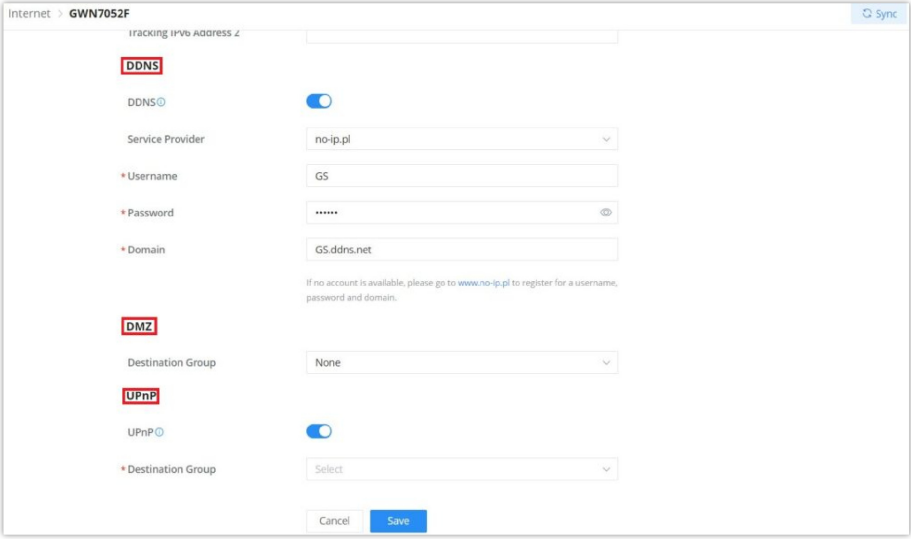
To edit a WAN click on the entry or click on the "**Configure icon**" under operation, and to add a WAN click on the "**Add**" button on the top of the page. on the next page, the user can configure the WAN name, router (WAN port or logical device group), physical port, connection type (DHCP, Static or PPPoE), MTU, DDNS, DMZ, UPnP, etc. Please check the figures and table below:



Add/edit a WAN – part 1



Add/edit a WAN – part 2



Add/edit a WAN – part 3

WAN Name	Specify a name for the WAN
Router	Select a router or a Device group from the drop-down list
Physical Port	Select the physical port (WAN port) from the drop-down list
Connection Type	• **Obtain IP automatically (DHCP):** When selected, it will act as a DHCP client and acquire an IPv4 address automatically from the DHCP server.

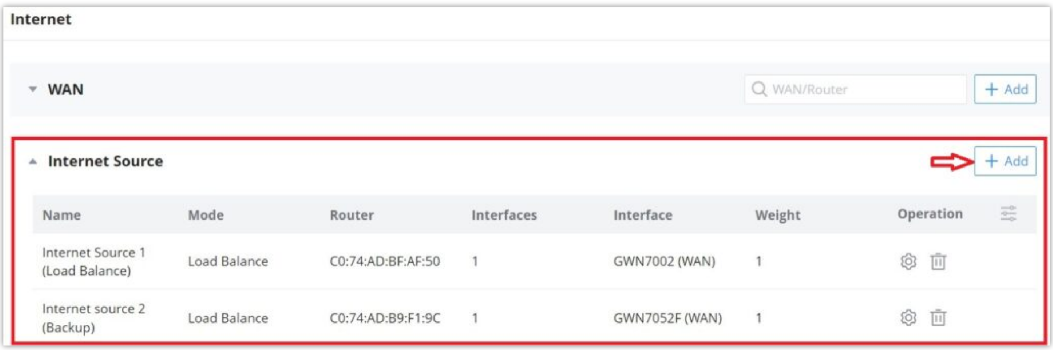
	● **Enter IP Manually (Static IP):** When selected, the user should set a static IPv4 address, IPv4 Subnet Mask, IPv4 Gateway and adding Additional IPv4 Addresses as well to communicate with the web interface, SSH, or other services running on the device. ● **Internet Access with PPPoE account (PPPoE):** When selected, the user should set the PPPoE account and password, PPPoE Keep alive interval, and Inter-Key Timeout (in seconds). *The default setting is "Obtain IP automatically (DHCP)"*
Static DNS	Check Static DNS then enter the Preferred DNS Server and the Alternative DNS Server
Preferred DNS Server	Enter the preferred DNS Server
Alternative DNS Server	Enter the Alternative DNS Server
Maximum Transmission Unit (MTU)	Configures the maximum transmission unit allowed on the WAN. ● When using Ethernet, the valid range that can be set by the user is 576-1500 bytes. The default value is 1500. Please do not change the default value unless you have to. ● When using PPPoE, the valid range that can be set by the user is 576-1492 bytes. The default value is 1492. Please do not change the default value unless you have to.
WAN Port MAC Address	Select from the drop-down list either to: ● Use Default MAC Address ● Use Custom MAC Address *Default is "Use Default MAC Address"*
Custom MAC Address	Enter the custom MAC Address to be used with this WAN.
Tracking IP Address 1	Configures tracking IP address of WAN port to determine whether the WAN port network is normal.
Tracking IP Address 2	Add another alternative address for Tracking IP Address
VLAN Tag	Select if either to enable or disable VLAN Tag.
VLAN Tag ID	Enter the VLAN tag ID.
Priority	Enter the priority ***Note:*** *Range 0-7 and 7 is the highest priority*
Multiple Public IP Addresses	Please use with Port Forward function, so that you can access to router via public IP address.
Public IP Address	Enter one or more public IP addresses Click on "+" icon or "-" icon to add or delete public IP addresses
IPv6	
IPv6	Enable this option to use IPv6 on this specific WAN.
Connection Type	Select the connection type fromt the drop-list, three options are available: ● Obtain IP automatically (DHCPv6) ● Enter the IP manually (static IPv6) ● Internet Access with PPPoE Account (PPPoE) *The default setting is "Obtain IP automatically (DHCPv6)".*
Static DNS	Enable this option to enter statically assigned DNS

Preferred DNS Server	Enter the preferred DNS Server
Alternative DNS Server	Enter the Alternative DNS Server
IPv6 Relay to VLAN	Once enabled, relay IPv6 addresses to clients on the LAN side. Note: This function will take effect only "IPv6 Relay from WAN" is enabled on VLAN.
Tracking IPv6 Address 1	Configures tracking IP address of WAN port to determine whether the WAN port network is normal
Tracking IPv6 Address 2	Add another alternative address for Tracking IP Address
DDNS	
DDNS	Toggle ON or OFF the DDNS function, default is OFF ***Note:*** *On the router, DDNS function can only be enabled on one WAN port*
Service Provider	Select the DDNS provider from the list ***Note:*** *If no account is available, please go to www.oray.com to register for a username, password and domain*
Username	Enter the Username
Password	Enter the Password
Domain	Enter the Domain
DMZ	
Destination Group	Select the destination group from the drop-down list.
UPnP	
UPnP	Toggle ON or OFF the UPnP function, default is OFF ***Note:*** *If UPnP (Universal Plug and Play) is enabled, devices on LAN can request the router to port forward automatically*
Destination Group	Select the destination group from the drop-down list.

Add/edit a WAN

Internet Source

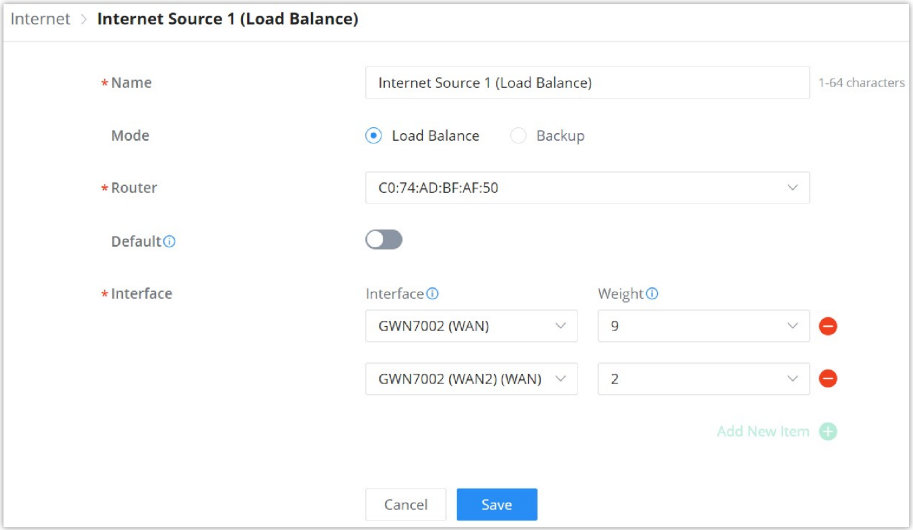
In this section of internet configuration, under internet source, the user can configure load balancing or backup (Failover) between the previously added WANs. Either click on the entry or "**Configure icon**" to edit previously added internet sources or click on the "**Add**" button to add a new one, refer to the figure below:



Internet Source

Here, the user can specify the name for the Load Balance or Backup, select the router/device group and specify the weight for each uplink.

- **Default:** If enabled, the subsequent WAN added by the router will be associated with the Internet Source
- **Interface:** In an Internet source, each interface can only be selected once, and only interfaces of the same router or the same device group are supported in an Internet source.
- **Weight:** Weight value determines the ratio at which connections are sent through each member. The default is 1. Enter a value from 1~10 with 10 being the highest weight.



Add an Internet Source

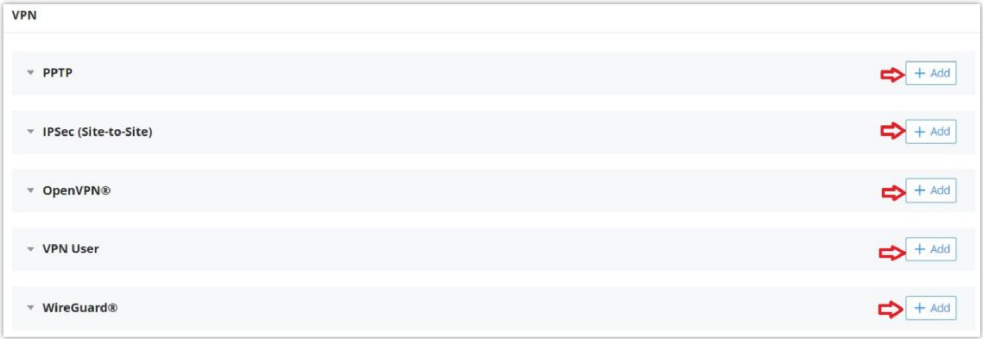
VPN

GWN.Cloud and GWN Manager support many VPNs including PPTP, IPSec (Site-to-Site), OpenVPN®, and WireGuard®.

GWN.Cloud and GWN Manager support more than one GWN router with single or multi-WAN on the same network, thus when configuring a VPN it's important to specify which router (WAN/Device group) and interface will be used.

- **PPTP:** supports client and server.
- **IPSec (Site-to-Site):** supports manual and auto mode.
- **OpenVPN®:** supports client and server.
- **WireGuard®:** server side.

To add a new VPN or a VPN user, please navigate to **Web UI** → **Settings** → **VPN** and then click on the "**Add**" button as shown in the figure below:

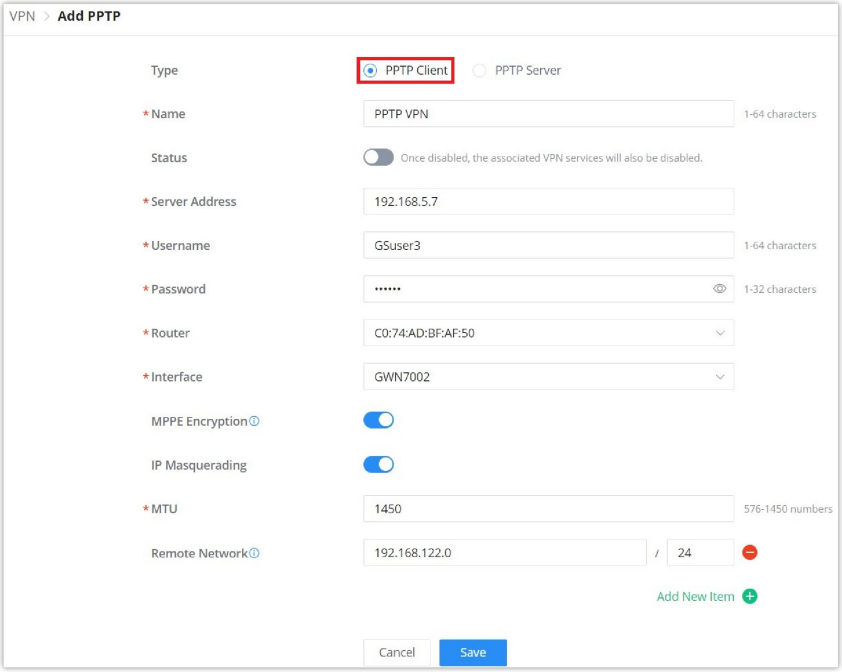


VPN

PPTP

PPTP is a data-link layer protocol for wide area networks (WANs) based on the Point-to-Point Protocol (PPP) and developed by Microsoft that enables network traffic to be encapsulated and routed over an unsecured public network such as the Internet. Point-to-Point Tunneling Protocol (PPTP) allows the creation of virtual private networks (VPNs), which tunnel TCP/IP traffic through the Internet.

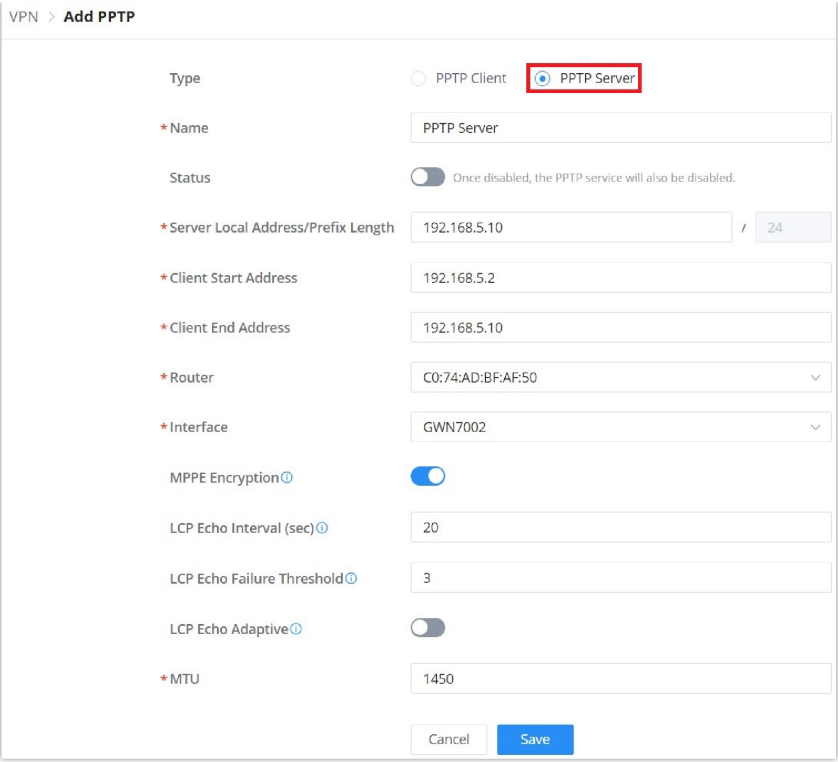
The below figure shows the configuration for adding a PPTP Client, it's also possible the say way to add a PPTP Server. When adding a PPTP Client make sure to specify the username and password as well.



VPN – Add PPTP Client

Type	Select either **PPTP Client** or PPTP Server to configure.
Name	Enter a name for the PPTP client.
Status	Toggle ON or OFF to enable or disable the PPTP Client VPN. ***Note:*** *PPTP Server: Once disabled, the PPTP service will also be disabled.*
Server Address	Enter the IP/Domain of the remote PPTP Server.
Username	Enter the Username for authentication with the VPN Server.
Password	Enter the Password for authentication with the VPN Server.
Router	Select from the drop-down list the router/device group that this VPN will be using.
Interface	Select from the drop-down list the exact interface of the router/device group.
MPPE Encryption	Enable / disable the MPPE for data encryption. *By default, it's disabled.*
IP Masquerading	This feature is a form of network address translation (NAT) which allows internal computers with no known address outside their network, to communicate to the outside. It allows one machine to act on behalf of other machines.
Maximum Transmission Unit (MTU)	This indicates the size of the packets sent by the router. Please do not change this value unless necessary.
Remote Subnet	Configures the remote subnet for the VPN. The format should be "IP/Mask" where IP could be either IPv4 or IPv6 and mask is a number between 1 and 32. ***example:*** *192.168.5.0/24*

VPN – Add PPTP Client



VPN – Add PPTP Server

Type	Select either PPTP Client or **PPTP Server** to configure.
Name	Enter a name for the PPTP Server.
Status	Toggle ON or OFF to enable or disable the PPTP Client/Server VPN. ***Notes:*** *Once disabled, the PPTP service will also be disabled.*
Server Local Address/Prefix Length	Specify the server local address with the prefix length
Client Start Address	specify client start IP address
Client End Address	specify client end IP address
Router	Select from the drop-down list the router/device group that this VPN will be using.
Interface	Select from the drop-down list the exact interface of the router/device group.
MPPE Encryption	Enable / disable the MPPE for data encryption. *By default, it's disabled.*
LCP Echo Interval (sec)	Configures the LCP echo send interval.
LCP Echo Failure Threshold	Set the maximum number of Echo transfers. If it is not answered within the set request frames, the PPTP server will consider that the peer is disconnected and the connection will be terminated.
LCP Echo Adaptive	• **Once enabled:** LCP Echo request frames will only be sent if no traffic has been received since the last LCP Echo request. • **Once disabled:** the traffic will not be checked, and LCP Echoes are sent based on the value of the LCP echo interval

Maximum Transmission Unit (MTU)	This indicates the size of the packets sent by the router. Please do not change this value unless necessary. By default is 1450.
Maximum Receive Unit (MRU)	MRU indicates the size of the received packets. By default is 1450.
Preferred DNS Server	specify the preferred DNS server. *Ex: 8.8.8.8*
Alternative DNS Server	specify the alternative DNS server. *Ex: 1.1.1.1*

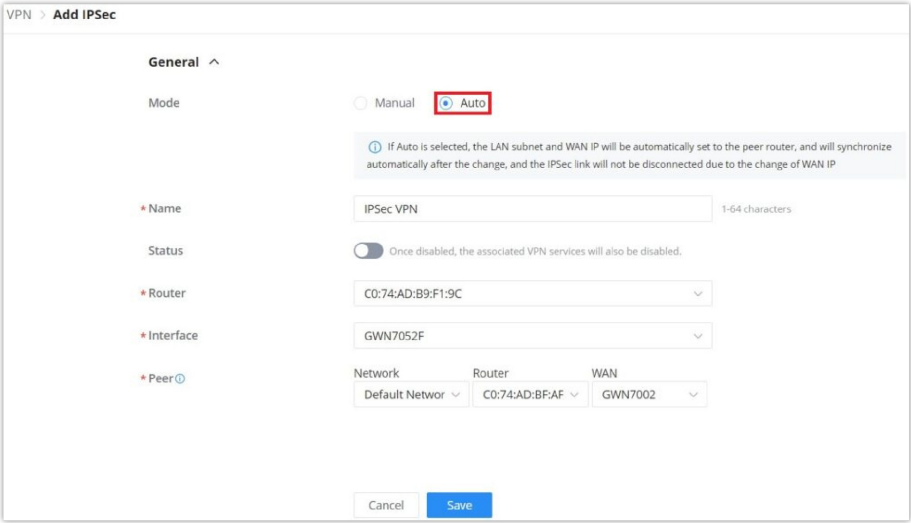
VPN – Add PPTP Server

IPSec (Site-to-Site)

Internet Security protocol- IPsec is mainly used to authenticate and encrypt packets of data sent over the network layer. To accomplish this, they use two security protocols – ESP (Encapsulation Security Payload) and AH (Authentication Header), the former provides both authentications as well as encryption whereas the latter provides only authentication for the data packets. Since both authentication and encryption are equally desirable, most of the implementations use ESP.

IPsec supports two different encryption modes, they are Tunnel (default) and Transport mode. Tunnel mode is used to encrypt both payloads as well as the header of an IP packet, which is considered to be more secure. Transport mode is used to encrypt only the payload of an IP packet, which is generally used in gateway or host implementations.

GWN.Cloud and GWN Manager support IPsec (Site-to-Site) that can help encrypt and secure traffic between two sites using two GWN routers. It supports manual configuration and auto mode.



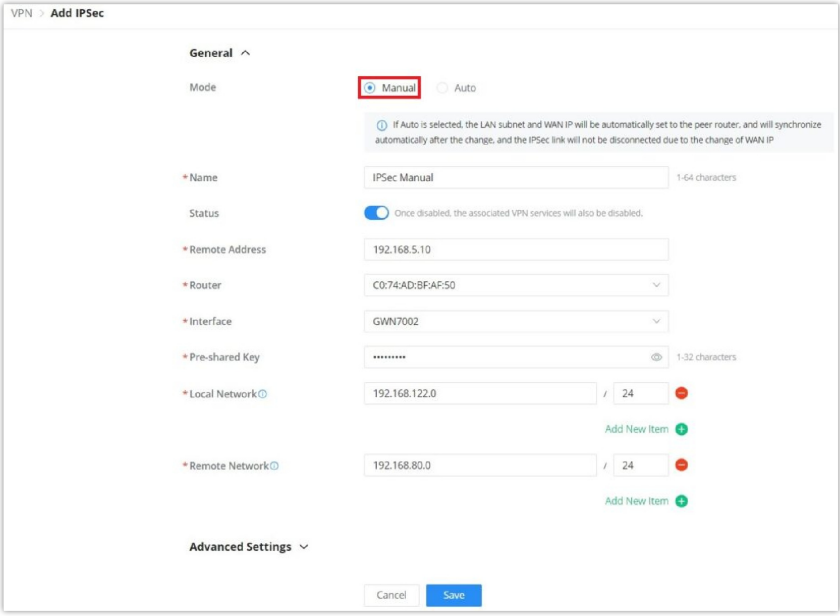
VPN – Add IPSec Auto

Mode	Select the mode: Manual or **Auto.** ***Note:*** *If Auto is selected, the LAN subnet and WAN IP will be automatically set to the peer router, and will synchronize automatically after the change, and the IPSec link will not be disconnected due to the change of WAN IP.*
Name	Specify a name for IPSec VPN.
Status	Toggle ON or OFF to enable or disable the IPSec VPN. ***Note:*** *Once disabled, the associated VPN services will also be disabled.*
Router	Select from the drop-down list the router/device group that this VPN will be using.
Interface	Select from the drop-down list the exact interface of the router/device group.

Peer	Set the IP address of the WAN port so the peer network automatically connects with the current network.

VPN – Add IPSec auto mode

For the manual mode, please refer to the figure and table below:



VPN – Add IPSec Manual mode

General	
Mode	Select the mode: Manual or Auto. ***Note***: *If Auto is selected, the LAN subnet and WAN IP will be automatically set to the peer router, and will synchronize automatically after the change, and the IPSec link will not be disconnected due to the change of WAN IP.*
Name	Specify a name for IPSec VPN.
Status	Toggle ON or OFF to enable or disable the IPSec VPN. ***Note:*** *once disabled, the associated VPN services will also be disabled.*
Remote address	Specify the remote IP address
Router	Select from the drop-down list the router/device group that this VPN will be using.
Interface	Select from the drop-down list the exact interface of the router/device group.
Pre-shared key	Specify a pre-shared key
Local Network	Set the local IP address and mask length of the protected traffic. Please enter an IP address or subnet (*e.g., 192.168.122.0/24*)
Remote Network	Set the peer IP address and mask length of the protected data flow. Please enter an IP address or subnet (*e.g., 192.168.122.0/24)*
Advanced Settings	
IKE Version	Select from the drop-down list the IKE version: IKEv1 or IKEv2.
IKE SA Lifetime (sec)	Specify the IKE SA Lifetime (sec), default is 28800.

Local Source IP	Enter the local Source IP address.
Local ID	Set the local ID to identify the identity of the local device for the remote device to verify its legitimacy.
Remote ID	Set the remote ID to authenticate the identity of the remote device. This parameter must be consistent with the local ID set on the remote device.
Negotiation Mode	Select the negotiation mode from the drop-list, two options are list: Main or Aggressive.
Encryption Algorithm	Select from the drop-down list the encryption algorithm to use, the available ones are: ● 3DES ● AES-128 ● AES-192 ● AES-256 Default is AES-256
Hash Algorithm	Select from the drop-down list the Hash algorithm to use, the available ones are: ● MD5 ● SHA-1 ● SHA2-256 Default is SHA2-256
DH Group	DH (**Diffie-Hellman**) group, select from the drop-down list the DH group, available groups are Group 2,5,14,19,20,21.
Reconnect	Set whether to renegotiate the connection when it is about to expire.
Number of Reconnections	Specify the number of reconnections. ***Note:*** *The range is 0-10. 0 means continuous attempts to negotiate a connection.*
DPD (Dead Peer Detection)	Toggle ON or OFF DPD. ***Note:*** *DPD is a method that is used by devices to check for the current existence and availability of IPsec peers.*
DPD Delay Time (sec)	Set the delay time for connecting DPD keepalive packets.
DPD Idle Time (sec)	Set the amount of time to remain idle if no response is received from the peer.
DPD Action	● **Hold:** Hold IPSec routes and delete IPSec SA. ● **Clear:** Delete IPSec routes, IPSec and IKE SA. ● **Restart:** Delete IPSec routes, IPSec SA, and IKE SA, then re-initiate the negotiation.
IPSec SA Lifetime (sec)	Specify the IPSec SA lifetime, default is 3600.
ESP Encryption Algorithm	Select from the drop-down list the ESP Encryption Algorithm, the available ones are: ● 3DES ● AES-128 ● AES-192 ● AES-256 Default is AES-256.
ESP Hash Algorithm	Select from the drop-down list the ESP Hash Algorithm, the available ones are: ● MD5

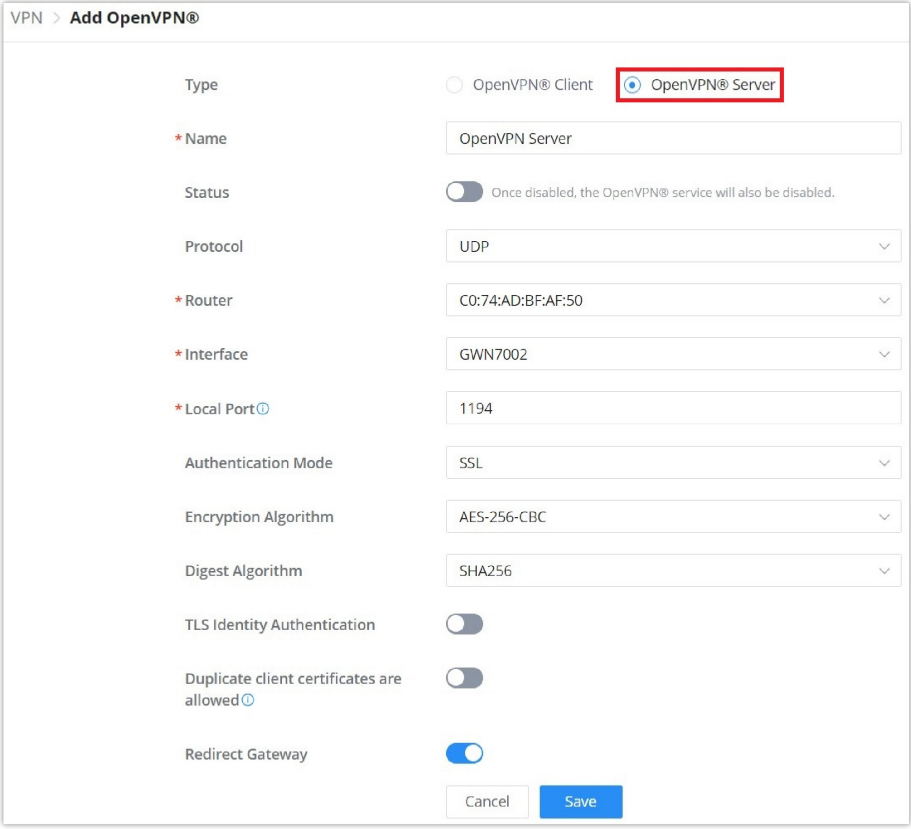
	• SHA-1 • SHA2-256 Default is SHA2-256
PFS Group	Select from the drop-down list the PFS group, the available ones are: Group 2,5,14. Default is disabled.

VPN – Add IPSec Manual mode

OpenVPN®

OpenVPN® is a virtual private network system that secures site-to-site or point-to-point traffic in routed or bridged configurations and remote access facilities. It supports both the client and server side.

GWN.Cloud and GWN Manager support both OpenVPN® Client and Server side also certificates management for ease of use.

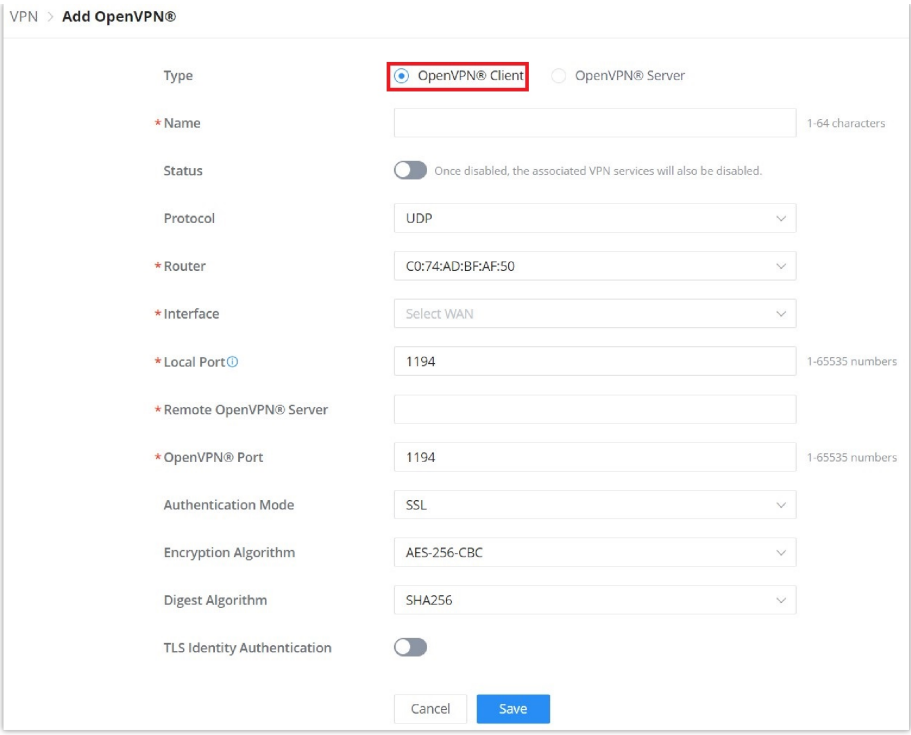


VPN – Add OpenVPN® Server

Type	Select the OpenVPN®: Client or **Server**
Name	Enter a name for the OpenVPN® server.
Status	Toggle ON or OFF to enable or disable the OpenVPN® Server. ***Note:*** *Once disabled, the OpenVPN® service will also be disabled.*
Protocol	Choose the Transport protocol from the dropdown list, either TCP or UDP. *The default protocol is **UDP**.*
Router	Select from the drop-down list the router/device group that this VPN will be using.
Interface	Select from the drop-down list the exact interface of the router/device group.
Local Port	Configure the listening port for OpenVPN® server. *The default value is **1194**.*

Authentication Mode	Choose the server mode the OpenVPN® server will operate with. 4 modes are available: ● **SSL:** Authentication is made using certificates only (no user/pass authentication). Each user has a unique client configuration that includes their personal certificate and key. This is useful if clients should not be prompted to enter a username and password, but it is less secure as it relies only on something the user has (TLS key and certificate). ● **User Authentication:** Authentication is made using only CA, user and password, no certificates. Useful if the clients should not have individual certificates. Less secure as it relies on a shared TLS key plus only something the user knows (Username/password). ● **SSL + User Authentication:** Requires both certificate and username / password. Each user has a unique client configuration that includes their personal certificate and key. ● **PSK:** Used to establish a point-to-point OpenVPN® configuration. A VPN tunnel will be created with a server endpoint of a specified IP and a client endpoint of specified IP. Encrypted communication between client and server will occur over UDP port 1194, the default OpenVPN® port. Most secure as there are multiple factors of authentication (TLS Key and Certificate that the user has, and the username/password they know).
Encryption Algorithm	Choose the encryption algorithm from the dropdown list to encrypt data so that the receiver can decrypt it using same algorithm.
Digest Algorithm	Choose digest algorithm from the dropdown list, which will uniquely identify the data to provide data integrity and ensure that the receiver has an unmodified data from the one sent by the original host.
TLS Identicy Authentication	This option uses a static **Pre-Shared Key** (**PSK**) that must be generated in advance and shared among all peers. This feature adds extra protection to the **TLS** channel by requiring that incoming packets have a valid signature generated using the PSK key.
TLS Identity Authentication Direction	Select from the drop-down list the direction of TLS Identity Authentication, three options are available **(Server, Client or Both)**.
TLS Pre-Shared Key	If TLS Identicy Authentication is enabled, enter the TLS Pre-Shared Key.
Duplicate client certificates are allowed	Click on "**ON**" to allow duplicate Client Certificates
Redirect Gateway	When redirect-gateway is used, OpenVPN® clients will route DNS queries through the VPN, and the VPN server will need to handle them.
Push Routes	Specify route(s) to be pushed to all clients. *Example: 10.0.0.1/8*
LZO Compression Algorithm	Select whether to activate LZO compression or no, if set to “Adaptive”, the server will make the decision whether this option will be enabled or no.
Allow Peer to Change IP	Allow remote change the IP and/or Port, often applicable to the situation when the remote IP address changes frequently.
CA Certificate	Select a generated CA from the dropdown list or add one.
Server Certificate	Select a generated Server Certificate from the dropdown list or add one.
IPv4 Tunnel Network/Mask Length	Enter the network range that the GWN70xx will be serving from to the OpenVPN® client. ***Note:*** *The network format should be the following 10.0.10.0/16.* *The mask should be at least 16 bits.*

VPN – Add OpenVPN® Server



VPN – Add OpenVPN® Client

Type	Select the OpenVPN®: **Client** or Server
Name	Enter a name for the OpenVPN® Client.
Status	Toggle ON or OFF to enable or disable the OpenVPN® Client. ***Note:*** *Once disabled, the associated VPN services will also be disabled.*
Protocol	Specify the transport protocol used. ● **UDP** ● **TCP** **Note:** The default protocol is UDP.
Router	Select from the drop-down list the router/device group that this VPN will be using.
Interface	Select from the drop-down list the exact interface of the router/device group.
Local Port	Configures the client port for OpenVPN®.The port between the OpenVPN® client and the client or between the client and the server should not be the same.
Remote OpenVPN® Server	Configures the remote OpenVPN® server. Both IP address and domain name are supported.
OpenVPN® Port	Configures the remote OpenVPN® server port
Authentication Mode	Choose the server mode the OpenVPN® server will operate with. 4 modes are available: ● **SSL**: Authentication is made using certificates only (no user/pass authentication). Each user has a unique client configuration that includes their personal certificate and key. This is useful if clients should not be prompted to enter a username and password, but it is less secure as it relies only on something the user has (TLS key and certificate). ● **User Authentication:** Authentication is made using only CA, user and password, no certificates. Useful if the clients should not have individual certificates. Less secure as it relies on a shared TLS key plus only something the user knows (Username/password). ● **SSL + User Authentication:** Requires both certificate and username / password. Each user has a unique client configuration that includes their personal certificate and key.

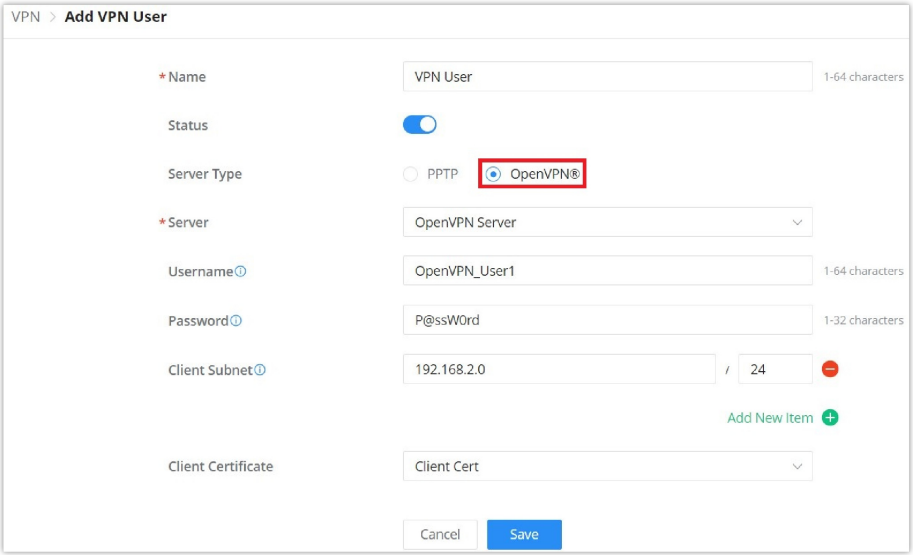
	● **PSK:** Used to establish a point-to-point OpenVPN® configuration. A VPN tunnel will be created with a server endpoint of a specified IP and a client endpoint of specified IP. Encrypted communication between client and server will occur over UDP port 1194, the default OpenVPN® port. Most secure as there are multiple factors of authentication (TLS Key and Certificate that the user has, and the username/password they know).
Encryption Algorithm	Choose the encryption algorithm. The encryption algorithms supported are: ● **DES-CBC** ● **RC2-CBC** ● **DES-EDE-CBC** ● **DES-EDE3-CBC** ● **DESX-CBC** ● **BF-CBC** ● **RC2-40-CBC** ● **CAST5-CBC** ● **RC2-64-CBC** ● **AES-128-CBC** ● **AES-192-CBC** ● **AES-256-CBC** ● **SEED-CBC**
Digest Algorithm	Select the digest algorithm. The digest algorithms supported are: ● **MD5** ● **RSA-MD5** ● **SHA1** ● **RSA-SHA1** ● **DSA-SHA1-old** ● **DSA-SHA1** ● **RSA-SHA1-2** ● **DSA** ● **RIPEMD160** ● **RSA-RIPEMD160** ● **MD4** ● **RSA-MD4** ● **ecdsa-with-SHA1** ● **RSA-SHA256** ● **RSA-SHA384** ● **RSA-SHA512** ● **RSA-SHA224** ● **SHA256** ● **SHA384** ● **SHA512** ● **SHA224** ● **whirlpool**
TLS Identity Authentication	Enable TLS identity authentication direction.
TLS Identity Authentication Direction	Select the indentity authentication direction. ● Server: Indentity authentication is performed on the server side. ● Client: Identity authentication is performed on the client side. ● Both: Identity authentication is performed on both sides.
TLS Pre-Shared Key	Enter the TLS pre-shared key.
Routes	Configures IP address and subnet mask of routes, e.g., 10.10.1.0/24.
Deny Server Push Routes	If enabled, client will ignore routes pushed by the server.
IP Masquerading	This feature is a form of network address translation (NAT) which allows internal computers with no known address outside their network, to communicate to the outside. It allows one machine to act on

	behalf of other machines.
LZO Compression	Select whether to activate LZO compression or no, if set to “Adaptive”, the server will make the decision whether this option will be enabled or no. LZO encoding provides a very high compression ratio with good performance. LZO encoding works especially well for CHAR and VARCHAR columns that store very long character strings.
Allow Peer to Change IP	Allow remote change the IP and/or Port, often applicable to the situation when the remote IP address changes frequently.
CA Certificates	Click on “Upload” and select the CA certificate Note: This can be generated in System Settings → Certificates → CA Certificate
Client Certificate	Click on “Upload” and select the Client Certificate. Note: This can be generated in System Settings → Certificates → Certificate

VPN – Add OpenVPN® Client

VPN User

In this section, the user can add a VPN user for either PPTP VPN or OpenVPN®. Please refer to the figure and table below:



VPN – Add VPN User

Name	Enter a name for the user. This name will not be used to log in.
Status	Enable or disable this account.
Server Type	Choose the type of the server. • **PPTP** • **OpenVPN®**
Server Name	Select the VPN server fromt the drop-list
Username	Enter the username. This username will be used to log in. ***Note:*** *only alphanumeric characters and @ ! $ % - _ are supported.*
Password	Enter the password. ***Note:*** *only alphanumeric characters and @ ! $ % - _ are supported.*

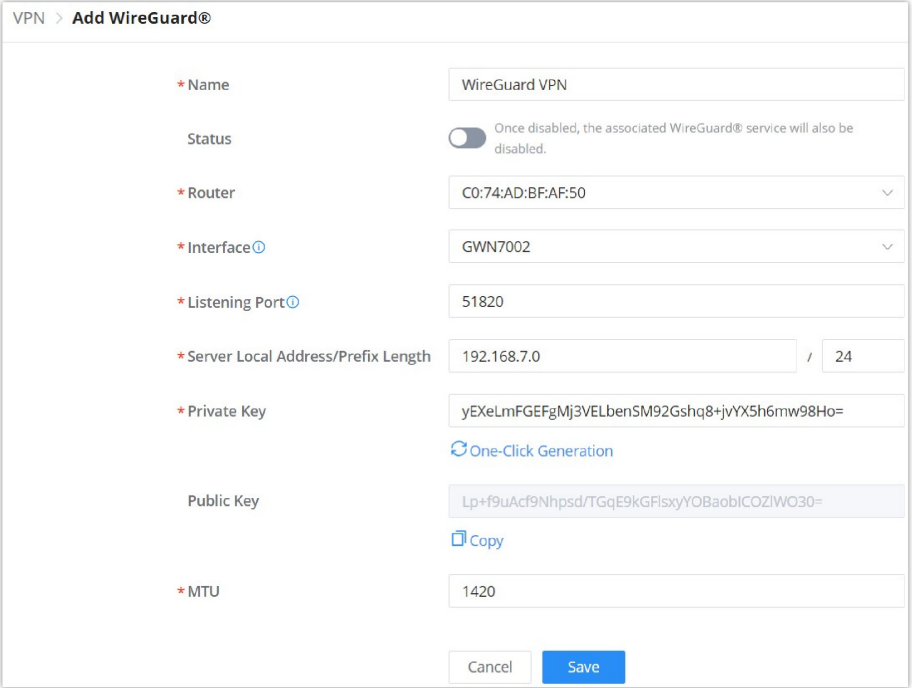
Client Subnet	Set the IP address and mask length of the subnet for the client to access. Please enter an IP address or subnet (e.g., 192.168.2.0/24)
Only if OpenVPN® is selected	
Client Certificate	Select from the drop-down list the client certificate.

VPN – Add VPN User

WireGuard®

WireGuard® is a free and open-source VPN solution that encrypts virtual private networks, easy to use, high performance and secure.

GWN.Cloud and GWN Manager support WireGuard® as well, a Server local address can be specified while a private key can be generated with one click then after that the public key can be copied and shared with the client.



VPN – Add WireGuard®

Name	Specify a name for Wireguard® VPN.
Status	Toggle ON or OFF to enable or disable the Wireguard® VPN.
Router	Select from the drop-down list the router/device group that this VPN will be using.
Interface	Select from the drop-down list the exact interface of the router/device group. ***Note:*** *one WAN only supports creating one WireGuard®.*
Listening Port	Set the local listening port when establishing a WireGaurd® tunnel. ***Default:*** *51820*
Server Local Address/Prefix Length	Specify the server local address with the prefix length
Private Key	Click on "**One-Click Generation**" text to generate a private key.
Public Key	The public key will be generated according to the private key.

	Click on "**Copy**" text to copy the public key.
MTU	This indicates the size of the packets sent by the router. Please do not change this value unless necessary. By default is 1450.

VPN – Add WireGuard®

Traffic Management

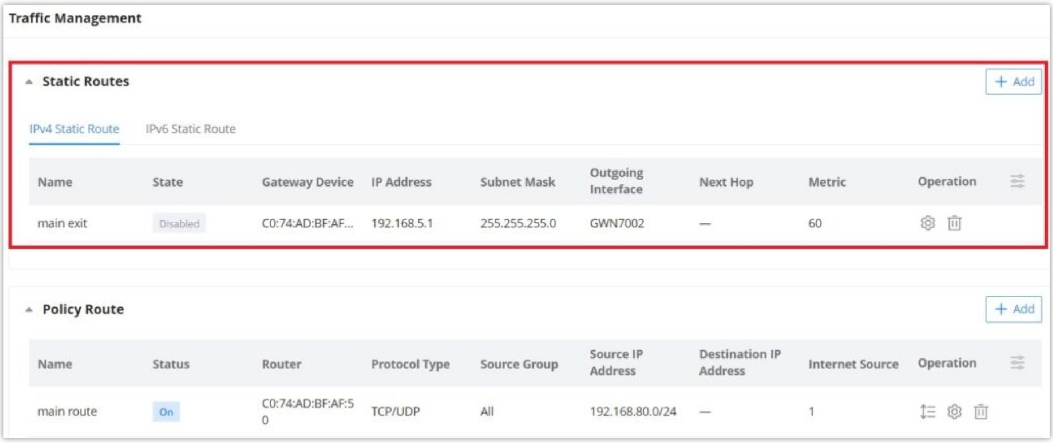
On this page, the user can manage traffic by either adding static routes (IPv4 or IPv6) or adding Policy Routes.

Static Routes

Static routing is a form of routing by manually configuring the routing entries, rather than using a dynamic routing traffic for any service that requires a static address that never changes.

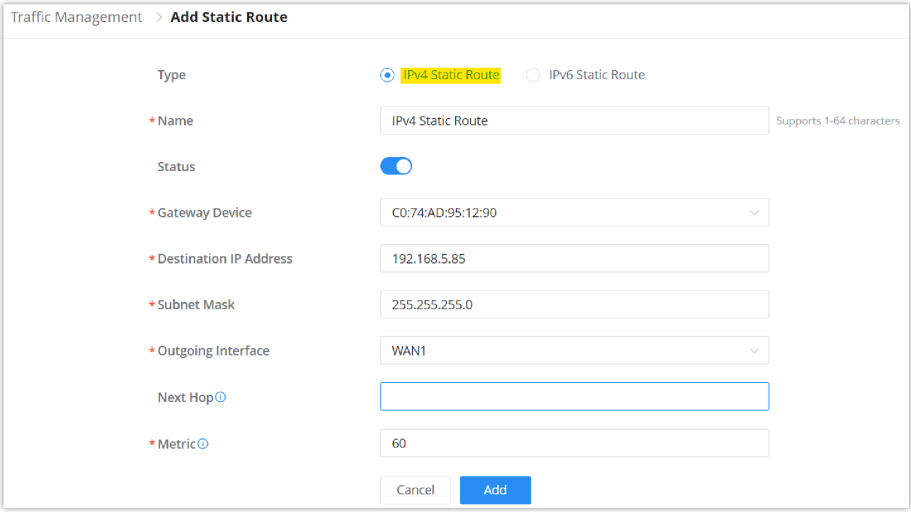
GWN.Cloud and GWN Manager support setting manually **IPv4 or IPv6 Static Routes** which can be accessed from **Web UI → Settings → Traffic Management page → Static Routes section.**

All the Static routes either IPv4 or IPv6 will be listed here.



Static Routes

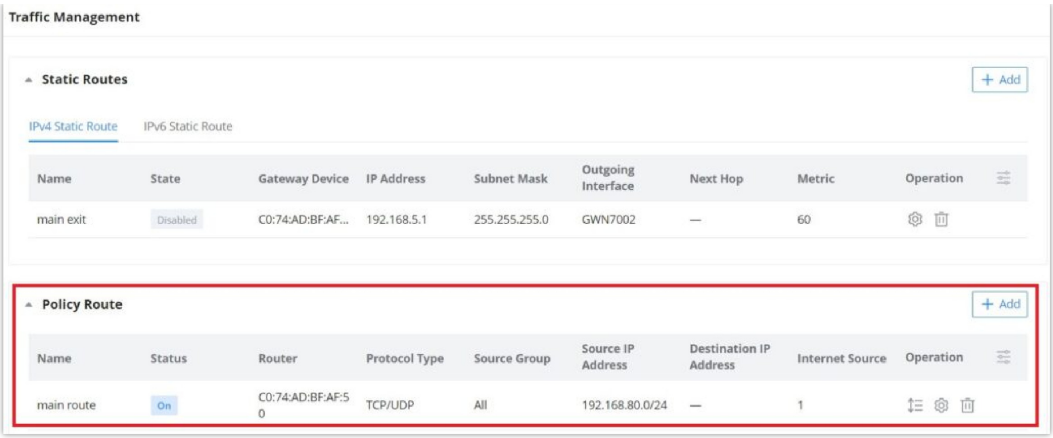
Click on + Add button to add a static route, the user has the option between IPv4 or IPv6.



Add Static Route

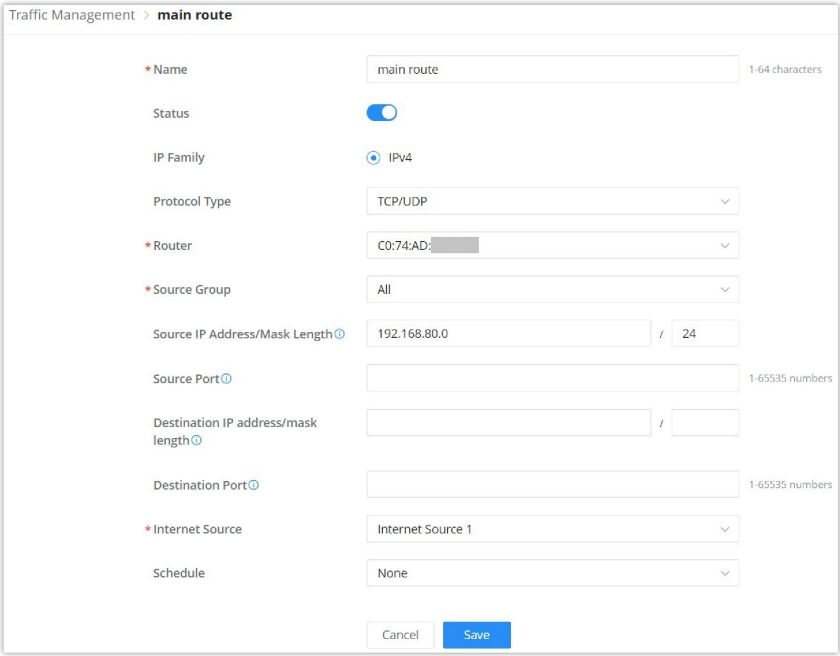
Policy Route

GWN.Cloud and GWN Manager support managing more than one GWN router on the same network, with multiple GWN routers added, the user will have many internet sources, which will enable the user to specify which traffic can be forwarded to an internet source (Load Balance/Backup). Also, a schedule can be applied to this policy route to only be active based on the schedule selected.



Policy Route

Navigate **Web UI → Settings → Traffic Management page → Policy route section** and then click on the "**Add**" button to add a policy route, please refer to the figure below:



Add Policy Route

Name	Specify a name for the policy route
Status	Toggle ON or OFF to enable or disable the policy route
IP Family	IP Family, default is IPv4
Protocol Type	Select from the drop-down list the protocol type: ● All ● TCP ● UDP ● TCP/UDP ● ICMP
Router	Select from the drop-down list the router or the device group ***Note:*** *for device groups, only router group is supported*
Source Group	Select the source group from the drop-down list
Source IP Address/Mask Length	Set the source IP address and mask length of the packet to be matched. Please enter an IP address or subnet (e.g., 192.168.122.0/24)

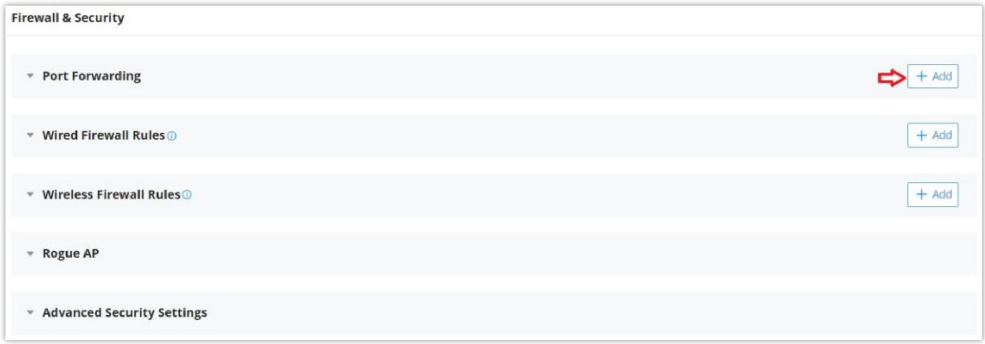
Destination IP address/mask length	Set the destination IP address and mask length to match the packet. For example, 192.168.122.0/24
Internet Source	Select the internet source (WAN/Load Balance/Backup) from the drop-down list
Schedule	Select a schedule from the drop-down list or click on "**Add New Schedule**" to add one.

Add Policy Route

Firewall and Security

The Firewall & Security page combines all the configurations related to firewall and security, split into 5 sections (Port Forwarding, Wired Firewall Rules, Wireless Firewall Rules, Rogue AP, and Advanced Security Settings.

Click on a section to expand the list or click on + Add button to add more.

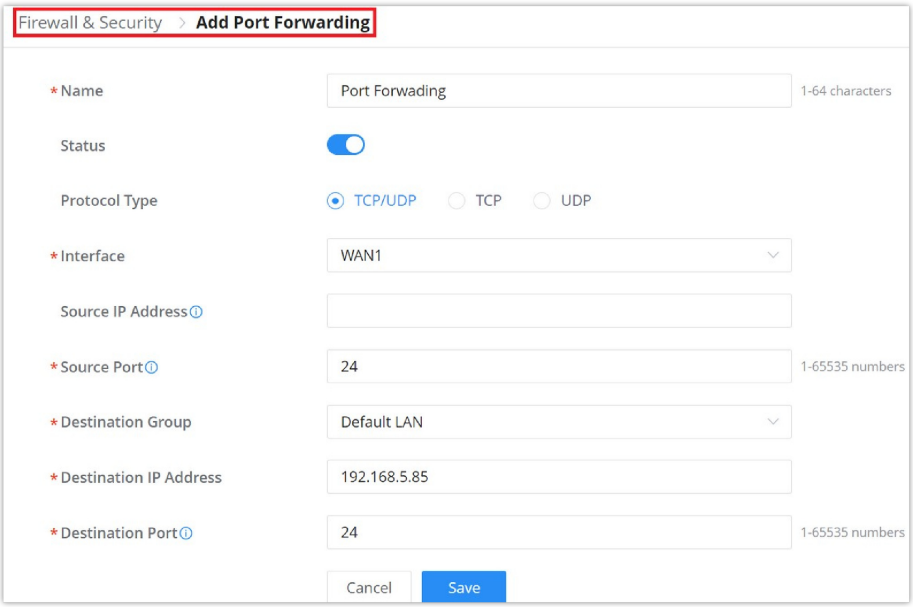


Firewall and Security

Port Forwarding

Port forwarding is redirecting the communication request from one address and port to another address and port. A source IP Address and port will be mapped to a Destination IP Address, port, and Group.

To add port forwarding, navigate to **Web UI → Settings → Firewall & Security page → Port Forwarding tab.**



Port Forwarding

Refer to the following table for the port-forwarding option when editing or creating a port-forwarding rule:

Name	Enter a name for the port forwarding rule.

Status	Toggle on/off the rule status.
Protocol Type	Select a protocol, users can select TCP, UDP or TCP/UDP.
Interface	Select the WAN port
Source IP Address	Sets the IP address that external users access to this device. If not set, any IP address on the corresponding WAN port can be used
Source Port	Set a single or a range of Ports.
Destination Group	Select VLAN group.
Destination IP Address	Set the destination IP address.
Destination Port	Set a single or a range of Ports.

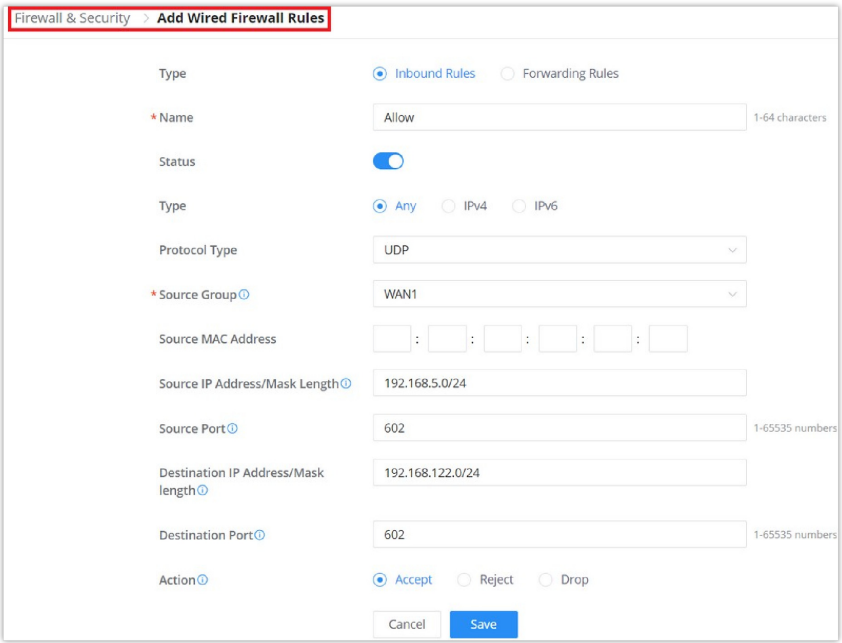
Port Forwarding

Wired Firewall Rules

The administrator can Accept, Reject, or Drop wired traffic using inbound rules or forwarding rules, navigate to **Web UI → Settings → Firewall & Security page → Wired Firewall Rules tab**.

- **Accept:** To allow the traffic to go through.
- **Deny:** A reply will be sent to the remote side stating that the packet is rejected.
- **Drop:** The packet will be dropped without any notice to the remote side.

> **Note:**
>
> Wired firewall rules apply only to Routers.



Wired Firewall Rules

Type	Select the type of the firewall rule: **Inbound** or **Forwarding rule**
Name	Enter a name for the wired firewall rule.

Status	Toggle on or off the wired firewall rule.
IP Family	Select the IP Family used: IPv4, IPv6 or Any
Protocol Type	Select the protocol type from the drop-down list.
Source Group	Select the source group, it can be either a WAN or VLAN. ***Note:*** *If set to "All", more specific rules will take priority.*
Source MAC Address	Specify a source MAC Address, else the rule will be applied on all MAC addresses.
Source IP Address/Mask Length	Sets the source IP address of the external device. Please enter an IP address or subnet (e.g., **192.168.122.0/24**)
Source Port	Separate multiple ports and port ranges with commas (**e.g., "4, 5-10"**).
Destination Group	Select the Destination group: WAN or VLAN ***Note:*** *This option is only available when selecting Forwarding rules*
Destination IP Address/Mask length	Sets the IP address that external devices access the router. Please an IP address or subnet (**e.g., 192.168.122.0/24**).
Destination Port	Separate multiple ports and port ranges with commas (**e.g., "4, 5-10**").
Action	● **Accept:** Requests from external clients will be allowed. ● **Deny:** Requests from external clients will be denied, and a response will be returned. ● **Drop:** Requests from external device will be dropped, and no response will be given.

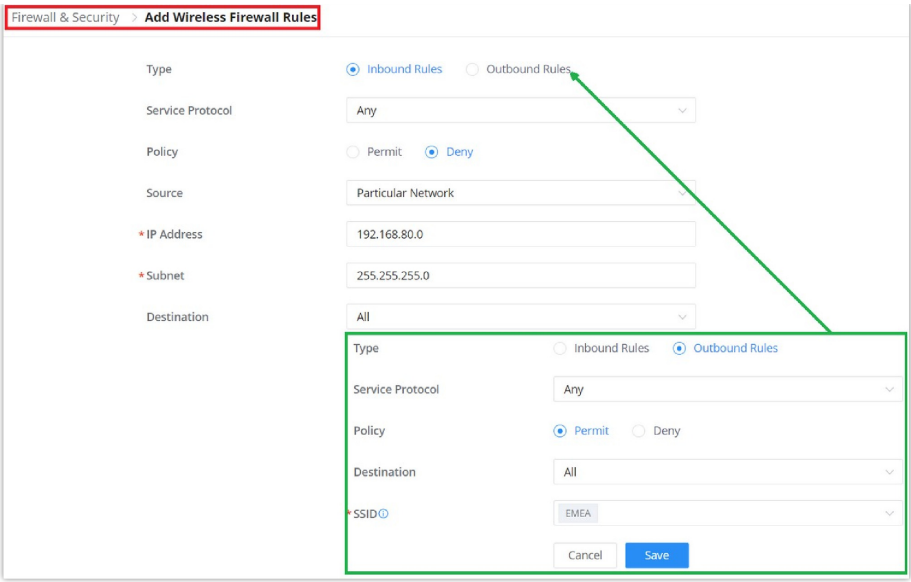
Wired Firewall Rules

Wireless Firewall Rules

This section is located under **Web UI → Settings → Firewall & Security page → Wireless Firewall rules tab**, it does allow users to control the outgoing and incoming traffic from clients connected to the adopted/paired GWN devices by manually setting up policies to either deny or permit the traffic for wireless traffic based on protocol type and by specifying SSIDs and destinations.

Note:

Wireless firewall rules apply only to AP.



Add Wireless Firewall Rules

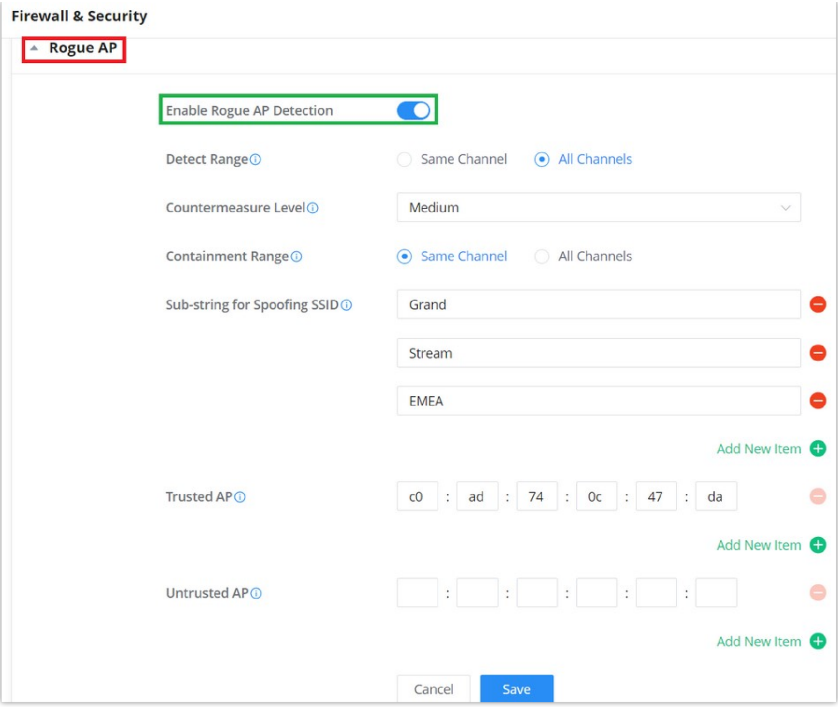
Type	Select the type of the firewall rule: **Inbound rules** or **Outbound rules**
Name	Enter a name for the wireless firewall rule.
Service Protocol	Select the Service protocol type from the drop-down list.
Policy	• **Permit:** Traffic from clients will be allowed. • **Deny:** Traffic from clients will be denied.
Source	Select the source, it can be from a Particualar IP or Network then enter the IP and/or the subnet. ***Note:*** *this option is only available when the type selected is Inbound rules.*
Destination	Select the destination, it can be from a Particualar IP, Network or Domain. then enter the IP/Domain and/or the subnet.
SSID	If All is selected, this rule will also be applied to new SSIDs (Wireless LAN). ***Note:*** *this option is only available when the type selected is Outbound rulesl*

Add Wireless Firewall Rules

Rogue AP

GWN Cloud and GWN Manager offer the ability to prevent malicious intrusion into the network and increase the wireless security access of clients when introducing the Rogue AP detection feature to the adopted/paired GWN devices. The detected devices will be listed with all the details under the **"Alerts"** page for further intervention.

Navigate to **Settings** → **Firewall & Security page** → **Rogue AP section**, The below figure shows the configuration page to enable Rogue AP detection.



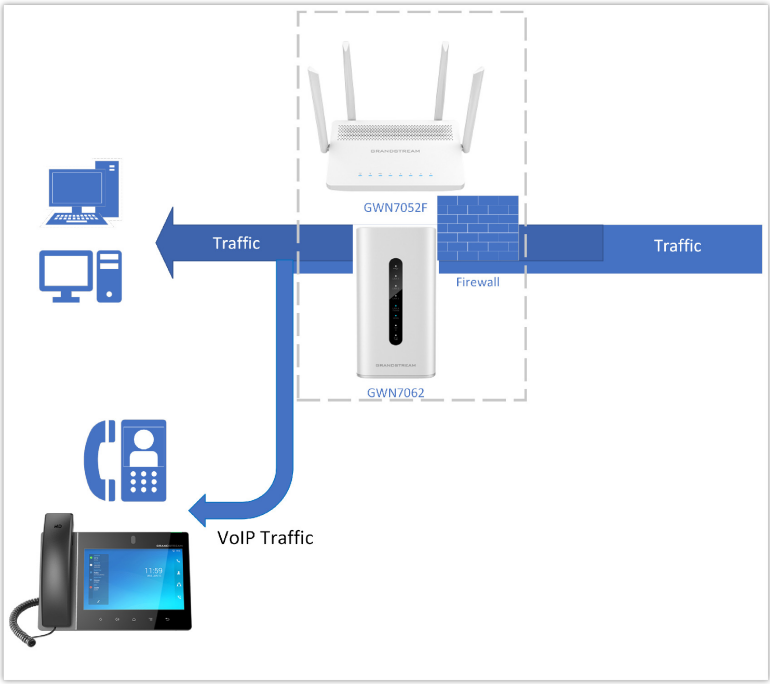
Rogue AP

Enable Rogue AP Detection	Select to either to enable or disable Rogue AP scan.
Detect Range	Specify the rogue AP detect range. ● **Same Channel:** AP will execute simple detection on the APs around, this mode almost has no effects on the wireless network communication. ● **All channels:** AP will execute a deep detection every 5 minutes. And the clients connecting to the AP will have few seconds of communication interrupt. *Default is Same Channel.*
Countermeasure Level	Countermeasures level specifies the type of attacks which will be suspected by the AP. Select different levels: ● **High:** Untrusted BSSID, Illegal access without authentication, Illegal access, Spoofing SSID. ● **Medium:** Untrusted BSSID, Illegal access without authentication, Illegal access. ● **Low:** Untrusted BSSID, Illegal access without authentication *Default is Disabled.*
Containment Range	Specify the containment range: ● **Same channel:** detect AP will countermeasure the APs in the same channel. ● **ALL channels:** detect AP will countermeasure the APs in all channels at the cost of consuming of much AP performance. *Default is Same Channel.*
Sub-string for Spoofing SSID	The AP broadcasting SSID with the specified string will be classified as a Spoofing SSID.
Trusted AP	You can specify MAC address of the trusted AP, which should be formatted as XX:XX:XX:XX:XX:XX. If an AP is defined as trusted AP, no countermeasures will be executed on it.
Untrusted AP	You can specify MAC address of the untrusted AP, which should be formatted as XX:XX:XX:XX:XX:XX. If an AP is defined as untrusted AP, countermeasures will be executed on it when countermeasure is enabled.

Rogue AP

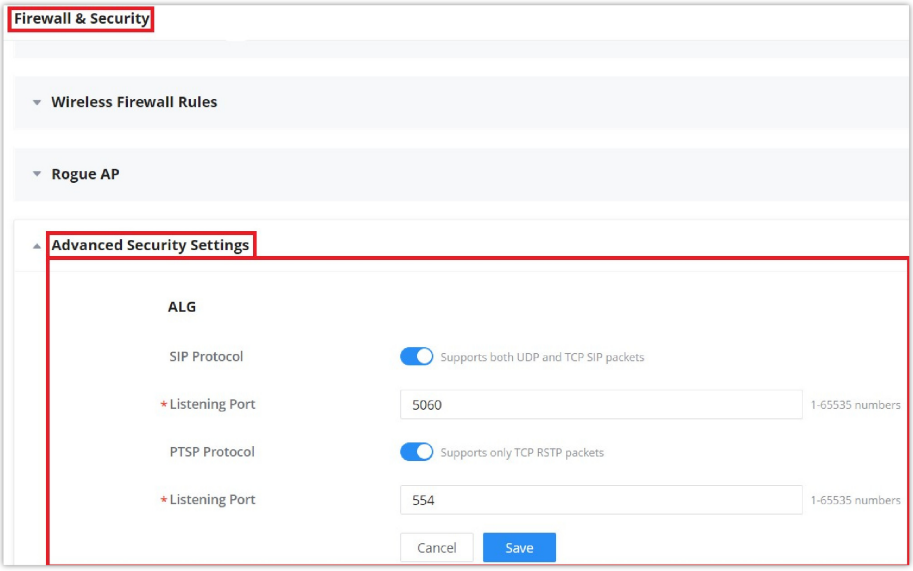
Application Layer Gateway (ALG)

ALG stands for **Application Layer Gateway**. Its purpose is to prevent some of the problems caused by router firewalls by inspecting VoIP traffic (packets) and if necessary modifying it.



Application Layer Gateway

To configure ALG, navigate to **Web GUI → Settings → Firewall & Security page → Advanced Security Settings tab**.



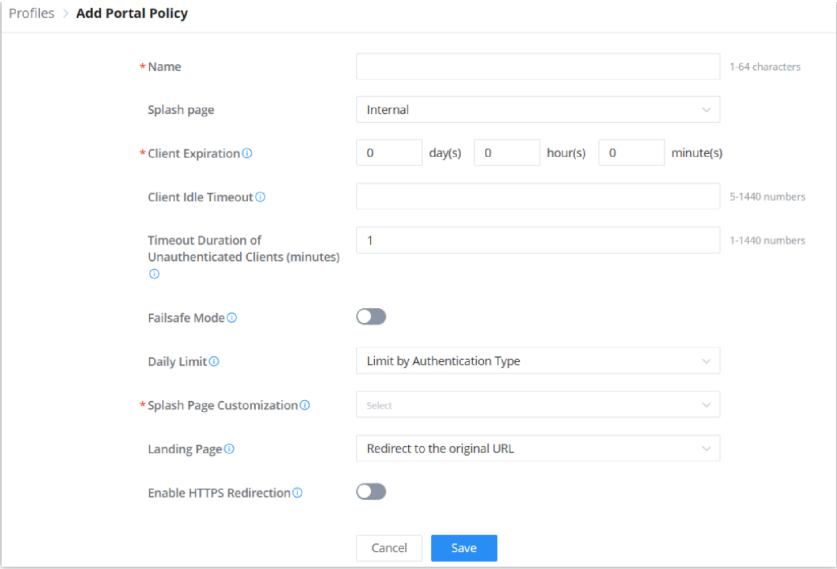
ALG

PROFILES

Portal policy

The policy configuration page allows adding multiple captive portal policies which will be applied to SSIDs and contains options for different authentication types a splash page that can be easily configured as shown in the next section.

Each SSID can be assigned a different captive portal policy, for example, company ABC could have a specified Wi-Fi for staff people who can access via a portal policy requiring a user username and password for authentication and another SSID for guest people who can sign in via their Facebook account; also, they could assign either an internal or external Splash page.



Add Portal Policy

Internal Splash Page

Please refer to the table below when configuring the Internal Splash Page.

Name	Enter the name of the Captive Portal policy
Splash Page	Select Splash Page type, Internal or External. ***Note:*** *this table is only about internal splash page.*
Client Expiration	Configures the period of validity, after the valid period, the client will be re-authenticated again.
Client Idle Timeout	Specify the idle timeout value for guest network connection. Once timed out, guest should re-authenticate for further network use. ***Note:*** *this option is not applicable to voucher guests and payment guests.*
Timeout Duration of Unauthenticated Clients (minutes)	Set the timeout time for unauthenticated clients. After the timeout, unauthenticated client devices are disabled from using Wi-Fi.
Failsafe Mode	Once enabled, guest can access internet when the authentication server or external portal is unreachable. ***Note:*** *only the Radius, custom field and Voucher authentications support this feature.*
Daily Limit	● **Disabled:** Daily access is not limited. ● **Limit by Client:** Guest can access only once a day. ● **Limit by Authentication Type:** Users can access each authentication mode only once a day.
Splash Page Customization	Select a splash page from the drop-down list or click "**Add New Splash Page**".
Landing Page	Choose the landing page, 2 options are available: ● Redirect to the Original URL. ● Redirect to External Page.
Enable HTTPS Redirection	Check to enable/disable HTTPS service. If enabled, both HTTP and HTTPS requests sent from stations will be redirected by using HTTPS protocol. And station may receive an invalid certification error while doing HTTPS browsing before authentication. If disabled, only the HTTP request will be redirected.

Enable Secure Portal	If enabled, HTTPS protocol will be used in the communication between STA and AP. Otherwise, the HTTP protocol will be used.
Pre Authentication Rule(s)	
Destination	Destination can be either IP Address, Hostname or Subnet/Prefix
Service	● **All:** no limitation. ● **Web:** web related services. ● **TCP Port**: input integer between 1~65535. ● **UDP Port**: input integer between 1~65535. ● **Protocol Id:** input related services agreement No.
Post Authentication Rule Type	● If set to "**Blocklist**", access to all except the rules added. ● if set to "**Allowlis**t",only access the rules added.
Post Authentication Rule(s)	
Destination	Destination can be either IP Address, Hostname or Subnet/Prefix
Service	● **All:** no limitation. ● **Web:** web related services. ● **TCP Port**: input integer between 1~65535. ● **UDP Port**: input integer between 1~65535. ● **Protocol Id:** input related services agreement No.

Portal Policy – Internal Splash Page

External Splash page

Please refer to the table below when configuring the External Splash Page.

Name	Enter the name of the Captive Portal policy
Splash Page	Select Splash Page type, Internal or External. ***Note:*** *this table is only about external splash page.*
Platform	Select the Radius Authentication Method provided by external portal platform.
If Linkyfi, Purple or Universal Platform is selected	
External Splash Server Address	Enter the External Splash Page URL, and make sure to enter the pre-authentication rules request by the external portal platform in the pre-authentication configuration option.
RADIUS Authentication	Select a RADIUS from the drop-down list or click on "**Add New Radius**".
If Aiwifi platform is selected	
URL Pre-shared Key	The configuration will be used to generate the signature. Please enter 20-32 characters, support entering numbers, English, characters (excluding spaces)
Timeout Duration of Unauthenticated Clients (minutes)	Set the timeout time for unauthenticated clients. After the timeout, unauthenticated client devices are disabled from using Wi-Fi.

External page	Please enter the Redirect URL provided by external portal platform.
Enable HTTPS Redirection	Check to enable/disable HTTPS service. If enabled, both HTTP and HTTPS requests sent from stations will be redirected by using HTTPS protocol. And station may receive an invalid certification error while doing HTTPS browsing before authentication. If disabled, only the HTTP request will be redirected.
Pre Authentication Rule(s)	
Destination	Destination can be either IP Address, Hostname or Subnet/Prefix
Service	● **All:** no limitation. ● **Web:** web related services. ● **TCP Port**: input integer between 1~65535. ● **UDP Port**: input integer between 1~65535. ● **Protocol Id:** input related services agreement No.
Post Authentication Rule Type	● If set to "**Blocklist**", access to all except the rules added. ● if set to "**Allowlist**",only access the rules added.
Post Authentication Rule(s)	
Destination	Destination can be either IP Address, Hostname or Subnet/Prefix
Service	● **All:** no limitation. ● **Web:** web related services. ● **TCP Port**: input integer between 1~65535. ● **UDP Port**: input integer between 1~65535. ● **Protocol Id:** input related services agreement No.

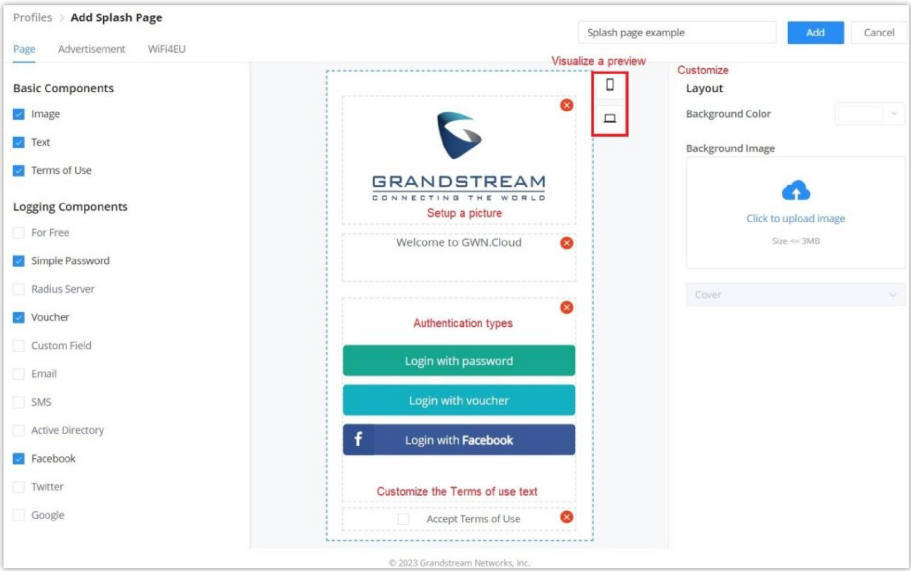
Portal Policy – External Splash Page

Splash page

Splash page allows users with an easy-to-configure menu to generate a customized splash page that will be displayed to the users when trying to connect to the Wi-Fi.

On this menu, users can create multiple splash pages and assign each one of them to a separate captive portal policy to enforce the selected authentication type.

The generation tool provides an intuitive "WYSIWYG" method to customize a captive portal with a very rich manipulation tool.



Users can set the following:

- **Authentication type**: Add one or more ways from the supported authentication methods:

For Free	Clients can log in without authentication.
Simple Password	The user can specify a password that clients must enter to authenticate.
Radius Server	Authentication using a RADIUS server.
Voucher	Authentication using a Voucher code.
Custom Field	The user can specify a custom field depending on the information needed: ● Text ● Check Box ● Radio Box ● Date
Email	Authentication using Email.
SMS	Authentication using SMS, with Twilio or Amazon SMS Service Provider.
Active Directory	Authentication using Active Directory.
Facebook	Authentication using Facebook account.
Twitter	Authentication using Twitter account.
Google	Authentication using Google account.

Splash page – *Authentication types*

- Set up a picture (Company Logo) to be displayed on the splash page.
- Customize the layout of the page and background colors.
- Customize the Terms of Use text.
- Visualize a preview for both mobile devices and laptops.

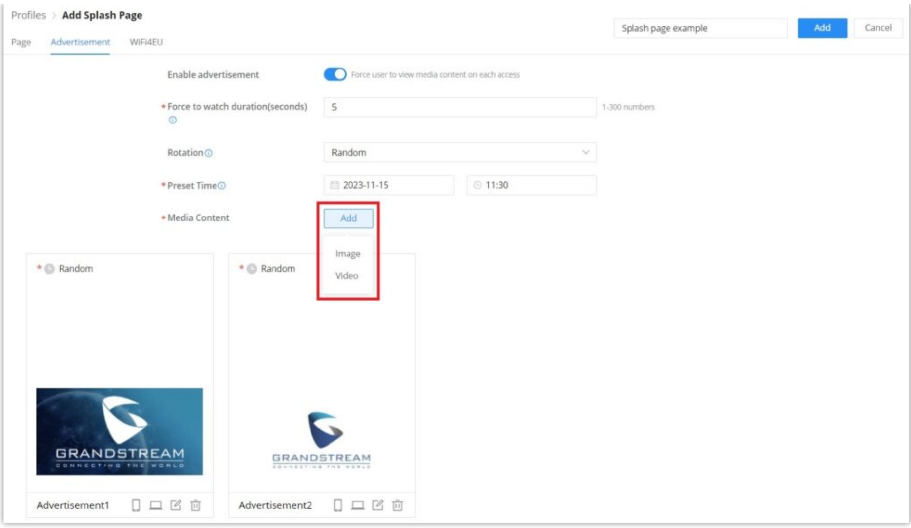
> **Note:**
>
> On each splash page, the maximum number of authentication methods is 5 methods.

Advertisement

On this page, advertisements can be enabled and forced on each access point, where users will be forced to view media content (images or videos) before being granted access to the network.

Click on the "**Add**" button to add media content (images or videos) then specify the "**Force to watch duration**" (in seconds).

Rotation: when there are many media contents, the user can specify the rotation (Random, Regular interval, or Regular time), then the preset time can be specified.

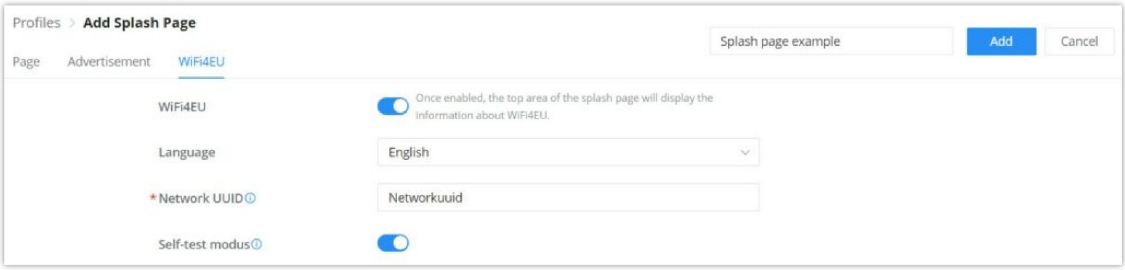


Splash Page – Advertisement

WiFi4EU

Once enabled, the top area of the splash page will display the information about WiFi4EU. The language can be set as well as the Network UUID.

Self-test modus: A WiFi4EU supplier can test if the snippet is correctly installed and if its portal is compliant by enabling the snippet self-test modus.



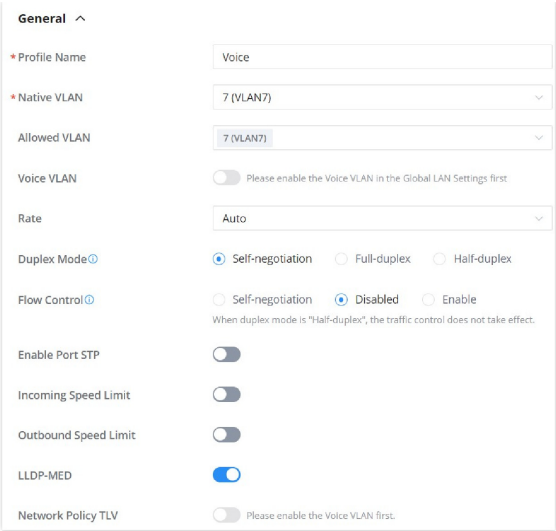
Splash Page – WiFi4EU

Port Profile

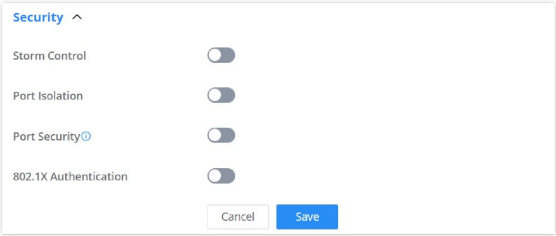
Port profiles are a convenient way to provision a GWN device (ex: GWN switches) interfaces easily. Name a profile then select the relevant configurations, like VLAN, Rate, Speed limit, LLDP, etc. Also for security, we can enable Storm control, Port Isolation, Port Security, and 801.1X Authentication.

> **Note:**
>
> A VLAN is also considered as a port profile.

To create a new Port Profile or edit an existing one, please navigate to **Web UI → Settings → Profiles page → Port Profile section.**



Add port profile – General



Add port profile – Security

General	
Profile Name	Specify a name for the profile.
Native VLAN	Select from the drop-down list the native VLAN (Default LAN).
Allowed VLAN	Check the allowed VLANs from the drop-down list (one VLAN or more).
Voice VLAN	Toggle ON or OFF Voice VLAN. ***Note:*** *Please first enable the Voice VLAN in the Global LAN Settings.*
Rate	Specify the rate (port speed) from the drop-down list.
Duplex Mode	Select the duplex mode: ● **Auto-negotiation:** The duplex status of an interface is determined by auto-negotiation between the local port and the peer port. ● **Full-duplex:** Force full-duplex, and the interface allows sending and receiving data packets at the same time. ● **Half duplex:** Force half duplex, and the interface only send or receive packets at a time.
Flow Control	When enabled, if congestion occurs on the local device, the device sends a message to the peer device to notify it to stop sending packets temporarily. After receiving the message, the peer device stops sending packets to the local device. ***Note:*** *When duplex mode is "Half-duplex", the traffic control does not take effect.*
Enable Port STP	Toggle ON or OFF the Port STP.
Incoming Speed Limit	Toggle ON or OFF the incoming speed limit.

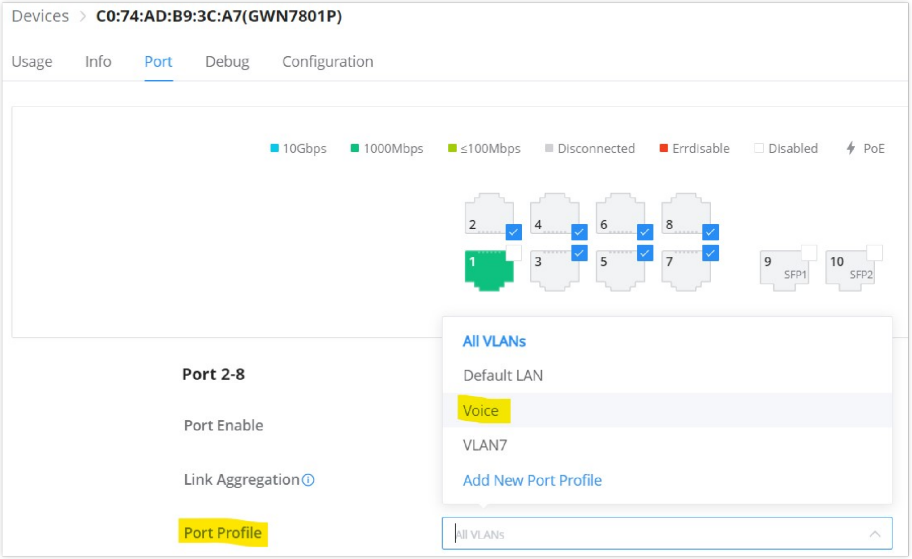
CIR (Kbps)	Configures the Committed Information Rate, which is the average rate of the traffic to pass through.
Outbound Speed Limit	Toggle ON or OFF the outbound speed limit.
CIR (Kbps)	Configures the Committed Information Rate, which is the average rate of the traffic to pass through.
LLDP-MED	Toggle ON or OFF the LLDP-MED.
Network Policy TLV	Toggle ON or OFF the network policy TLV.
Security	
Storm Control	Toggle ON or OFF storm control.
Broadcast	Toggle ON or OFF Broadcast and then specify the control trhreshold (pps = packet per second).
Unknown Multicast	Toggle ON or OFF Broadcast and then specify the control trhreshold (pps = packet per second).
Unknown Unicast	Toggle ON or OFF Unknown Unicast and then specify the control trhreshold (pps = packet per second).
Port Isolation	Toggle ON or OFF port isolation.
Port Security	Toggle ON or OFF port security. ***Note:*** *after enabled, start MAC address learning including the dynamic and static MAC addresses.*
Maximum number of MACs	Specify the maximum number of MAC addresses allowed. ***Note:*** *after the maximum number is reached, if a packet with a non-existing source MAC address is received, regardless of whether the destination MAC address exists or not, the switch will consider that there is an attack from an illegal user, and will protect the interface according to the port protection configuration.*
Sticky MAC	Toggle ON or OFF Sticky MAC. ***Note:*** *after enabled, the interface will convert the learned secure dynamic MAC address into Sticky MAC. If the maximum number of MAC addresses has been reached, the MAC addresses in the non-sticky MAC entries learned by the interface will be discarded, and whether to report a Trap alert is determined according to the port protection configuration.*
802.1X Authentication	Toggle ON or OFF 802.1x authentication.
User Authentication Mode	Select the user authentication mode from the drop-down list ● **Mac-based:** allows multiple users to authenticate without affecting each other; ● **Port-based:** allows multiple users to be authenticated. As long as one user passes the authentication, other users are exempt from authentication.
Method	Select the method from the drop-down list.
Guest VLAN	Toggle Guest VLAN ON or OFF. ***Note:*** *Enable the Guest VLAN in the Global LAN Settings first.*
Port Control	Select the port control from the drop-down list: ● Disabled ● Mandatory authentication ● Mandatory non-authentication

	• Automatic
Re-authentication	Configures whether to enable re-authentication for the device connected to the port.

Add port profile

Once the Port profile is added the user can apply it on a GWN device/device group ports (ex: GWN switches).

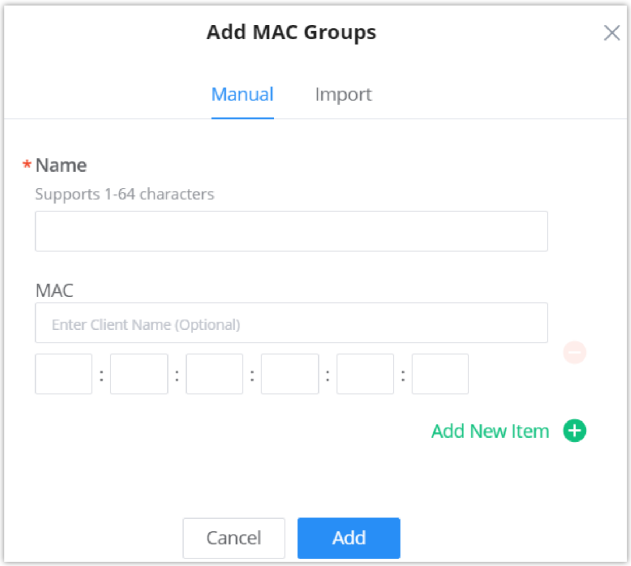
Under the **Devices** page, select the relevant device, and under the **Port** tab, select the ports then apply the Port Profile on these ports. please refer to the figure below:



GWN Switch – Port

Mac Groups

The user can create a group of MAC addresses to be used on the SSID as a Whitelist or Blacklist for allowing or blocking clients. There is also the option to import a CSV file containing all the MAC addresses.



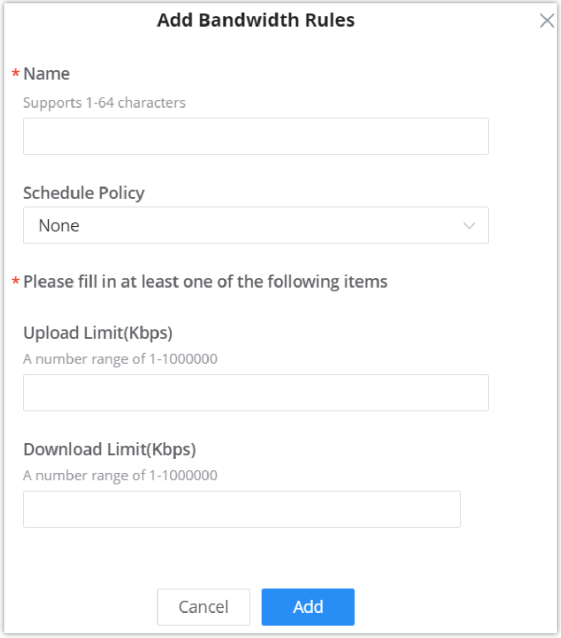
Add MAC Groups

Note:

The global blacklist blocks only clients connected to the AP with a limit of 256 MAC addresses per list

Bandwidth Rules

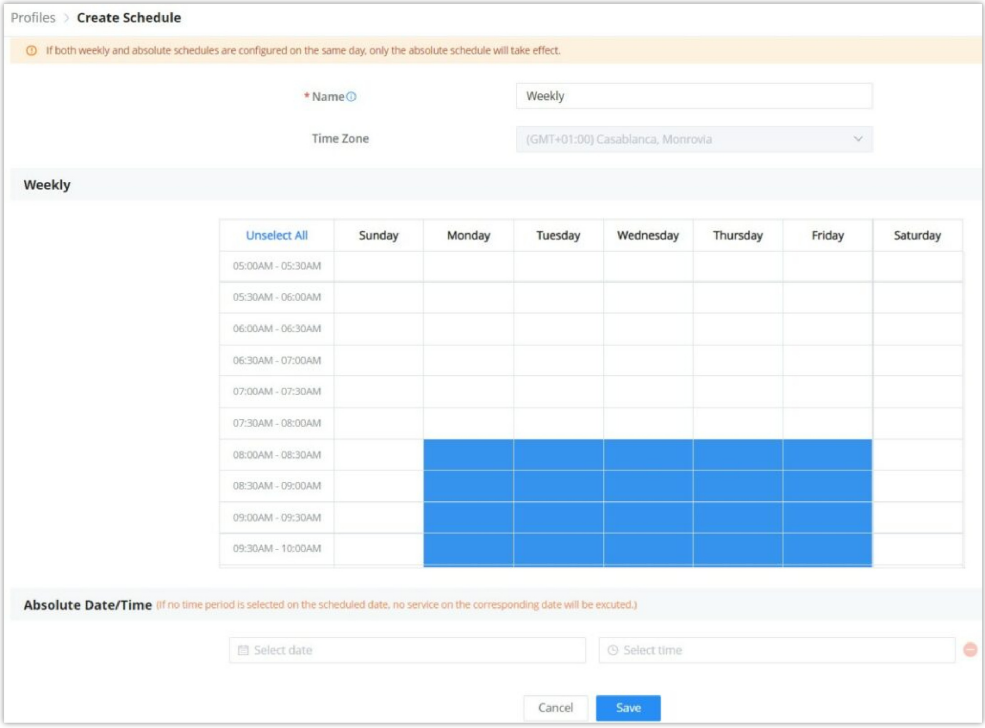
The bandwidth rule is a platform feature that allows users to limit bandwidth utilization per SSID or client (MAC address or IP address).



Add Bandwidth rules

Schedule

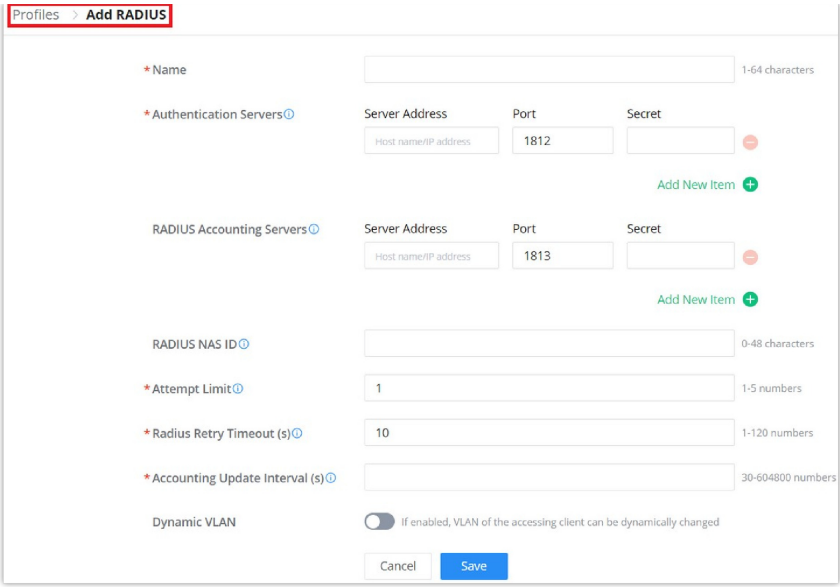
A schedule can be created here to be applied in many places like rebooting or LED for example.



Create Schedule

RADIUS

This page allows the user to add a RADIUS to be used in Portal policy or Wi-Fi security for example.

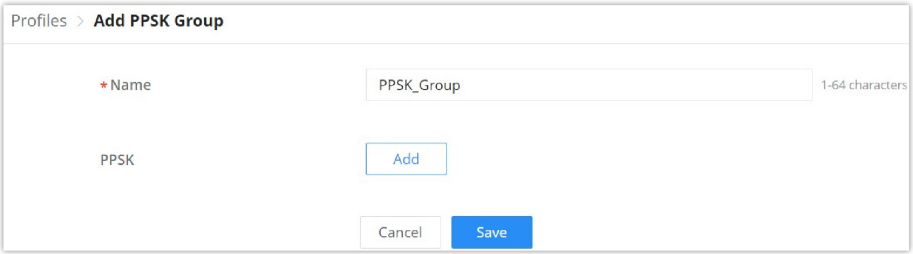


Add RADIUS

Private Pre-Shared Key (PPSK)

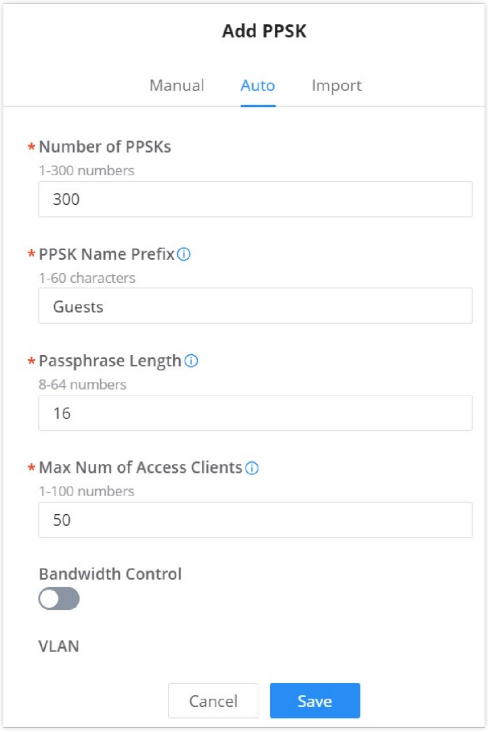
PPSK (Private Pre-Shared Key) is a way of creating Wi-Fi passwords per group of clients instead of using one single password for all clients.

To configure PPSK, **please navigate to Web UI → Settings → Profiles → PPSK**, then click on the "**Add**" button to add a new PPSK Group.



Add PPSK Group

Give the PPSK Group a name, and after that click on the "**Add**" button to add a new PPSK.

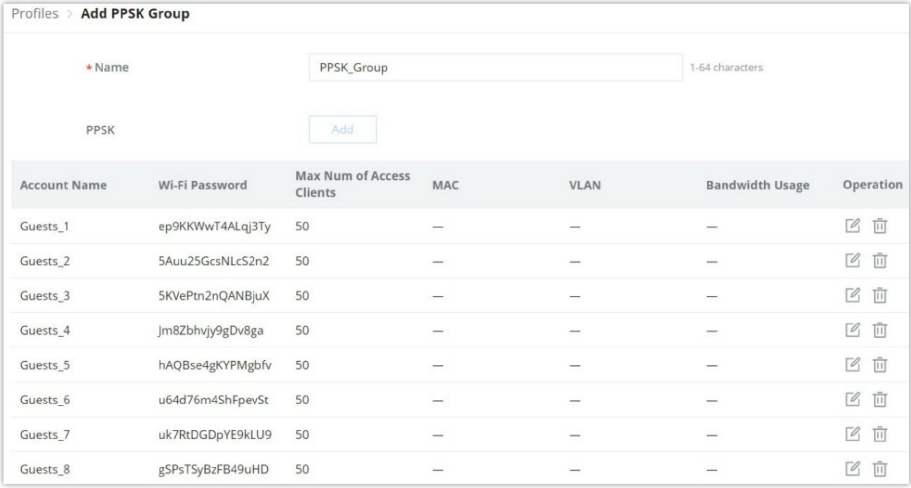


PPSK Autoconfiguration

Note

The maximum number of PPSK per Group is 300.

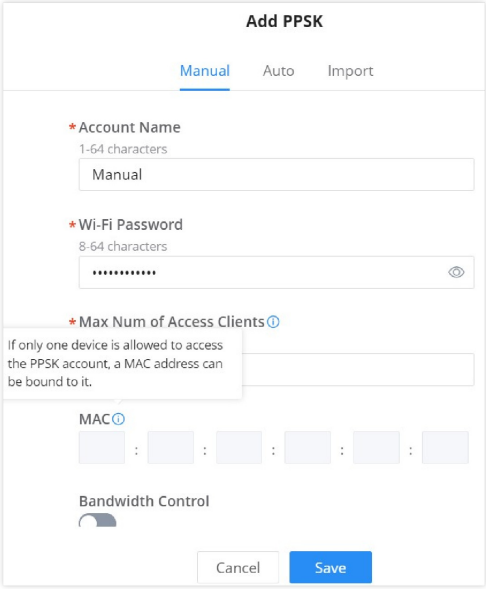
This is the result of the above configuration. 300 PPSKs have been created with a maximum number of access clients of up to 50.



Account Name	Wi-Fi Password	Max Num of Access Clients	MAC	VLAN	Bandwidth Usage	Operation
Guests_1	ep9KKWwT4ALqj3Ty	50	—	—	—	
Guests_2	5Auu25GcsNLcS2n2	50	—	—	—	
Guests_3	5KVePtn2nQANBjuX	50	—	—	—	
Guests_4	Jm8Zbhvjy9gDv8ga	50	—	—	—	
Guests_5	hAQBse4gKYPMgbfv	50	—	—	—	
Guests_6	u64d76m4ShFpevSt	50	—	—	—	
Guests_7	uk7RtDGDpYE9kLU9	50	—	—	—	
Guests_8	gSPsTSyBzFB49uHD	50	—	—	—	

Add PPSK – Auto

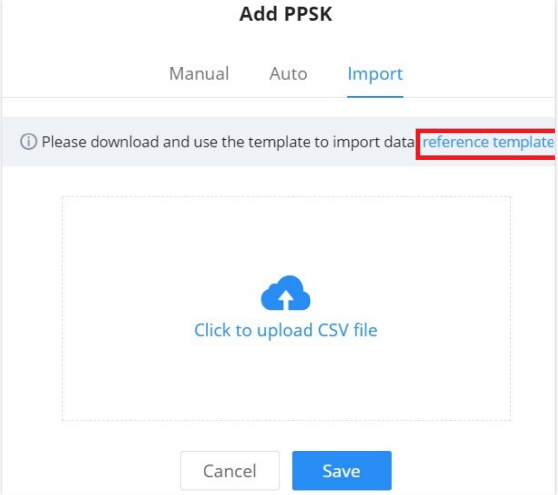
It's also possible to manually assign a Wi-Fi password for a number of clients.



PPSK – Manual

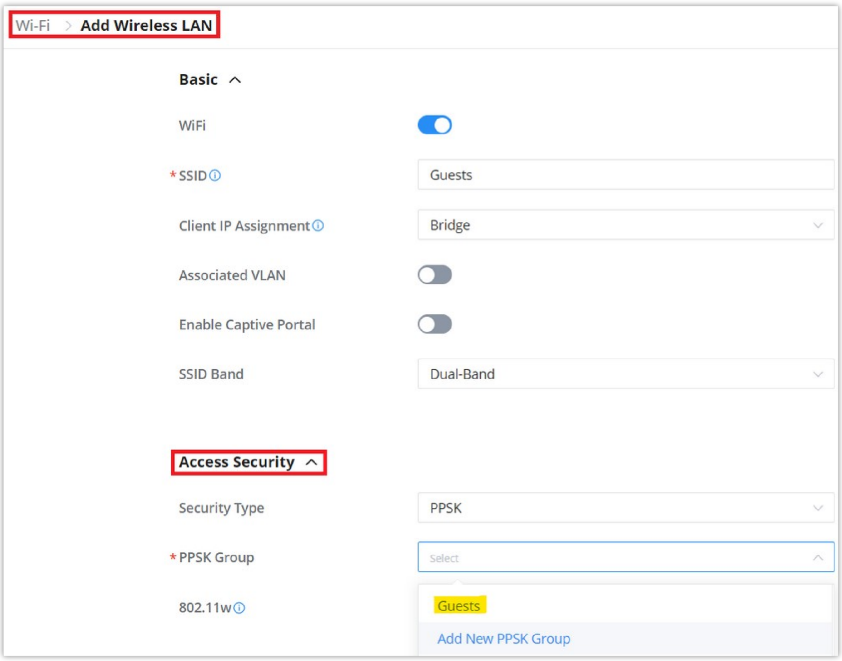
If only one device is allowed to access the PPSK account, a MAC address can be bound to it.

Another way is to upload a CSV file, please download the reference template.



PPSK Import CSV file

Now, the user can apply this PPSK group to any SSID, refer to the figure below:

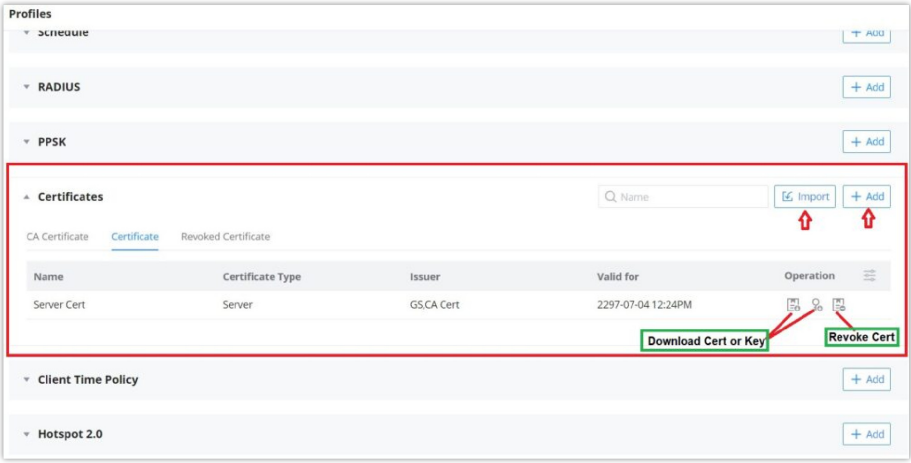


PPSK group – Access Security

Certificates

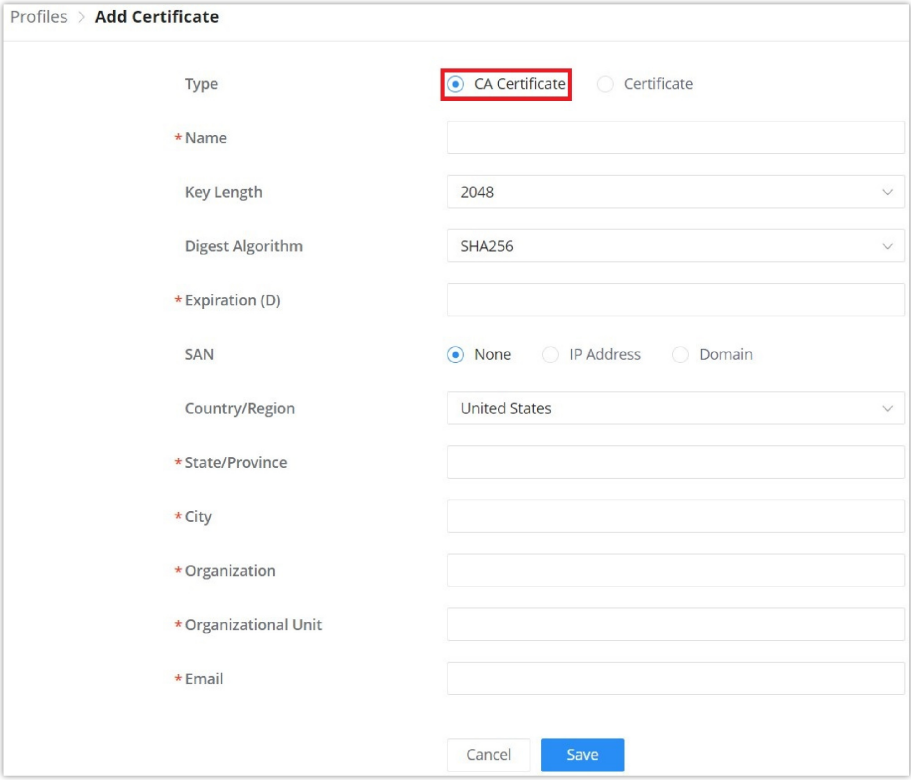
In this section, the user can create CA, Client, and Server certificates that can be used with OpenVPN either for the client or server side.

The user can either click on the "**Add**" button to add a new certificate or click on the "**Import**" button to import them from his local machine to the GWN.Cloud or GWN Manager.



Profiles – Certificates

This page will be shown after clicking on the “Add” button, then the user can select between a CA Certificate or a Certificate which can be either for a Server or a Client based on the option “**Certificate Type**“. Please refer to the figures and tables below:

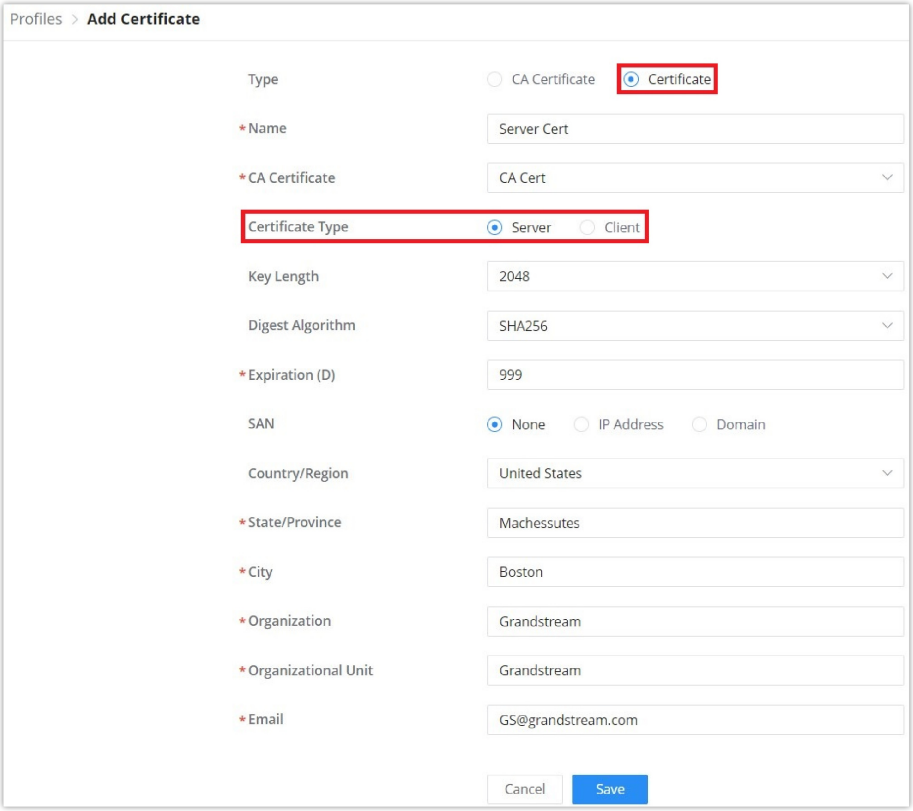


Profiles – Add CA Certificate

Type	Select the type of certificate either **CA Certificate** or Certificate.
Name	Enter the certificate's name.
Key Length	Choose the key length for generating the CA certificate.The following values are available: ● **2048:** 2048-bit keys are a good minimum. (Recommended). ● **4096:** 4096-bit keys are accepted by nearly all RSA systems. Using 4096-bit keys will dramatically increase generation time, TLS handshake delays, and CPU usage for TLS operations.
Digest Algorithm	Select the digest algorithm. ● **SHA256:** This digest algorithm generates an almost unique, fixed-size 256 bit hash. **Note:** Hash is a one-way function, it cannot be decrypted back.
Expiration (D)	Select the duration of validity of the certificate. The number entered represents the days that have to elapse before the certificate is considered as expired. The valid range is 1 - 999999.
SAN	Enter the address IP or the domain name of the SAN (Subject Alternate Name).
Country/Region	Select a country from the dropdown list of countries. Example: "United States of America".
State/Province	Enter a state name or a province. Example: California
City	Enter a city name. Example: "San Diego"
Organization	Enter the organization’s name. Example: “GS”.
Organization Unit	This field is the name of the department or organization unit making the request. Example: “GS Sales”.

Email	Enter an email address. Example: “EMEAregion@grandstream.com”

Profiles – Add CA Certificate



Profiles – Add Certificate (Client or Server)

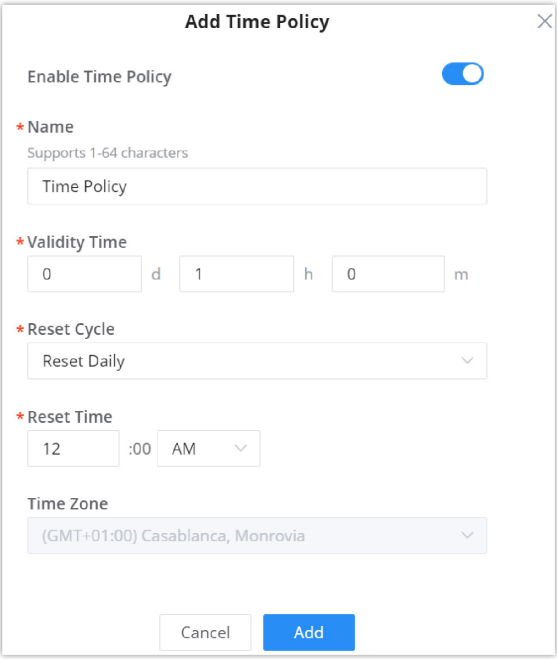
Type	Select the type of certificate either CA Certificate or **Certificate**.
Name	Enter the certificate's name.
CA Certificate	Select from the drop-down list the CA Certificate previously created.
Certificate Type	Select the certificate type either a server or a client certificate.
Key Length	Choose the key length for generating the CA certificate.The following values are available: ● **2048:** 2048-bit keys are a good minimum. (Recommended). ● **4096:** 4096-bit keys are accepted by nearly all RSA systems. Using 4096-bit keys will dramatically increase generation time, TLS handshake delays, and CPU usage for TLS operations.
Digest Algorithm	Select the digest algorithm. ● **SHA256:** This digest algorithm generates an almost unique, fixed-size 256 bit hash. **Note:** Hash is a one-way function, it cannot be decrypted back.
Expiration (D)	Select the duration of validity of the certificate. The number entered represents the days that have to elapse before the certificate is considered as expired. The valid range is 1 - 999999.
SAN	Enter the address IP or the domain name of the SAN (Subject Alternate Name).
Country/Region	Select a country from the dropdown list of countries. Example: "United States of America".
State/Province	Enter a state name or a province. Example: California

City	Enter a city name. Example: "San Diego"
Organization	Enter the organization's name. Example: "GS".
Organization Unit	This field is the name of the department or organization unit making the request. Example: "GS Sales".
Email	Enter an email address. Example: "EMEAregion@grandstream.com"

Profiles – Add Certificate (Client or Server)

Client Time Policy

The administrator can configure a Time policy that will dictate how much a client connects to the Wi-Fi if this policy is applied for the SSID.



Add Time Policy

Enable Time Policy	Check/Uncheck to Enable/Disable Policy
Name	Enter a name to identify the Policy. Supports 1 to 64 characters, including numbers, letters, and special characters.
Validity Time	Configure the policy duration from 1 minute to 365 days.
Reset Cycle	Set up a Reset mode: Daily, Weekly, or Periodically
Reset Time	When the Reset Cycle is Daily: configure the time of the day. When the Reset Cycle is Weekly: configure the time and the day of the week When the Reset Cycle is Periodic: configure the period (d//h/m)
Time Zone	Detected Automatically. This parameter can be changed under System Settings

Add Time Policy

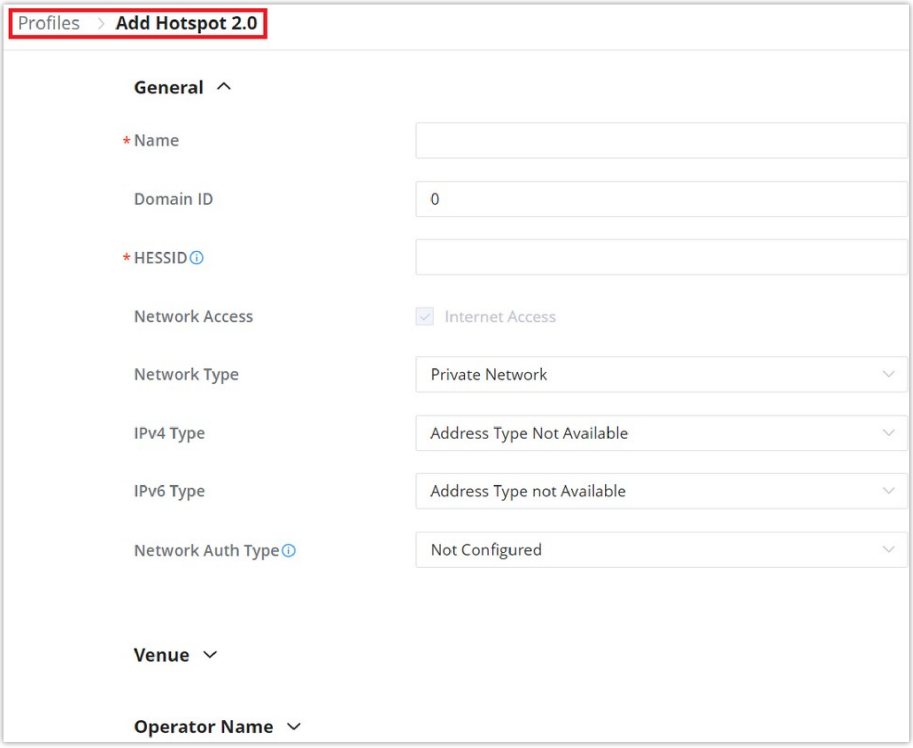
Hotspot 2.0

Hotspot 2.0, also known as HS2.0 or Passpoint, is a set of industry specifications developed by the Wi-Fi Alliance to improve the connectivity and user experience of Wi-Fi networks, particularly in public places. The goal of Hotspot 2.0 is to make Wi-Fi connectivity as seamless and secure as cellular networks.

Key features of Hotspot 2.0 include

1. **Automatic Authentication:** Hotspot 2.0 enables automatic and secure connection to Wi-Fi networks without user intervention. Devices can automatically connect to Wi-Fi hotspots, similar to how cellular networks work.
2. **Seamless Roaming:** With Hotspot 2.0, users can roam between different Wi-Fi networks without having to re-authenticate. This is especially useful in environments with multiple Wi-Fi access points, such as airports, shopping malls, and other public spaces.
3. **Passpoint:** Passpoint is a specific implementation of Hotspot 2.0 that allows mobile devices to automatically discover and connect to Wi-Fi networks that are part of the Passpoint ecosystem. Passpoint provides a streamlined and secure connection process, making it easier for users to connect to Wi-Fi hotspots.

Hotspot 2.0 is particularly relevant in environments where reliable and secure Wi-Fi connectivity is essential, such as airports, hotels, and other public spaces. It improves the overall user experience by making Wi-Fi connectivity more like cellular connectivity, with automatic authentication and seamless roaming.

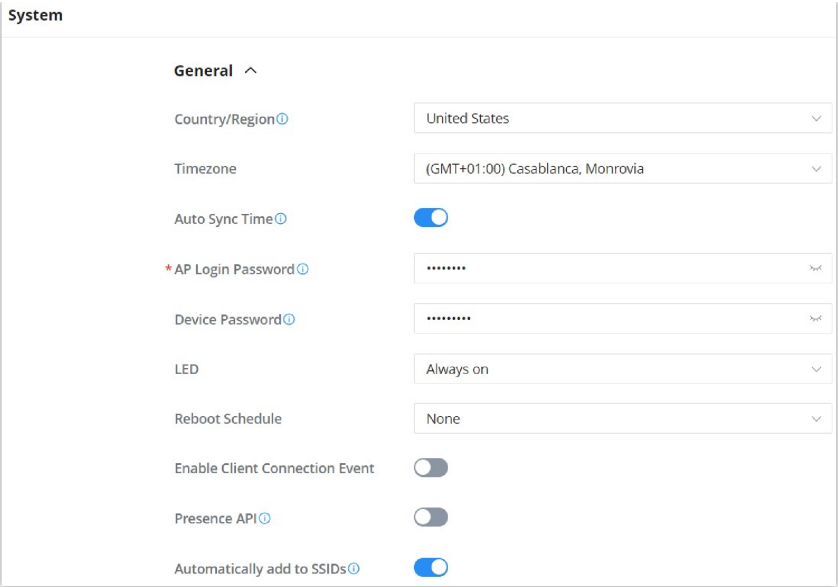


Add Hotspot 2.0

SYSTEM

General

Navigate to **Web UI** → **Settings** → **System** → **under General** to configure General settings like Country/Region, Time zone, Time, LED, Reboot Schedule, etc.



System page – General

Country/Region	Select the country or region from the drop-down list. This can affect the number of channels depending on the country standards.
Timezone	Configure time zone for GWN APs. Please reboot the device to take effect.
Auto Sync Time	If enabled, all managed devices' system times will be synced with GWN Cloud
AP Login Password	Sets the APs login password with up to 8 characters. Alphanumeric characters and special characters - _ | are supported
Device Password	Set the devices SSH remote login password other than APs (Routers and Switches), which is also the device web login password.
LED	Select whether to always turn ON or OFF the LEDs on the APs or apply a schedule for this function.
Reboot Schedule	Once scheduled, the current network will not work for a while during the scheduled period.
Enable Client Connection Event	When enabled, then Client connects/disconnects events are listed under **Devices → GWN device → Info** page.
Presence API	Onced enabled, will detect and collect wireless device info. near the AP, which can be used for device positioning, pedestrian flow monitoring and so on.
Automatically add to SSIDs	GWN devices will be added to SSID automatically

System page – General

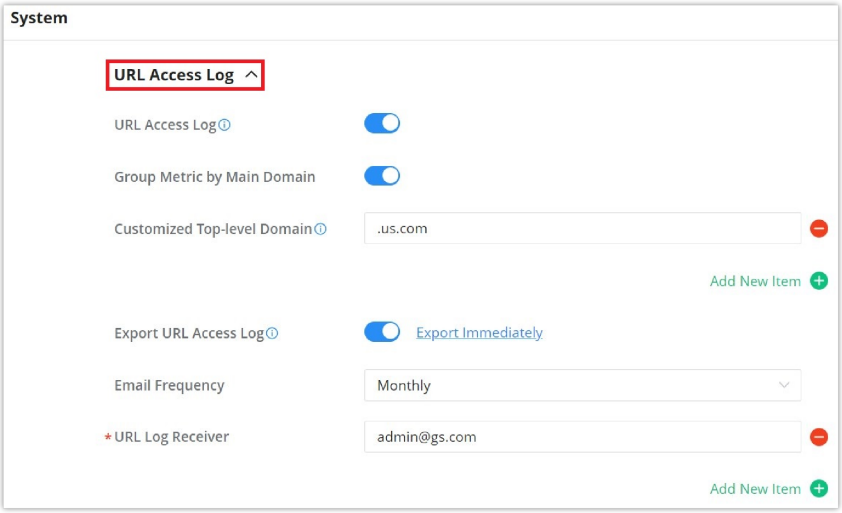
URL Access Log

Administrators can easily configure the platform to record, monitor, and maintain a log of all the websites visited by the clients connected to the paired GWN devices.

The platform System will send these logs via Email to the configured Log Receiver in the form of a downloadable link providing a CSV file format containing all the website logs visited for each client during the defined period (daily, weekly, or monthly basis).

To enable this feature, follow the below steps:

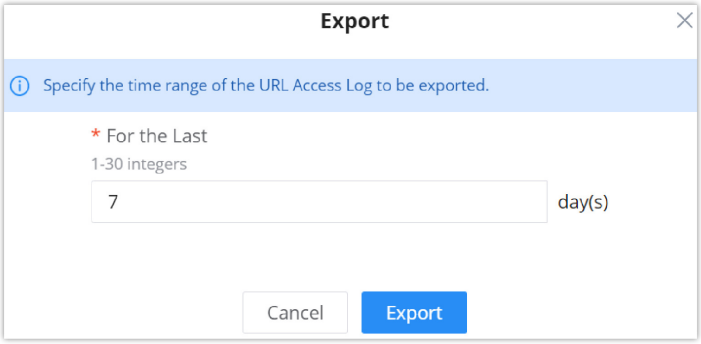
1. Go under "**Settings → System page → URL Access Log section**" and enable the URL Access Log field, this will configure the GWN Manager System to start recording the website logs visited by the clients.
2. The option "**Group Metric by Main Domain**" can be also enabled then the user can configure the top domains to be merged. This will merge the page views for the configured domains. The regular top domains will automatically merge without any configuration (such as. com).
3. Enable Export URL Access Log.
4. Administrators can choose to set the Email Frequency to be generated either on a daily, weekly, or monthly basis.
5. Configure the URL Log Receiver Email.



URL Access Log

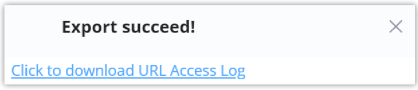
In this example, the administrator will start receiving, every week, an Email containing a downloadable link providing a CSV file containing the websites visited by the clients during the last day.

Users can click on **"Export Immediately"**, and then specify the time range of the URL Access Log during the last (1 – 30) days to be exported immediately.



Export Immediately

5. Click on the **"Export"** button and notice the success confirmation message:



Export Succeed

6. Click the highlighted link to Download the log file and save it locally.

Once downloaded, administrators will have a CSV file tracking the Internet activity for all the clients connected to the paired GWN devices.

The CSV file will contain columns displaying the AP MAC address, the client's hostname as well as the device MAC address, the Source and Destination IP, the URL logs, the HTTP Method (GET/POST), and the time of request.

	A	B	C	D	E	F	G	H
1	AP MAC	MAC	Hostname	User N	Source IP	Destination IP	URL	HTTP Method
2	[redacted]	[redacted]	Iphone XS		192.168.5.133	17.253.113.204	http://captive.apple.com/l	GET
3	[redacted]	[redacted]	Huawei Mate 20		192.168.5.133	17.167.192.94	https://gsp85-ssl.ls.apple.c	
4	[redacted]	[redacted]	Samsung Galaxy S10		192.168.5.133	81.192.28.179	http://netcts.cdn-apple.co	GET
5	[redacted]	[redacted]	OnePlus 7 Pro		192.168.5.133	17.134.127.250	https://gs-loc.apple.com	
6	[redacted]	[redacted]	Moto G7 Power		192.168.5.133	17.57.12.11	https://gsp64-ssl.ls.apple.c	
7	[redacted]	[redacted]	iPhone 11 Pro Max		192.168.5.133	173.194.76.101	https://s.youtube.com	
8	[redacted]	[redacted]	Google Pixel 4 XL		192.168.5.133	74.125.193.119	https://i.ytimg.com	
9	[redacted]	[redacted]	BlackBerry Key2 LE		192.168.5.133	172.217.18.42	https://youtubei.googleap	
10	[redacted]	[redacted]			192.168.5.133	17.125.249.8	https://p71-buy.itunes.app	

URL Access Log- CSV file example

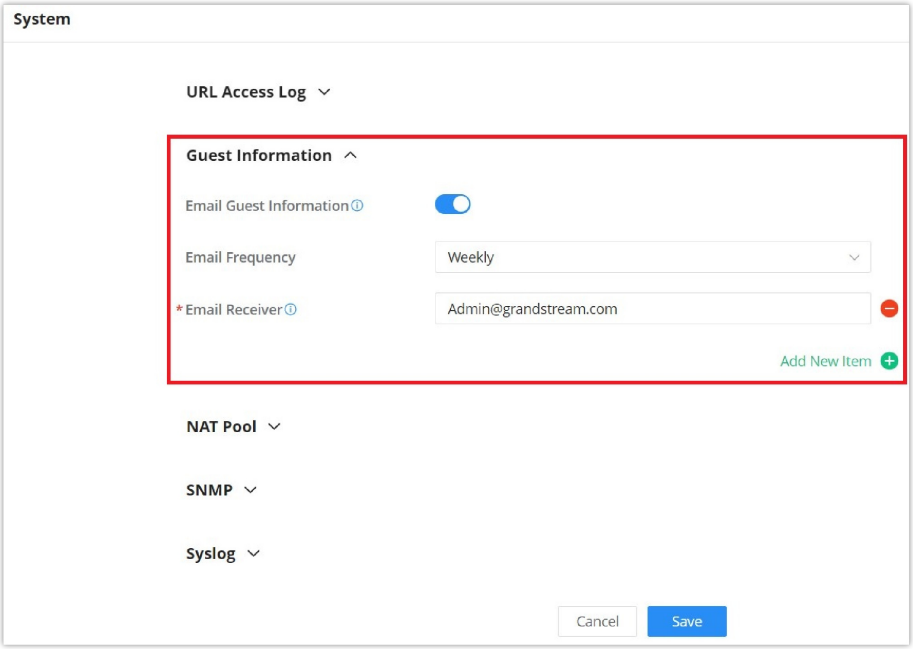
Note:

The Platform Database will keep storage of reports for 30 days, after that, they will be automatically erased from the system

Guest Information

If enabled, the cloud server will periodically send out the log download link based on the configured email settings. To enable this feature, follow the below steps:

1. Go under "**Settings → System page → Guest Information section**" and enable the Guest Information field.
2. Choose to set the Email Frequency to be generated either on a daily, weekly, or monthly basis.
3. Configure the Email Receiver.



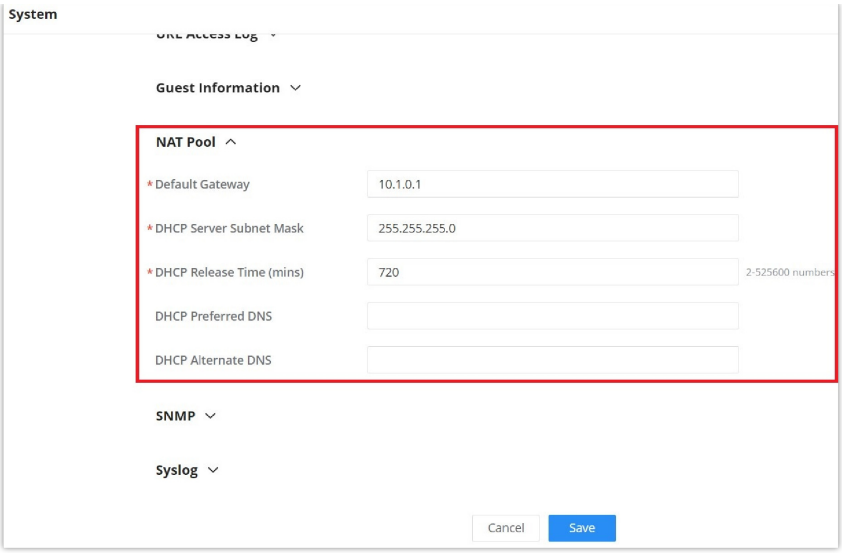
Guest Information

NAT pool

Users can use this feature to set an address Pool from which the clients that are connected to the adopted/paired devices will acquire their IP address in that way GWN devices will act as a lightweight router.

Note:

This option cannot be enabled when Client Assignment IP is set to Bridge mode.

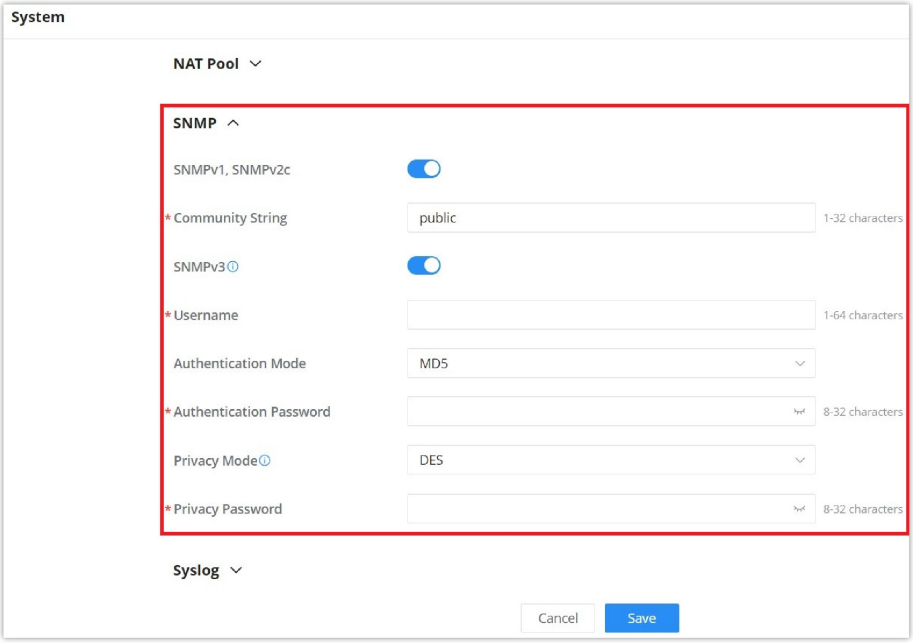


NAT Pool

Navigate to **Web UI → Settings → System page (NAT Pool section)**, to configure the Gateway, DHCP Server Subnet Mask, DHCP Lease Time, and DHCP Preferred/Alternate DNS.

SNMP

This section lists the SNMPv1, SNMPv2c, and SNMPv3 options available to integrate the adopted/paired GWN devices with enterprise monitoring systems.
Users can enable the SNMP feature under **Web UI → Settings → System page (SNMP section).**



SNMP

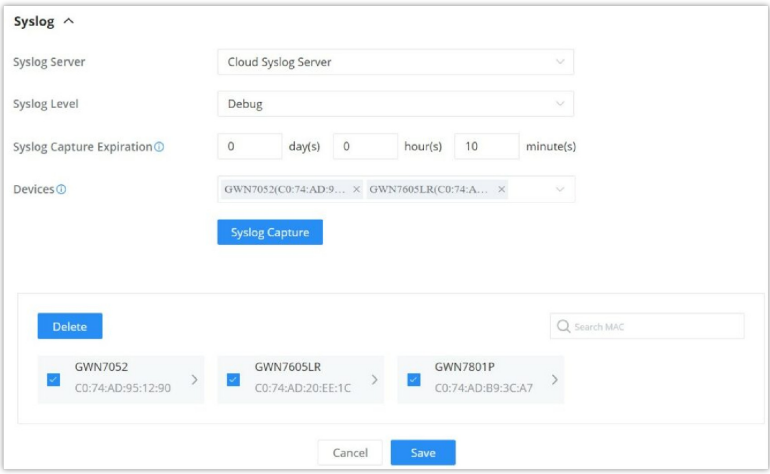
SNMPv1, SNMPv2c	Enable Enable SNMPv1/SNMPv2c.
Community String	Enter the SNMP Community string.
SNMPv3	Enable SNMPv3. ***Note:*** *If the SNMPv3 function of the switch is required to work, SNMPv1 and SNMPv2c should be enabled at the same time.*
Username	Enter the SNMPv3 username.
Authentication Mode	Set the Authentication mode to: either MD5 or SHA.

Authentication password	Enter the SNMPv3 authentication password.
Privacy Mode	Set the Privacy mode to: either AES128 or DES. ***Note:*** *AES128 mode is only for routers and APs. Switches use DES mode.*
Privacy password	Enter the privacy password.

SNMP

Syslog

Configure Syslog settings to have GWN devices sending log messages to your debugging Syslog server. There are two options, either to use the built-in GWN.Cloud syslog server or a Local syslog server and in this case the user will have to enter the local syslog server address.



Syslog

Syslog Server	Select the syslog server from the list: ● Cloud Syslog Server ● Local Syslog Server
Local Syslog Server Address	Enter the IP address or URL of the syslog server.
Syslog Level	Select the level of Syslog, 8 levels are available: None, Emergency, Alert, Critical, Error, Warning, Notice, Information and Debug
Protocol	Sets the protocol used by the system log server. Default port for both UDP and TCP is 514.
Devices	Select the devices to capture syslogs from

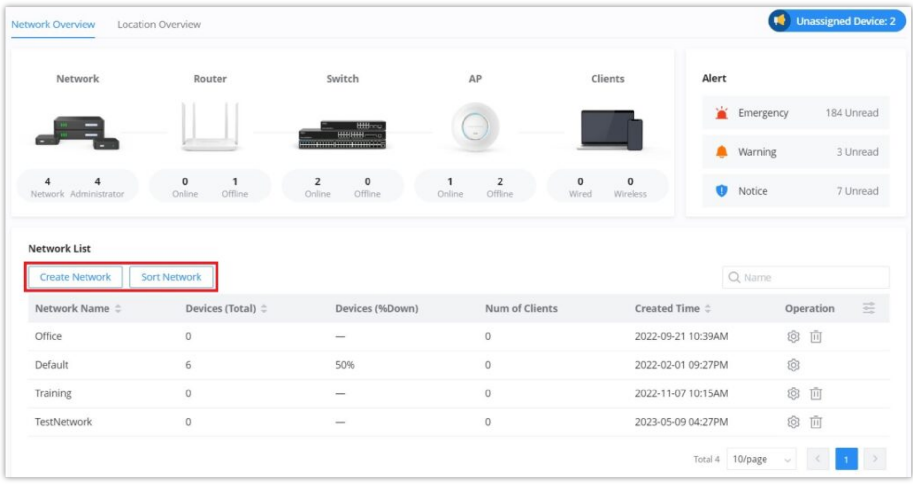
Syslog

ORGANIZATION

Overview

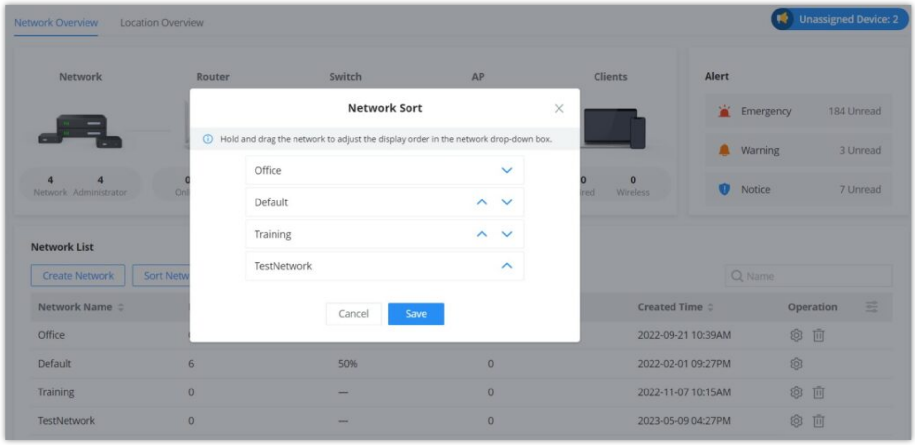
Network Overview

The overview page offers a bird's-eye look at all the GWN devices that have been added to the organization. This includes GWN routers, GWN switches, GWN APs, and clients. In addition to that, the user can see the number of networks created by that organization and the number of administrators in the organization.



Organization – Overview

- Click on the "**Create Network**" button to create a new network.
- Click on the "**Sort Network**" button to sort network order, the first one on the list will be the primary network (the network that will be selected after a login).

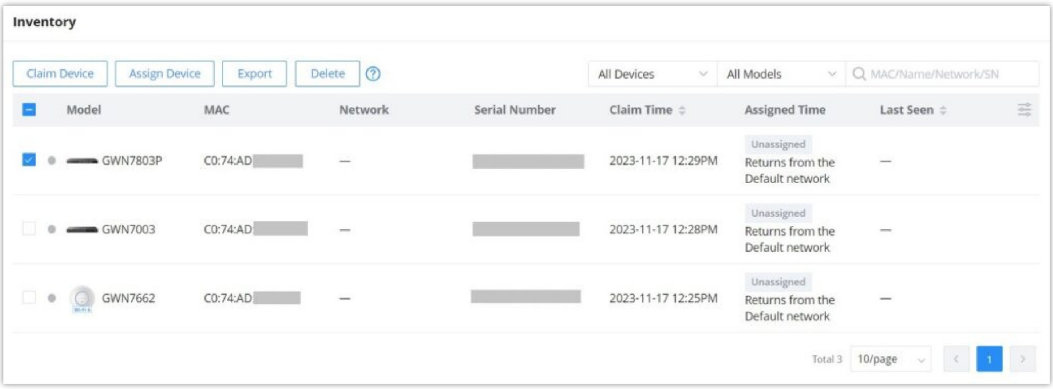


Organization – Overview – Sort network

Inventory

The inventory page lists all the GWN devices in all networks, including online and offline ones. Click on a device to be redirected to the Devices page for more options.

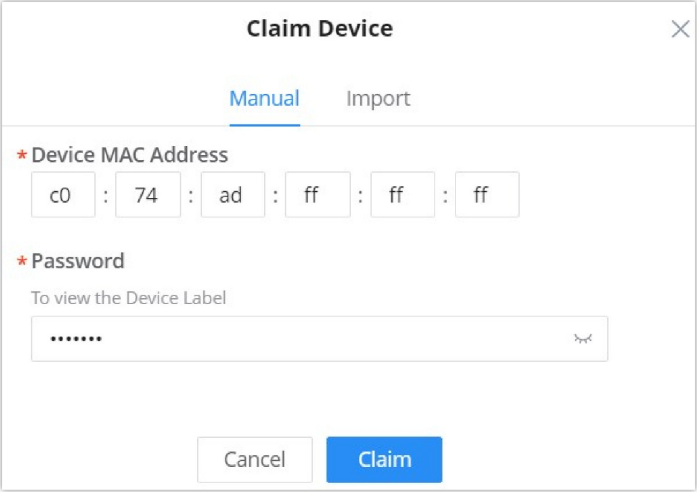
On this page, the user can see each GWN device-related information: model, MAC address, network, serial number, claim time, assigned time (and which network it has been returned from), and last seen.



Inventory page

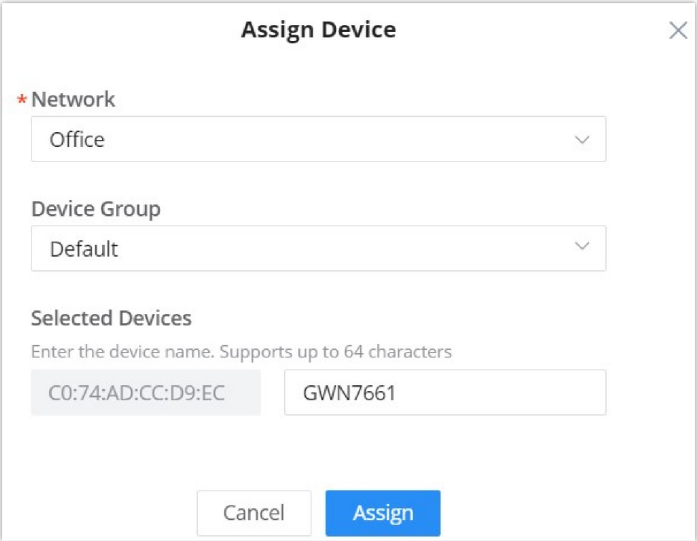
The user can click on the **"Export"** button to export a CSV file containing all the GWN devices.

- **Claim Device:** to claim a device (GWN device MAC address and Password is required) even if the GWN device is offline, it will not be assigned to any network.



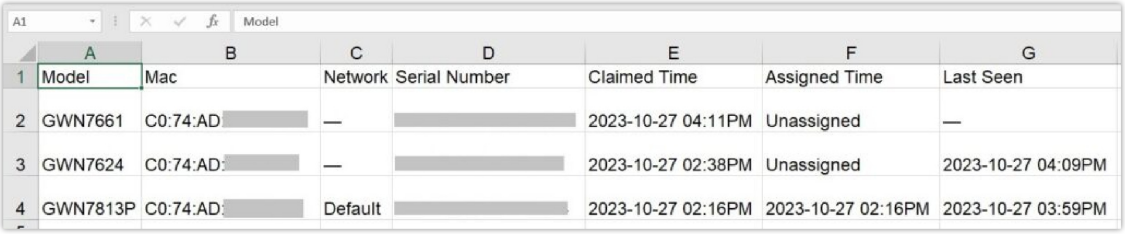
Inventory – Claim Device

- **Assign Device:** to assign the device to the network (it will added to the selected network).



Inventory – Assign Device

- **Export:** to export a CSV file containing all the GWN devices.



	A	B	C	D	E	F	G
1	Model	Mac	Network	Serial Number	Claimed Time	Assigned Time	Last Seen
2	GWN7661	C0:74:AD	—		2023-10-27 04:11PM	Unassigned	—
3	GWN7624	C0:74:AD	—		2023-10-27 02:38PM	Unassigned	2023-10-27 04:09PM
4	GWN7813P	C0:74:AD	Default		2023-10-27 02:16PM	2023-10-27 02:16PM	2023-10-27 03:59PM

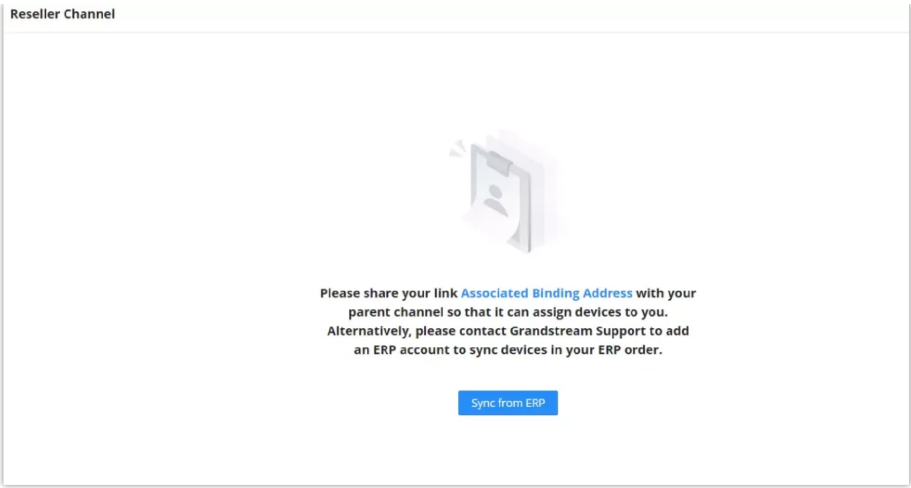
Inventory – Export

- **Delete:** to delete a device from the GWN management platform.

Reseller Channel

Reseller Channel will be able to support the establishment of the hierarchy agent partnership, retrieve device from ERP, and assign device to network groups or channels/agents:

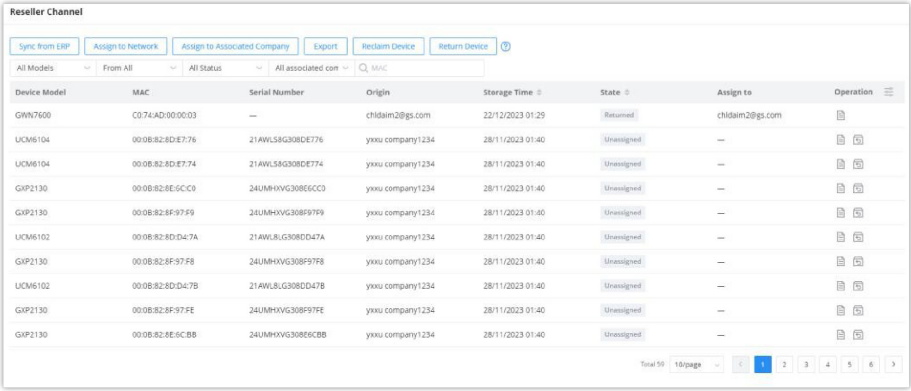
1. Support first-level channel or agent to bind the ERP ID and sync the device.
2. Support assigning/returning/reclaiming device to network or associated company.



Reseller channel

Note:

Please share your link Associated Binding Address with your parent channel so that it can assign devices to you. Alternatively, please contact Grandstream Support to add an ERP account to sync devices in your ERP order.



Reseller channel – example

Users

User Management allows the administrators to create multiple accounts for different users to log in to the platform. There are 6 base different access levels to monitor and manage GWN devices, it's also possible to create a custom role with custom privileges.

- Super Administrator (the initial administrator)
- Platform Administrator
- Platform Administrator (Read Only)
- Network Administrator
- Network Administrator (Read Only)
- Guest Editor

Super Administrator	Under this account, all network and sub-accounts have read/write permissions and can create networks and admins with various roles (except for super administrators).
Platform Administrator	This account can create networks and create platform administrators, network administrators, and guest administrators.
Platform Administrator (Read-only)	This account has read-only access to networks and sub-accounts.
Network Administrator	Under this account, all network and sub-accounts have read/write permissions and can create guest administrators for their managed networks.
Network Administrator (Read-only)	This account has read-only permissions for its networks.
Guest Editor	This account has read/write permissions for limited management features within a specified network.

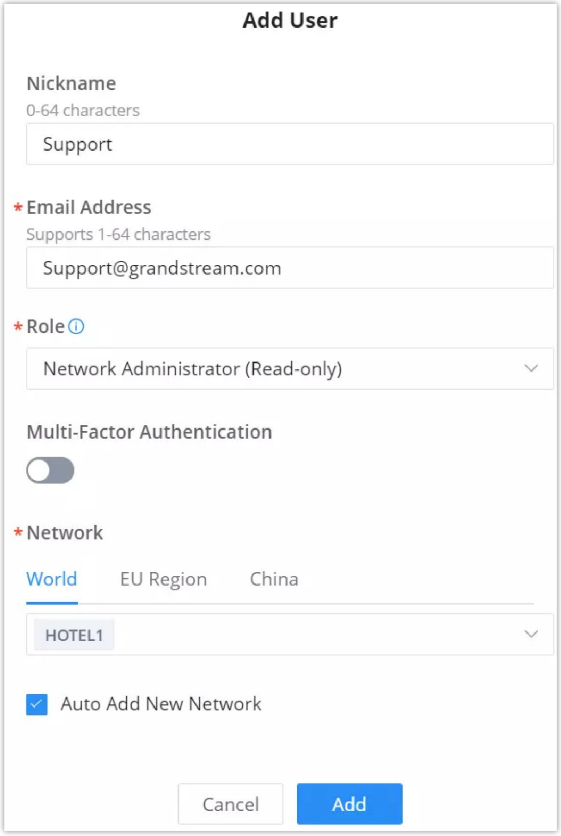
User Management – base roles

Note:

The Super administrator is an admin with top authority, using this privilege users can create/delete accounts with any privilege level. Each account has a unique Super Administrator which is created automatically when signing in.

Add New User

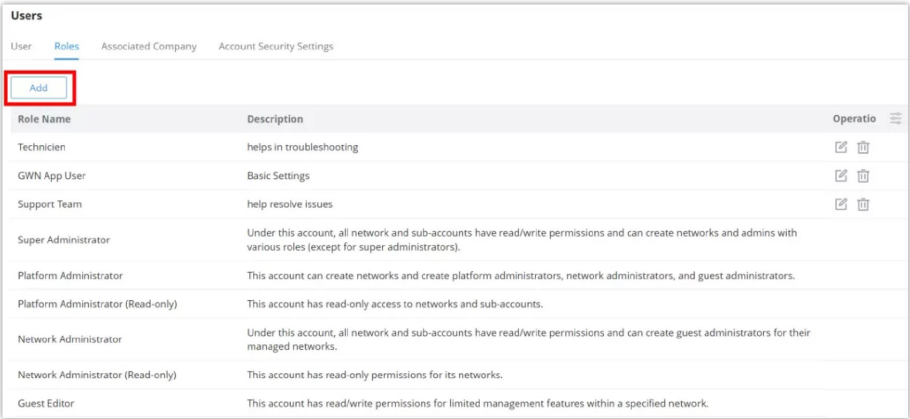
To add a new user, navigate to **Organization** → **Users** → **User** page, then click on "**Add**" button to add a new user. Then specify the nickname, email address, Role, and the networks allowed to be accessed by this user in all regions, there is also the option to enable multi-factor authentication or to add the user to newly created networks automatically.



Add user

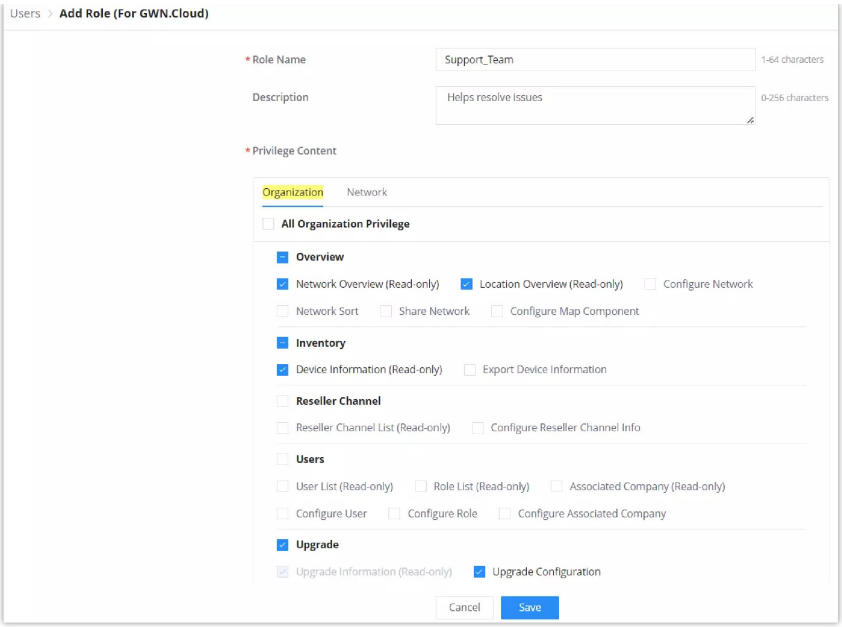
Roles

In addition to the roles predefined, the user can add a custom role and choose which privileges to assign to the role. To add a new role, please navigate to **Organization** → **Users** → **Roles**, then click on "**Add**" as shown below:



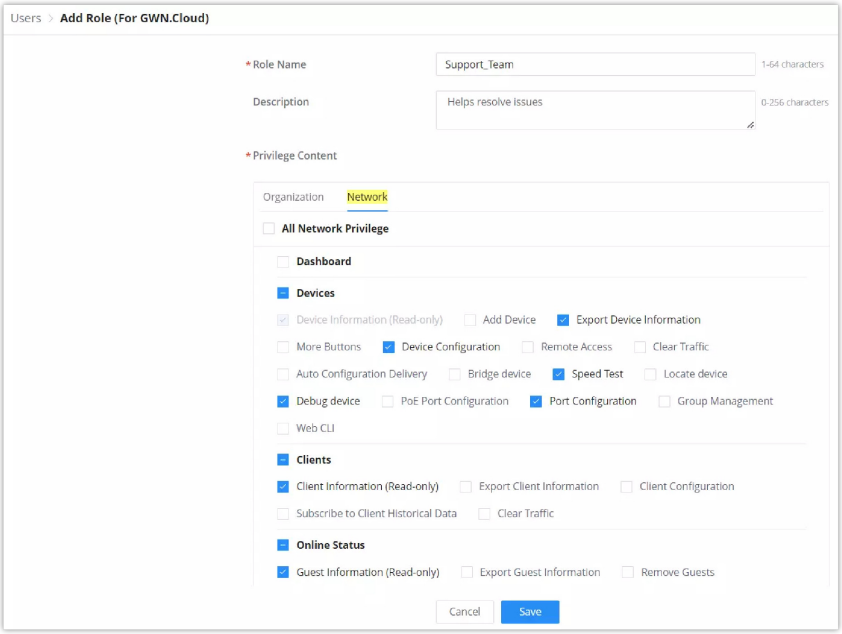
Roles page

Under "**Organization**" tab, select the organization privileges for this user.



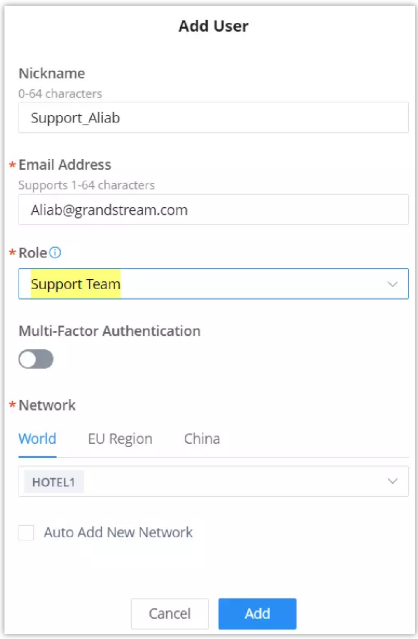
Add Role – Organization Privileges

Under "**Network**" tab, select the network privileges for this user.



Add Role – Network Privileges

Then create a new user account and assign the new role to it.



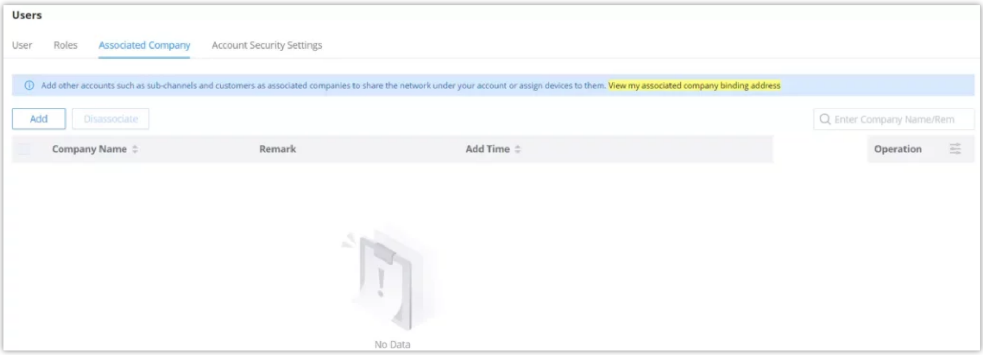
Note:

Custom role users can also log into the GWN APP.

Associated Company

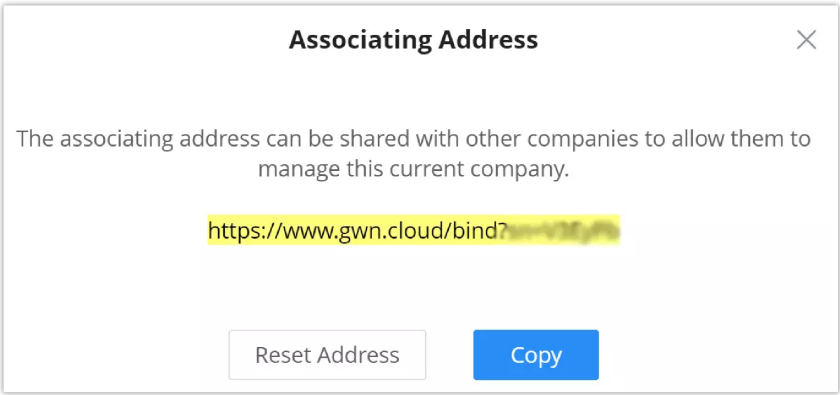
Users can add other accounts, such as sub-channels and customers, as Associated Companies. They can then share their network with them under the user name or assign devices to them.

Navigate to **Organization** → **Users** → **Associated Company**, then click on "**Add**" button to add an associated company.

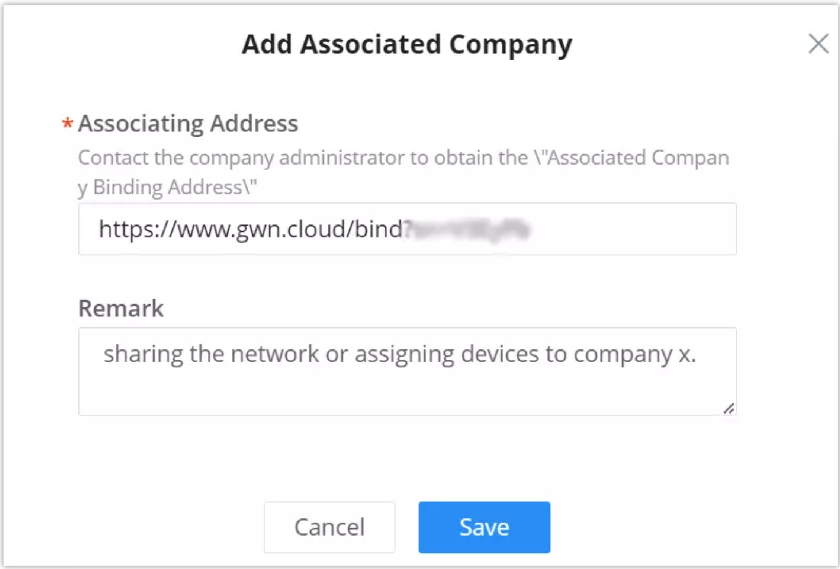


Associated company binding address

To add an associated company, the associating address is required, and it can be found under **Organization** → **Users** → **Associated Company**, then click on "**View my associated company binding address**" as shown above.

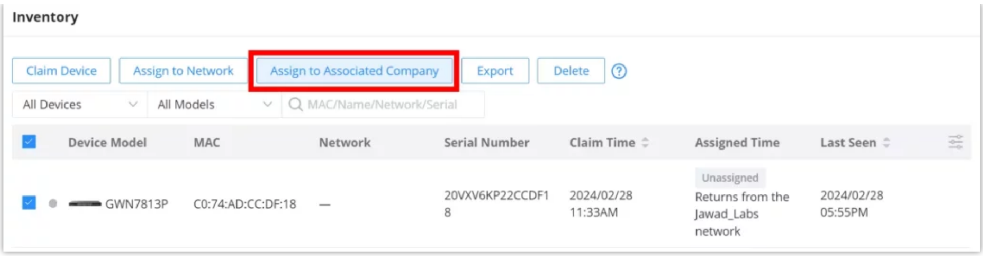


Associated company binding address

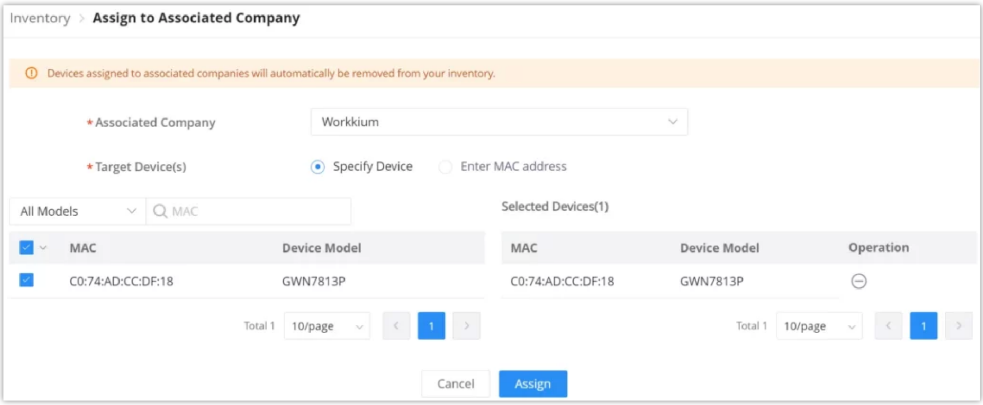


Add associated company

Once the associated company is added, devices under **Organization** → **Inventory** can be assigned to the newly added associated company, as shown in the example below:

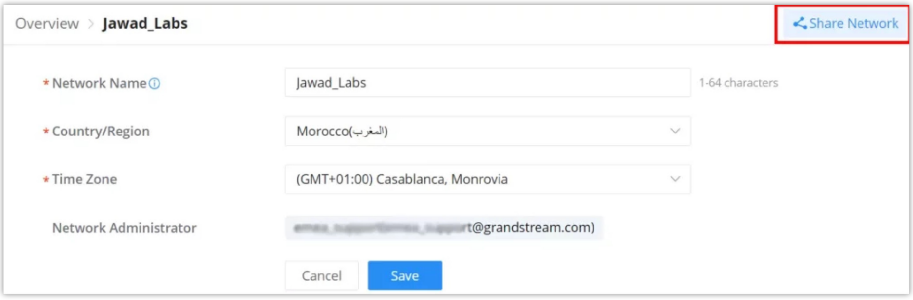


Assign to associated company

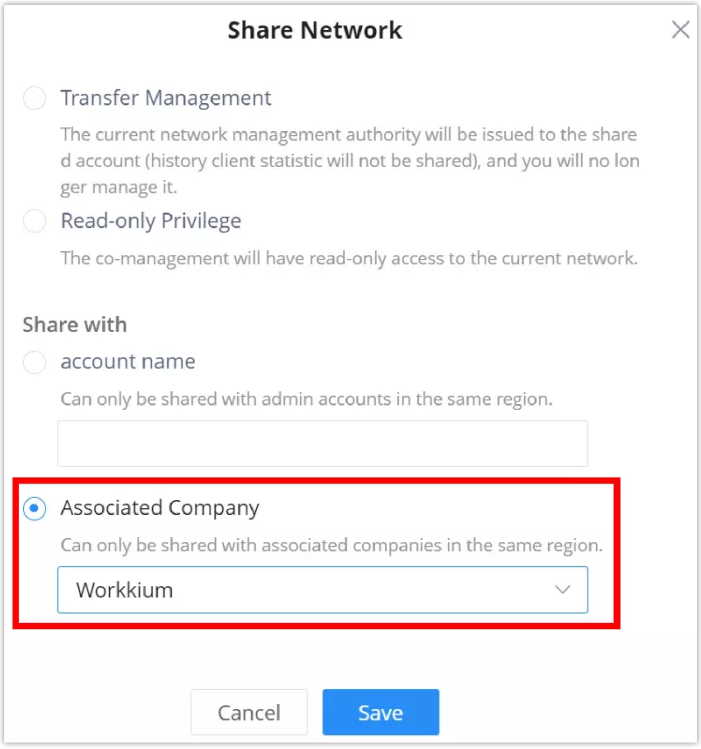


Assign devices to associated company

It's also possible to share an entire network with an associated company under **Organization** → **Overview** (the default network can't be shared with an associated company). Please check the example below:



Share a network with Associated Company



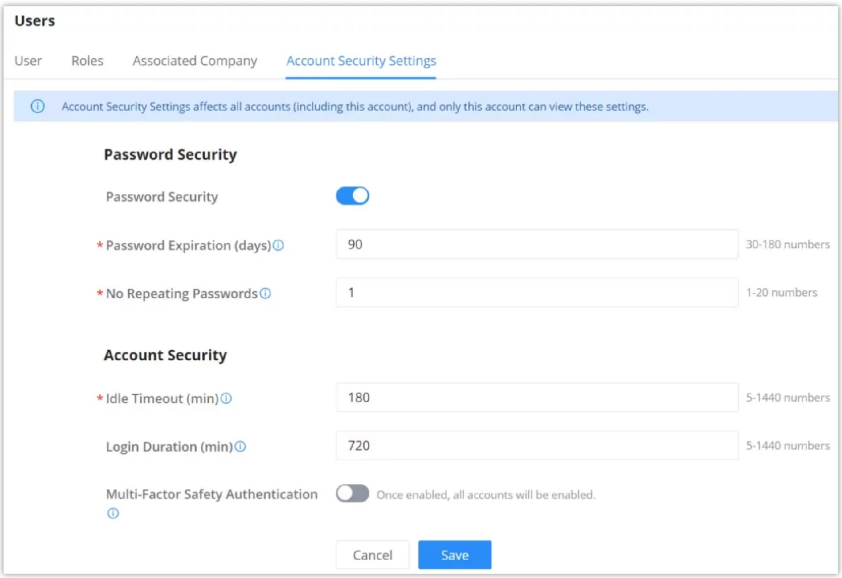
Share a network with Associated Company

Account Security Settings

To enhance GWN.Cloud security, users can enable **Password Security** and with this option the users can set a password expiration period (days) where the password must be changed and even not be the same as the previous one(s). Also account idle timeout and login duration can be configured here (minutes). Multi-Factor authentication can be enabled on all accounts.

Note:

Account Security Settings affects all accounts (including this account), and only this account can view these settings.



Account Security Settings

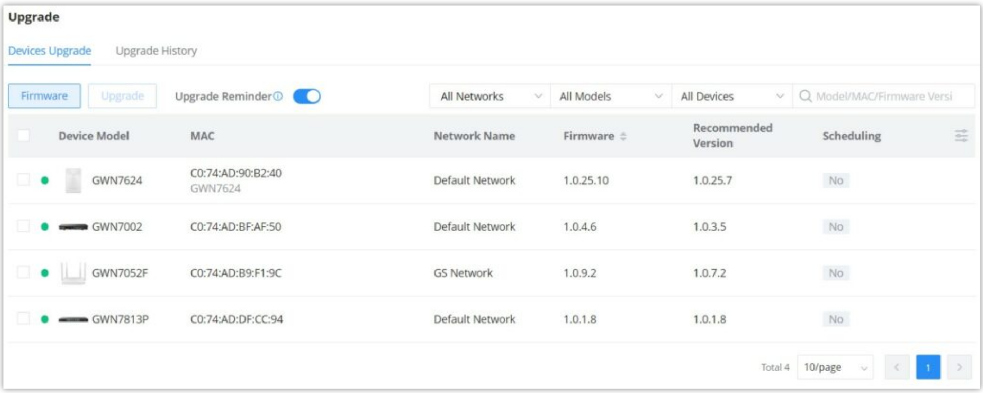
Password Security	
Password Security	Toggle on/off the password security.
Password Expiration (days)	Specify the number of days of validity of a password. Once the number of days configured has elapsed, the user will be prompted to change his/her password upon login.
No Repeating Passwords	Settings this option will prevent the user from using a password which he/she had previously used. You can set the number of previous passwords which have been used to prevent them from being used again as a new password.
Account Security	
Idle Timeout (min)	This configures the number of minutes of a user being idle on the web GUI before he/she can be automatically logged out by the system. The user can enter a value from 5 to 1440 minutes. Configuring this value is required. **Note:** The default value is 180.
Login Duration (min)	This configures the number of minutes a login session can last before the user is logged out automatically by the system. The user has to log in again to start after being logged out. **Note:** The user can enter a value between 5 and 1440
Multi-factor Authentication	If MFA is enabled, all accounts (including this account) will be required to use multi-factor authentication. This cannot be disabled by other users. If disabled, users will be able to toggle MFA for their own accounts.

Account Security Settings

Upgrade

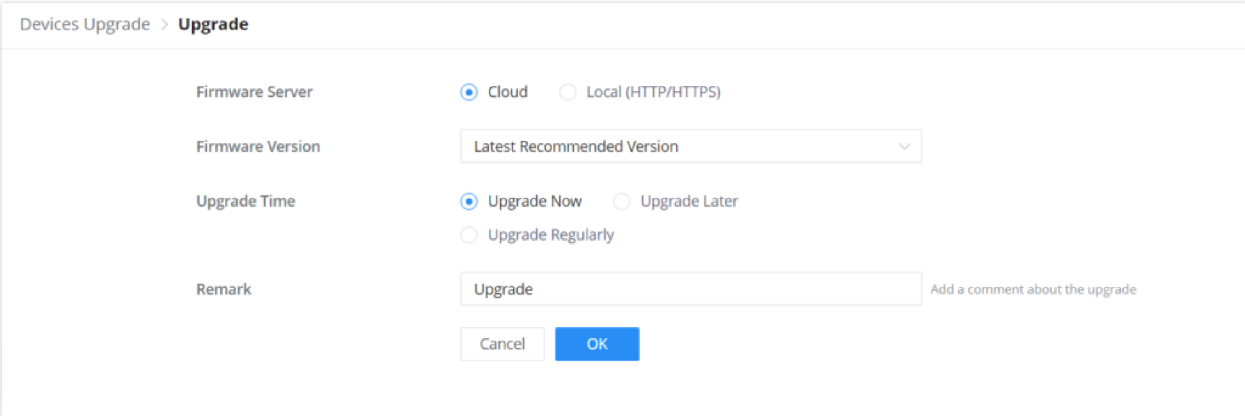
Devices Upgrade

This feature allows upgrading GWN devices. Under **"Upgrade"** menu allows the administrator to manage GWN devices' firmware, and trigger immediate upgrades or Upgrade reminders. There is also the option for Upgrade History on the second tab.



Upgrade

Select the devices you wish to upgrade then click "**Upgrade**". Under "**Firmware Version**" the users can select which version to upgrade to (Beta Firmware is also supported but not recommended).

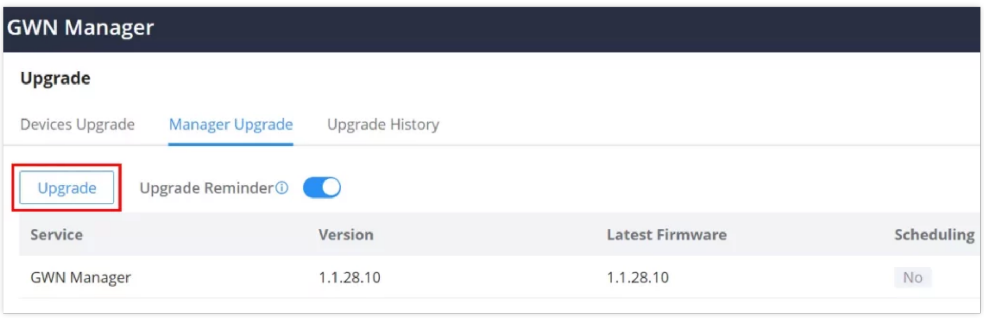


Upgrade in Batches

Manager Upgrade

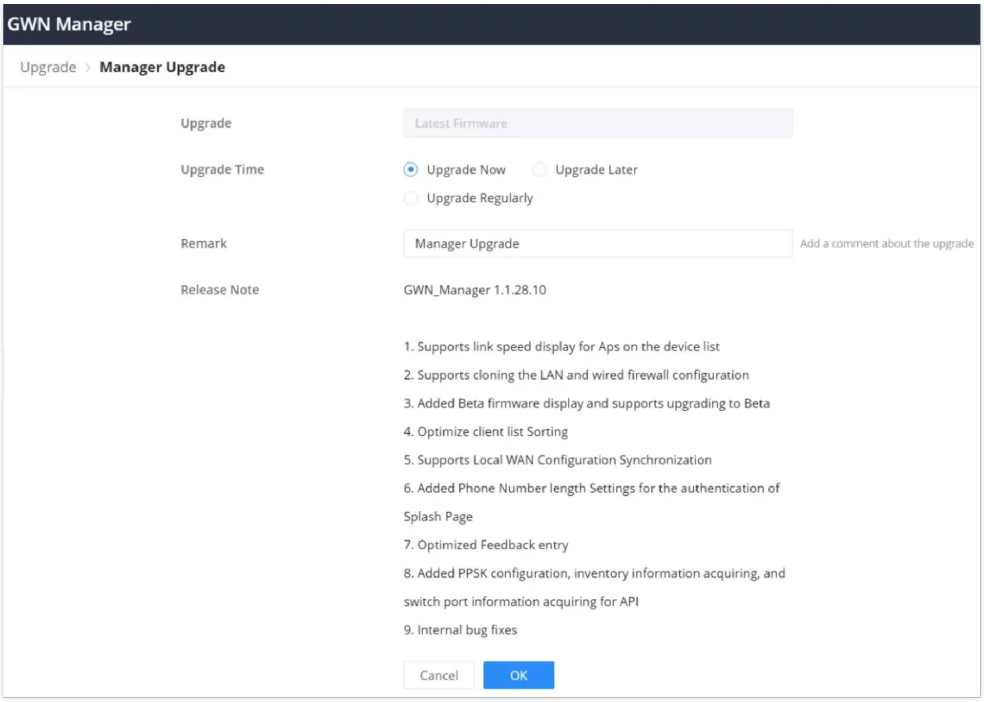
The users can upgrade the GWN Manager directly from the Web UI, by navigating to **Organization** → **Upgrade** page → **Manager Upgrade** tab.

On this page, the users can see the current version and the latest firmware available, to upgrade to the latest firmware, please click on "**Upgrade**" button as shown below:



Manager Upgrade

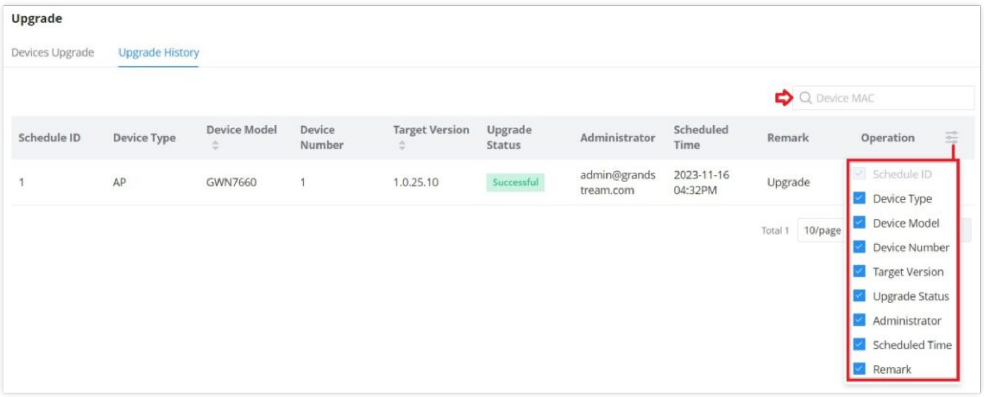
The users have the option to upgrade now, upgrade later or upgrade regularly, a remark or comment about the upgrade can be also added. The overall features related to the upgrade will be listed under.



Upgrade the GWN Manager

Upgrade History

On the upgrade history tab, the user can see the upgrade history of all GWN devices with details information like (device model, firmware version, upgrade status, etc), it's also possible to search for a device using its MAC address.



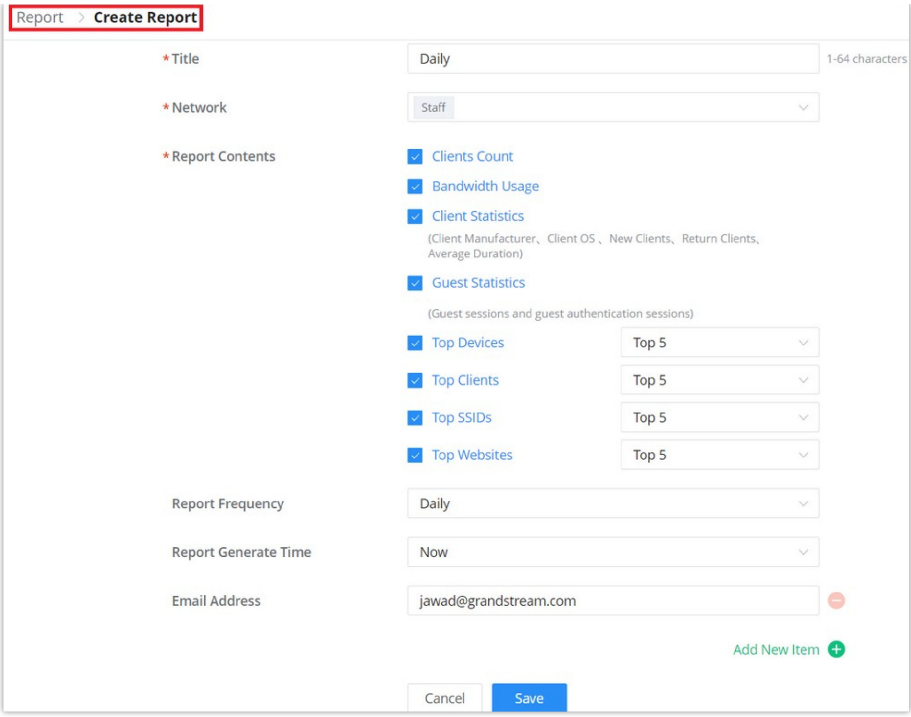
Upgrade History

Report

Administrators can generate and configure the platform to send reports periodically to the configured email addresses. Each report can be related to one or more different Network groups, providing Wi-Fi statistics (client count, bandwidth usage, client and guest statistics…etc.)

Report

To generate the report, click on the **"Create a Report"** button, and a new page displaying the report details will be displayed.



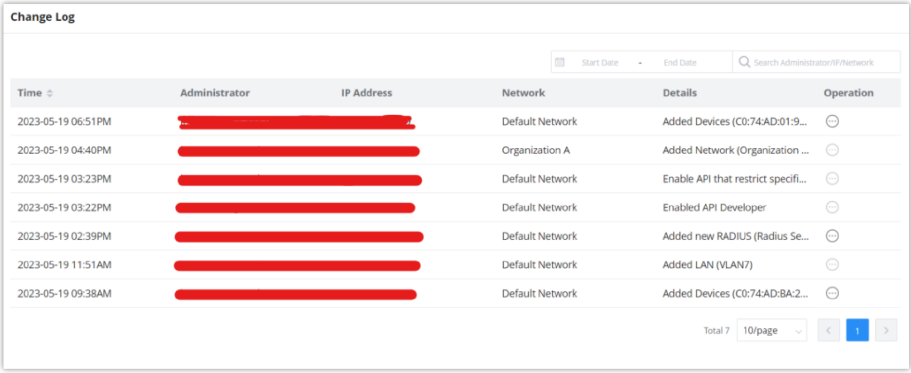
Create a report

The following table explains different options for report settings:

Field	Description
Title	Specify the report title. The maximum length is 64 alphabet characters.
Network	Specify the Network Group to be included in the generated report. ***Note:*** *The maximum number of network groups that can be selected is 100.*
Report Contents	Specify the report contents for the *selected network group(s)*, the contents can include: • **Clients Count:** reports the number of clients for all the SSIDs under the selected network group. • **Bandwidth Usage:** The download and upload level statistics for all the SSIDs for the selected network group • **Clients Statistics:** reports the statistics for the different client manufacturers, client OS, the number of new clients as well as the return clients, and the average duration. • **Guest Statistics:** reports statistics about the clients connected via the Captive portal including the Guest New session, the Max concurrent New session, and the login failure. • **Top Devices:** reports the top 5/20/50 devices that consumed the max of the bandwidth/data. • **Top Clients:** Lists the top 5/20/50 clients that downloaded/uploaded the max of data • **Top SSIDs:** reports the top 5/20/50 SSIDs that are mostly used by clients. • **Top Websites:** reports the top 5/20/50 websites that are mostly visited by clients.
Report Frequency	Specify the report frequency to be generated either daily, weekly, monthly, or custom range.
Date	Specify the Start and Date for the report to be generated when selecting "*Custom Range*" as **Report Frequency**.
Report Generate Time	Select either to generate the report now or at a later time
Time	Specify when you want the report to be generated. This field appears when selecting **"Later"** in **"Report Generate Time".**
Email Address	Enter the mail address(es) to which the report will be sent.

Create a report

Organization Change Log

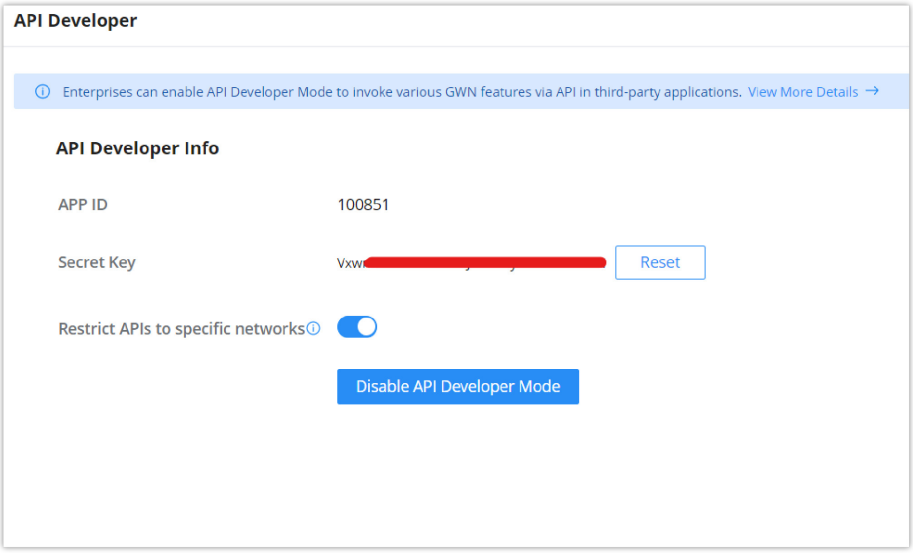


Change Log

To see more details, click on the three dots.

API developer

Third-party applications can use API developer mode to enable even more features.



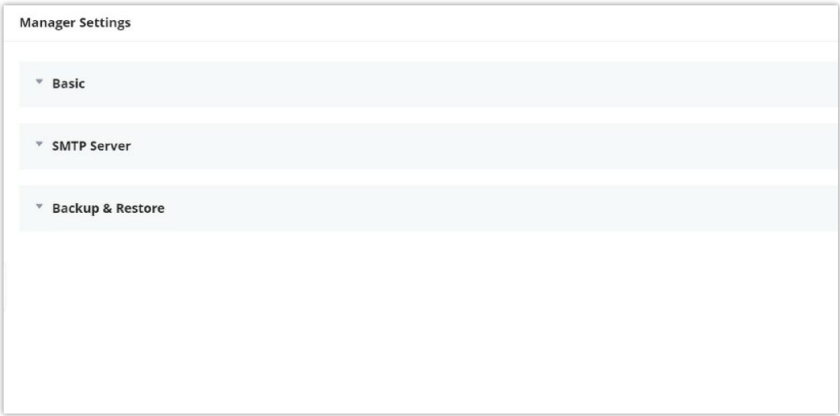
API Developer

For further details, please refer to the GWN API Developer Guide

MANAGER SETTINGS

Note:

Manager Settings is only available for GWN Manager.



Manager Settings page

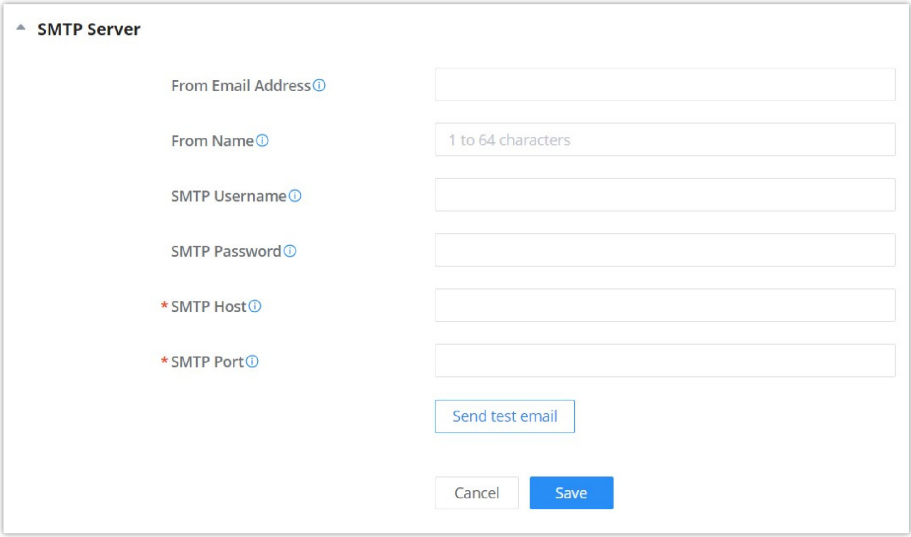
Basic

In this section, the user can download the Manager log files by clicking on the "**Export**" button as shown below, as well as enabling "**Remote Assistance**" in case the users need professional help from experts or support.

Manager Settings – Basic

SMTP Server

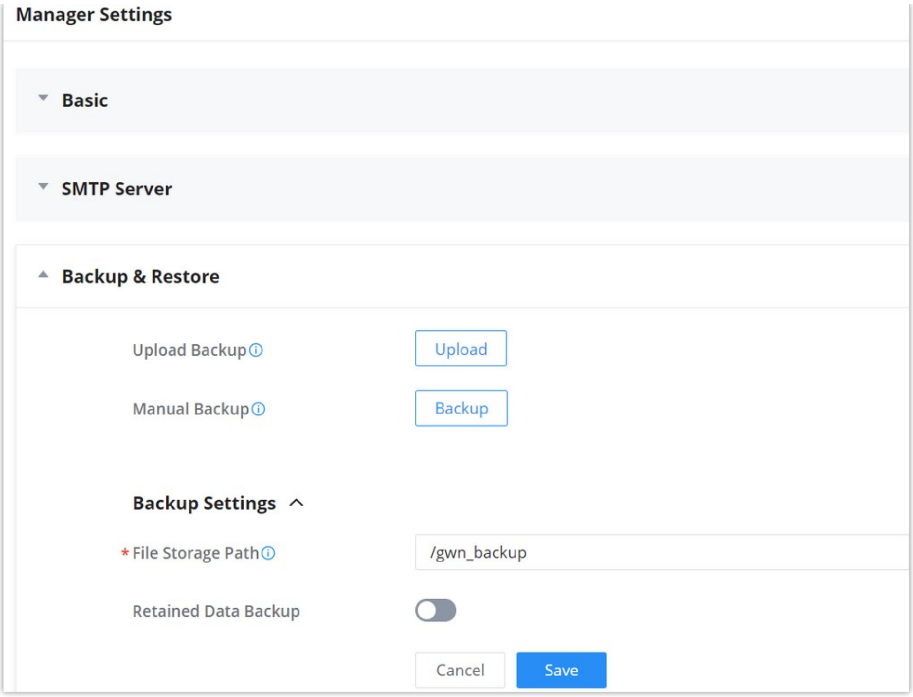
To enable email notifications from GWN Manager, the user needs first to set up the SMTP Server here, once the SMTP Server configuration is set, please click on the "**Send test email**" button to test if it's working or not.



Manager Settings – SMTP Server

Backup & Restore

Users can Backup GWN Manager configuration as shown below:



Backup and Restore

Users can click the "**Upload**" button to import a backup from the local directory. Or, click the "**Backup**" button to back up immediately.

EXPERIENCING GWN MANAGEMENT PLATFORMS

Please visit our Website: http://www.grandstream.com to receive the most up-to-date updates on firmware releases, additional features, FAQs, documentation, and news on new products.

We encourage you to browse our product-related documentation, FAQs, and User and Developer Forum for answers to your general questions. If you have purchased our products through a Grandstream Certified Partner or Reseller, please contact them directly for immediate support.

Our technical support staff is trained and ready to answer all your questions. Contact a technical support member or submit a trouble ticket online to receive in-depth support.

Thank you again for using Grandstream GWN Management Platforms, it will be sure to bring convenience to both your business and personal life.

CHANGE LOG

This section documents significant changes from previous versions of the GWN Management Platform User Manuals. Only major new features or major document updates are listed here. Minor updates for corrections or editing are not documented here.

Version 1.1.28.9 – 1.1.28.10

Product Name: GWN.Cloud(1.1.28.9) and GWN Manager(1.1.28.10)

- Supports link speed display for APs on the device list. [Devices]
- Supports L2TPv3 configuration on GWN7660 series APs (supported only GWN.Cloud) [GWN AP L2TPv3]
- Supports cloning the LAN and wired firewall configuration [Create a new network]
- Added Beta firmware display and supports upgrading to Beta. [Requirements]
- Optimized client list sorting. [Clients]
- Supports local WAN configuration synchronization. [Add device to GWN.Cloud]
- Optimized Feedback entry. [Feedback]

- Added PPSK configuration, inventory information acquiring, and switch port information acquiring for API. [API Developer]
- Added GWN Manager Upgrade support [Manager Upgrade]

Version 1.1.27.13

Product Name: GWN.Cloud and GWN Manager

- Added Regions/Systems Switch to allow multiple regions/systems to be opened. [Region settings]
- Upgraded Account Permission, allowing comprehensive management of all Grandstream services and enable all systems in the selected region. [Merge Accounts]
- Added Associated Company to support cross-region/cross-system management on channels and customers for network sharing and device allocation. [Associated Company]
- Added Reseller Channel to support the establishment of hierarchy in agent partnership, obtain device from ERP, and assign device to network groups or channels/agents. [Reseller Channel]
- Optimized User Management, unified management of account and password security. [account security settings]
- Optimized Personal Settings page and added user type settings. [Personal Settings]
- Added API support for exporting the switch information, mainly the information and port modules in the switch details, and the information of the global switch settings. [API]
- Added API support for PPSK configuration. [API]

Version 1.1.26.11

Product Name: GWN.Cloud and GWN Manager

- Added Pre-Provisioning for Switch in device management for port Setting, port profile, and DHCP Snooping. [Switch Pre-Provisioning]
- Added remarks and serial number fields for device export. [Devices]
- Added more default Wall Types and optimized attenuation values for Floor Plans. [Floor Plans]
- Added support for topology export. [Network Topology]
- Added MAC search field in Upgrade History. [Upgrade History]
- Added a column to display the network that the device was returned from. [Inventory]
- Added support for custom role users to log in to GWN APP. [User Management]
- Increased Password Security, added password expiration and conflict limits configuration. [Personal Settings]
- Added support hiding Weak Heat Map signal. [Floor Plans]
- Removed SMTP Username/Password requirement. [SMTP Server]

Version 1.1.25.23

Product Name: GWN.Cloud and GWN Manager

- Added features of multiple VPN tunneling methods such as PPTP, IPSec, OpenVPN®, and WireGuard®, and IPSec supports automatic networking mode. [VPN]
- Added the feature of managing multiple routers at the same time on the same network. [Devices]
- Added device group management, and pre-set features for switches in the group. And a new way to select device groups in multiple businesses. [Group management]
- Added the feature of pushing cloud configuration to the local side of the device, and the push method includes manual and automatic. [Devices]
- Added a new feature for network speed test of APs. [configure a GWN Access Point]
- Added a new feature for 12-hour network health monitoring of WAN ports. [WAN]
- Added a new feature of policy routes. [Policy routes]
- Added a new feature of certificate management. [Certificate]

- Added floor plan management features, support device RF heat map preview, and convenient device placement planning. [Floor plans]
- Added the feature of Cloud DDNS service. [WAN]
- Added a new feature of VLAN interface configuration for routers. [Configure a GWN Router]
- Added alerts such as abnormal device time, abnormal temperature of the optical module, and VPN-related alerts [Alerts]
- Supports automatic time synchronization between routers and switches with cloud [System]
- Supports IPv6 PD/prefix length configuration in WAN [WAN]
- Added the ability to set the Primary Network for cloud [Network Overview]
- Added the ability to retrieve Guest information with API commands.
- Added the ability to display the Wi-Fi version used in the client's information [Clients]
- Added the ability to Customize the Channel in the 2.4G band [Wi-Fi]
- Added the ability to disable the Router LAN ports [Configure a GWN router]
- Added the ability to configure the router/switch device password from GWN Cloud [Configure a device]
- Added the ability to support batch or single configuration for the Device Password [System]
- Added the ability to highlight mesh devices in Network Topology [Topology]
- Added the ability to configure Port Profile for Device Group [Port profile]
- Added the ability to display the router's LAN IP address [Devices]
- Added a new feature of VLAN Interface configuration for routers [Configure a GWN router]
- Added API support for Device Name and Equipment Remarks.

Version 1.1.24.28

Product Name: GWN.Cloud and GWN Manager

- Adjust the upper limit to 300 on the number of PPSK in a group [PPSK]
- Support to display the switch port info on the client list when the client connects to the switch [Clients]
- Support the option "Timeout Duration of Unauthenticated Clients" on the external splash page [Portal Policy]
- Support the option "URL Pre-shared Key" when selecting Aiwifi as the platform of the external splash page [Portal Policy]

Version 1.1.24.23

Product Name: GWN.Cloud and GWN Manager

- Added the unified management for model of GWN7801(P)，GWN7802(P)，GWN7803(P)
- Added the support for Device Information, Configuration, and Debug under the Device menu for GWN switch models [Configure a GWN Switch]
- Added the support for GWN switches & port configurations through Global Switch Settings and Port Profiles [DEVICES]
- Added the support for GWN switches in Topology (including wired devices hierarchy relationship) [Network Topology]
- Added the support of GWN switches' Alert events [ALERTS]
- Added a new feature of user role management and customizable role privilege [USER MANAGEMENT]
- Added a new feature of Organization Overview [ORGANIZATION]
- Added a new feature of Map for device location management [Map]
- Added a new feature of AP batch configuration [Configuration]
- Added a new feature of displaying Change logs' content details [Organization Change Log]
- Added a new feature of transferring management permission for shared Network [Share a Network]
- Added a new feature of restricting APIs to specific networks [API Developer]
- Added a new feature of batch firmware upgrade for different GWN models to the recommended version [Upgrade]
- Added a new feature of disabling AP's Ports [Configuration]
- Added a new feature of Limit by Authentication Type for Daily Limit of Captive Portal [Profiles]

- Added a new feature of Active Directory into Splash Page Logging Components [Splash Page]
- Added a new feature of grouping top website statistics by Main Domain rather than URL
- Added a new feature of PPSK With Radius into SSID Security Type [Wireless LAN]

Version 1.1.23.27

Product Name: GWN.Cloud and GWN Manager

- New Cloud Web Portal, SDN concept & UI design
- Unified GWN device management (Access points, Routers, Switches) [Devices]
- Inventory management [Inventory]
- New Network topology (replacing the old mesh topology) [Network Topology]
- New Alert design and support more alert events [Alerts]

Version 1.0.22.23

Product Name: GWN Manager

- Added feature of U-APSD for AP [SSID]
- Added feature of Email authentication for Captive Portal [Splash page]
- Added feature of post-authentication rules for Captive Portal [Portal Policy]
- Added feature of service auto start after machine reboot for GWN Manager

Version 1.0.21.17

Product Name: GWN Manager

- Added feature of reporting Probe request RSSI information
- Added feature to export APs, clients, and alerts [Devices] [Clients]
- Added feature of Google Authentication [Splash page]
- Added feature of WiFi4EU [Splash page]
- Added feature of SMS authentication for Captive Portal [Splash page]
- Added feature of Hotspot 2.0 R3 [Hotspot 2.0]
- Added support to transfer APs to GWN Manager

Version 1.0.19.8

Product Name: GWN Manager

- No major changes.

Version 1.0.19.7

Product Name: GWN Manager

- Added support for deleting the voucher in use. [Voucher]
- Added support of client name in CSV file when importing access list. [Access List]
- Added configuration of secondary radius server for WLAN 802.1x authentication. [Wi-Fi Settings]
- Added WPA3 support in the SSID setting. [Wi-Fi Settings]
- Added NET Port Type option for AP setting

Version 1.0.19.2

Product Name: GWN Manager

- Added support of Top Website statistic graph [Overview]

- Added support of Guest Count statistic graph [Captive Portal Summary]
- Added manager role: Network Administrator [USER MANAGEMENT]
- Added support of API Developer [API Developer]
- Added support of Access List Import in CSV [Access List]
- Added support of Rogue AP Detection [Rogue AP]
- Added support of SNMP [SNMP]
- Added support of Allow DHCP Option 43 to override GWN Manager Address [Discover GWN76xx]
- Added support of NAT [NAT Pool]
- Added support of Firewall [Firewall]
- Added support of Hotspot 2.0 Beta [Hotspot 2.0]

Version 1.0.10.7

Product Name: GWN.Cloud

- Added Site Survey feature [Site Survey]
- Added feature of Minimum Rate Control. [Enable Minimum Rate]
- Added feature of SSH Remote Access. [SSH Remote Access]
- Added feature of External Portal support Socifi Platform.
- Added feature of Client inactivity timeout. [Client Inactivity Timeout]
- Added feature of Upgrade Regularly [Upgrade]
- Added feature of Client Steering [Client Steering]
- Enhanced feature of Voucher: the display of remaining bytes. [Voucher]
- Enhanced feature of Dynamic VLAN
- Changed LED patterns [GWN76xx LED Patterns]

Version 1.0.9.8

Product Name: GWN.Cloud

- Added support for collecting user feedback from the GWN Cloud page. [Feedback]
- Added support for Voucher Style Customization. [Voucher]
- Added support for video URL. [Advertisement]
- Added support to export Guest Information via Email. [Email Guest Information]
- Added support for client RX/TX Rate display. [Dashboard]
- Expanded Max Devices to use the same Voucher. [Voucher]
- Added support to enable/disable client connection/disconnection events.

Version 1.0.8.17

Product Name: GWN.Cloud

- Added support for Advertisement for Captive Portal [Advertisement]
- Added support for Custom Field for Captive Portal Splash Page [Splash Page]
- Added feature of ARP Proxy. [ARP Proxy]
- Added support of Clear client data. [Clients]
- Enhanced Event log by Wi-Fi authentication event. [Event Log per AP]
- Added EU Server support. [Zone]
- Enhanced Bandwidth Rules by adding an option to limit bandwidth per client. [Range Constraint]
- Added Total Bandwidth Usage Display [Dashboard]

- Added Export Immediately feature for URL Access Logs. [URL Access Log]

Version 1.0.8.7

Product Name: GWN.Cloud

- Added support for URL logging (Except for GWN7610). [URL Access Log]

Version 1.0.7.18

Product Name: GWN.Cloud

- Enhanced Client Information. [Dashboard]
- Enhanced Access Point status. [Info]
- Added Reset access point button. [Reset Device]
- Added External Captive Portal Support. [External Splash Page]
- Added AP Scheduling Reboot. [Reboot Schedule]
- Added Change Log section. [Change Log]
- Added Account idle timeout. [Account Idle timeout]
- Added feature of Wi-Fi Statistic Report. [Report]
- Added feature of Captive Portal Guest Summary. [Guests]
- Changed SSID limit. [SSID]
- Enhanced Wi-Fi Service by adding configurable options. [Wi-Fi]
- Enhanced Captive Portal features. [Failsafe Mode] [Daily Limit] [Byte Quota] [Force To Follow] [Portal Policy]

Version 1.0.0.37

Product Name: GWN.Cloud

- This is the initial version for GWN.Cloud.

Version 1.0.0.33

Product Name: GWN Manager

- This is the initial version for GWN Manager.