

## **GWN7600 Firmware Release Note**

### **IMPORTANT UPGRADING NOTE**

1. For firmware 1.0.5.13, this is only for GWN7610/GWN7600/GWN7600LR master deployment. All users with GWN7000 as master are NOT encouraged to upgrade until 1.0.5.x matching firmware is available for GWN7000, due to the compatibility of new features.
2. Please upgrade to 1.0.4.12 or higher version to get the patch for WPA2 4-way handshake vulnerability.

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## FIRMWARE VERSION 1.0.5.13

### PRODUCT NAME

GWN7600

### DATE

2/12/2018

### IMPORTANT UPGRADING NOTE

- For firmware 1.0.5.13, this is only for GWN7610/GWN7600/GWN7600LR master deployment. All users with GWN7000 as master are NOT encouraged to upgrade until 1.0.5.x matching firmware is available for GWN7000, due to the compatibility of new features.

### ENHANCEMENT

- Added support for **New Firmware Reminder on Master Web**
- Added support for **Sequential Upgrade**
- Added support for **Feature Scheduling**
- Added support for **Master Direction**
- Added support for **Master Transfer**
- Added support for **Airtime Fairness**
- Added support for **Social login/Voucher**
- Added support for **Mesh Network**

## BUG FIX

- There is low probability that auto pop-up portal page of the iOS couldn't be displayed normally.
- "Hostname" on client page and the "Top AP" \ "Top SSID" \ "Top Clients" on overview page may show empty occasionally.

## KNOWN ISSUE

- Configuring Radius server address with domain name instead of IP will cause the WIFI under configuration become open without authentication. Note: issue will be addressed in next feature packet release.
- After clicking on the reset button in maintenance page, there is chance to prompt "Reset failed!" wrongly.

## NEW FEATURE OVERVIEW

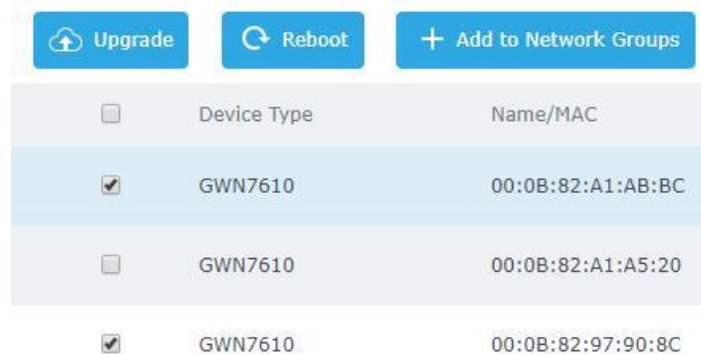
- **New Firmware Reminder on Master Web**

Once a different OFFICIAL firmware than current running firmware is detected on Grandstream Network website by master GWN7610, a "NEW" icon will appear to remind network administrator to upgrade.

Clicking on the "NEW" icon will open the new firmware's release note.



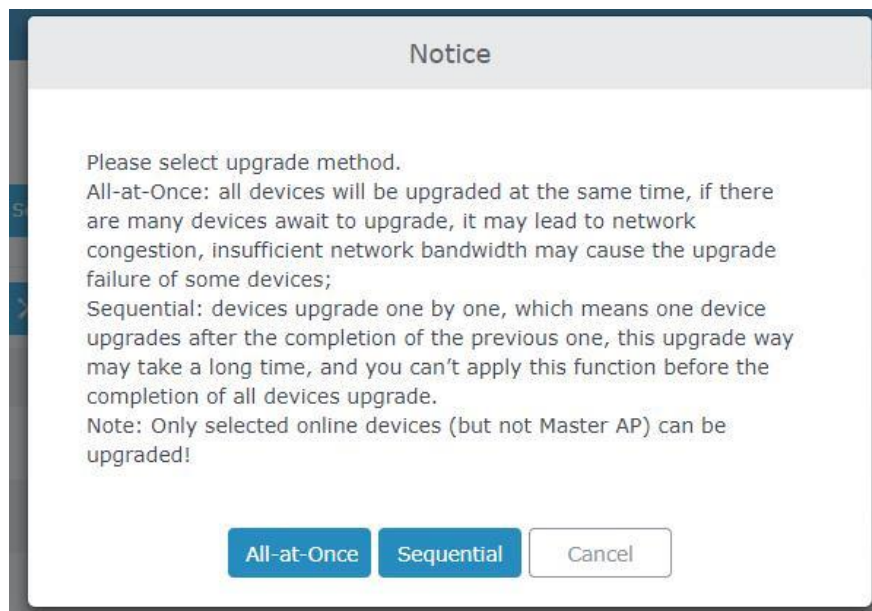
- **Sequential Upgrade**



Now if you choose multiple slave devices to upgrade their firmware, two options as “All-at-Once” and “Sequential” are available. “All-at-Once” will trigger the traditional way that all checked slaves will try to retrieve and change their firmware at the same time, while “Sequential” upgrade will let the slaves to upgrade one by one in order to 1) avoid entire wifi service interruption by full system firmware upgrade; 2) reduce network stress caused by firmware downloading.

Access Points  1 / 2

Once you choose sequential upgrade, the number with beside the green upgrading icon will tell you how many slaves have done its upgrading.



- **Airtime Fairness**

Turning Airtime Fairness ON or OFF options can be found under Access Point→Edit→Configuration→Airtime Fairness.

- **Feature Scheduling**

Scheduled bandwidth control or client access control is available now under System Settings→Schedule

Add

---

Enabled

Name   
The field should not be empty

Scheduled Feature

Bandwidth Rules   
The field should not be empty

Schedule Type

Month for Turn On


Month for Turn Off

Day of Month for Turn On

Day of Month for Turn Off

Day of Week for Turn On

Day of Week for Turn Off

Schedule On Time 

Please be noted that you will need a Bandwidth rule (can be created in Bandwidth Rules) or a Client Access list (can be created under Client→Client Access), in order to create a schedule.

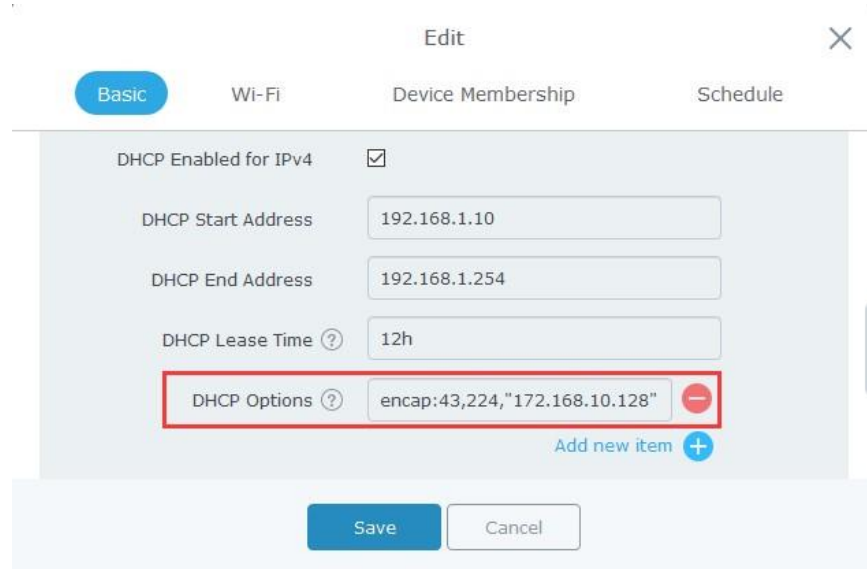
- **Master Direction**

When GWN7610 slave is not in the same broadcast domain with its master, this feature is available for all factory configured GWN7610 to find its master IP address offered by local DHCP option 43.

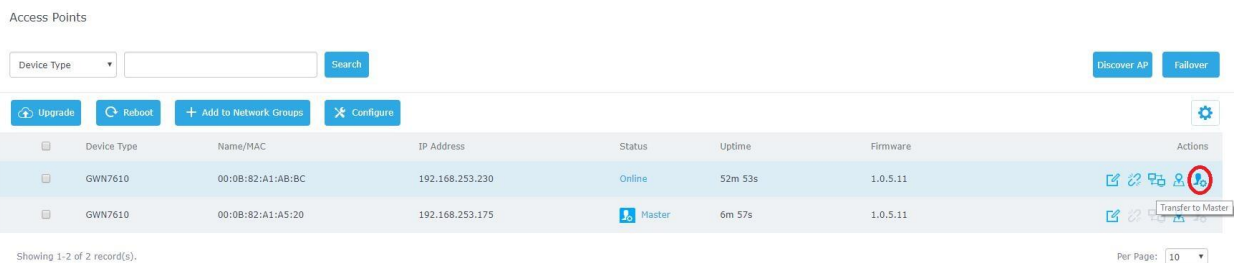
GWN7610 accepts option 224 encapsulated in option43, and the syntax is in TLV format. So, the for a simple example of DHCP 43 configuration would be:

224(Type)12(Length)10.157.0.234(Value) translated into Hex as e00c31302e3135372e302e323334

For DHCP server configuration on GWN7000, which translates the values automatically, is as follows:



- **Master Transfer**



Now an easier way to transfer your master authority from one unit to another available unit is available on Access Point management page. By clicking the Transfer to Master button above in red circle, the designated slave unit will be upgraded to master and current master will be downgraded to slave accordingly.



- **Social login/Voucher**

As an enhancement of Captive Portal, social Login as Wechat/Facebook/Twitter have been added.

Add

---

Name

The field should not be empty

Authentication Type

Expiration

The field should not be empty

WeChat

Facebook

Twitter

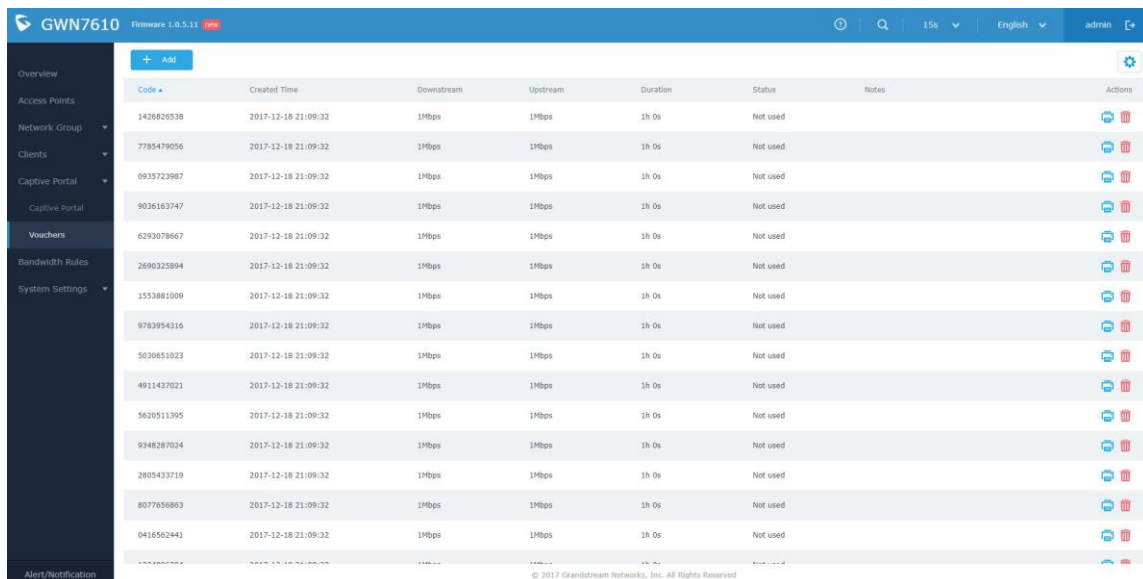
Use Default Portal Page

Portal Page Customization

Landing Page

Also, Voucher is added as another Captive Portal authentication option.

Voucher management interface is available under Captive Portal→Vouchers



Code	Created Time	Downstream	Upstream	Duration	Status	Notes	Actions
1426826538	2017-12-18 21:09:32	1Mbps	1Mbps	1h 0s	Not used		[edit] [delete]
7785479056	2017-12-18 21:09:32	1Mbps	1Mbps	1h 0s	Not used		[edit] [delete]
0935723987	2017-12-18 21:09:32	1Mbps	1Mbps	1h 0s	Not used		[edit] [delete]
9036163747	2017-12-18 21:09:32	1Mbps	1Mbps	1h 0s	Not used		[edit] [delete]
6293078667	2017-12-18 21:09:32	1Mbps	1Mbps	1h 0s	Not used		[edit] [delete]
2690325894	2017-12-18 21:09:32	1Mbps	1Mbps	1h 0s	Not used		[edit] [delete]
1553881009	2017-12-18 21:09:32	1Mbps	1Mbps	1h 0s	Not used		[edit] [delete]
9783954316	2017-12-18 21:09:32	1Mbps	1Mbps	1h 0s	Not used		[edit] [delete]
5030651023	2017-12-18 21:09:32	1Mbps	1Mbps	1h 0s	Not used		[edit] [delete]
4911437021	2017-12-18 21:09:32	1Mbps	1Mbps	1h 0s	Not used		[edit] [delete]
5620511395	2017-12-18 21:09:32	1Mbps	1Mbps	1h 0s	Not used		[edit] [delete]
9348287024	2017-12-18 21:09:32	1Mbps	1Mbps	1h 0s	Not used		[edit] [delete]
2805433719	2017-12-18 21:09:32	1Mbps	1Mbps	1h 0s	Not used		[edit] [delete]
8077656863	2017-12-18 21:09:32	1Mbps	1Mbps	1h 0s	Not used		[edit] [delete]
0416562441	2017-12-18 21:09:32	1Mbps	1Mbps	1h 0s	Not used		[edit] [delete]

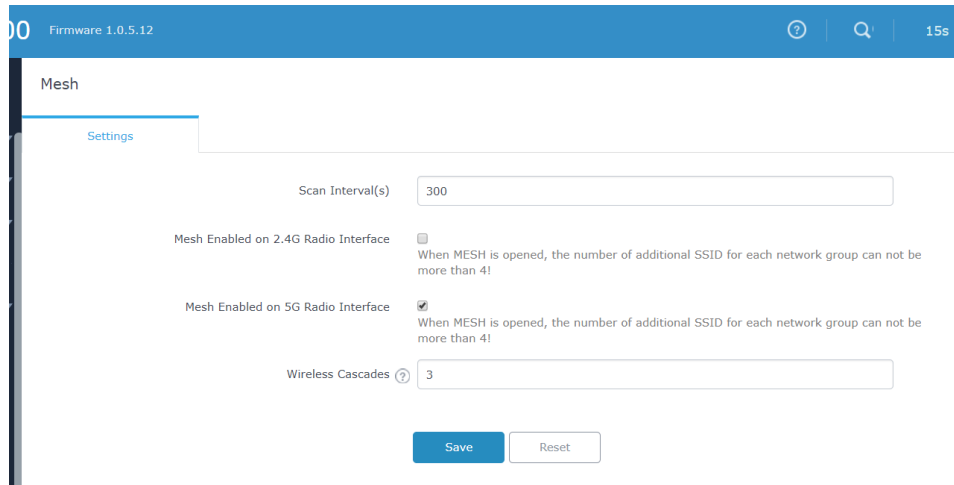
- **Mesh Network**



Mesh feature is now available for your GWN7600 wireless deployment!

With Mesh setup, APs can connect wirelessly to each other and cooperate with one another to efficiently route data from/to clients.

To use Mesh feature, here is some basic instructions:

- 1) Add all APs you want to use to form a mesh network in to a same network group.
- 2) Configure mesh under System Settings → Mesh



- 3) Disconnect network of those APs, except the root AP or APs for uplink internet access, and power those back on at the location you want to install.
- 4) Wait... The process of forming Mesh network may take several minutes. Once one AP has allocated itself into the Mesh network, its status will change from “online” to 
- 5) At this moment, you can check the Mesh topology by clicking 
- 6) Mesh topology is automatically calculated; however, you still can modify it manually by specifying each AP’s wireless uplink in AP edit page tag “Uplink”.

## FIRMWARE VERSION 1.0.4.12

### PRODUCT NAME

GWN7600

### DATE

10/31/2017

### ENHANCEMENT

- Added support for **Timed Client Disconnect and Enhanced Client Blocking**
- Added support for **Client Bridge**
- Added support for **Syslog Server**
- Added support for **Configurable web UI access port**
- Added support for **E-mail notifications**

### BUG FIX

- Fixed the WPA2 4-way handshake vulnerability\*
- Fixed the WPA2 802.11r vulnerability\*

\*Note: “Out of the box” Grandstream Access Points are not affected by this issue. APs with old firmware are only affected after changing into client-bridge mode. Please refer to our white paper of “WPA Security Vulnerability” here:

<http://www.grandstream.com/sites/default/files/Resources/WPA%20Security%20Vulnerability.pdf>

- Fixed the issue that “Band Steering” option requires a system reboot to take effect.
- Fixed the issue that “Gateway MAC address” options and requires a system reboot to take effect.
- Fixed the issue that when Facebook and WeChat authentication are enabled at the same time, client cannot redirect to landing page after Facebook auth success.
- Fixed the issue that after many times of enabling and disabling Captive Portal, there is chances that WIFI clients can access to Internet without authentication challenge.

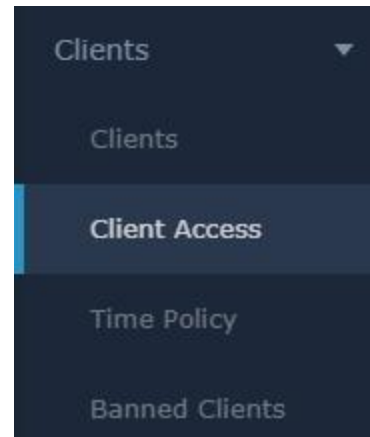
## KNOWN ISSUE

- Configuring Radius server address with domain name instead of IP will cause the WIFI under configuration become open without authentication.
- “Hostname” on client page and the “Top AP” \ “Top SSID” \ “Top Clients” on overview page may show empty occasionally.
- After clicking on the reset button in maintenance page, it may prompt "Reset failed!".





## NEW FEATURE OVERVIEW

- **Timed Client Disconnect and Enhanced Client Blocking**

The Client Connection Permissions Management enhanced client blocking provides a more manageable method for Wi-Fi client whitelist and blacklist configuration. It allows any combination of globally-maintained connection access control lists to be applied to network groups as desired for blacklisting and whitelisting WIFI clients. The timed client disconnect feature allows the system administrator to set a fixed time for which clients should be allowed to connect to the access point, after which the client will no longer be allowed to connect for a user configurable cooldown period.



- 1) New Client bar (See picture on the right)
- 2) Client Access

+ Add			Actions
Name	MAC Addresses		
Global Blacklist			 
Access List 1	(4) 00:00:00:12:34:56, 00:00:00:12:34:57, 00:00:00:12:34:58, 00:00:00:12:34:59		 

- 3) Time Policy

+ Add						Actions
Name	Enabled	Connection Time	Reconnect Type	Reconnect Time		
TEST_POLICY	✓	3h	Reset Daily	23:00		 





- 4) Banned Client This list is moved from original Client page to a separate page now.

- **Client Bridge**

The Client Bridge feature allows an access point to be configured as a client for bridging wired only clients wirelessly to the network. When an access point is configured in this way, it will share the wifi connection to the LAN ports transparently. This is not to be confused with a mesh setup. The client will not accept wireless clients in this mode.

Once a Network Group has an Client Bridge Support enabled, the AP adopted in this Network Group can be turned in to Bridge Client mode by click the Bridge button:

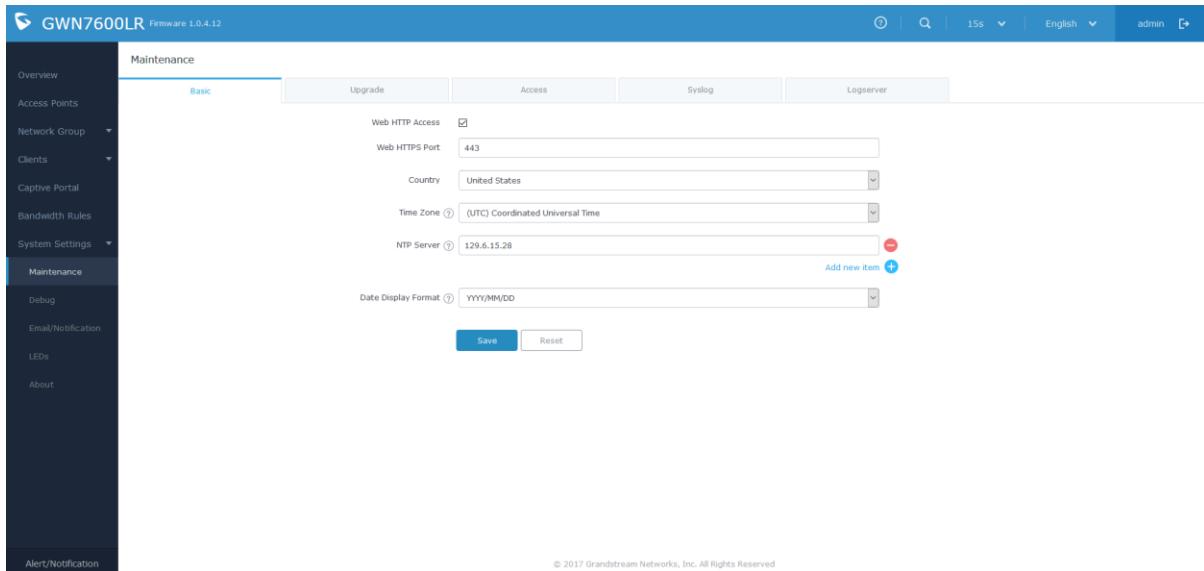
Please be noted that once an AP is turned into Client Bridge mode, it cannot be controlled by a Master anymore, and a factory reset is required to turn it back into normal AP mode.

Device Type	Name/MAC	IP Address	Status	Uptime	Firmware	Actions
GWN7610	00:08:82:97:90:8C	192.168.1.146	Online	1d 17h 51m 13s	1.0.4.19	   

Showing 1-1 of 1 record(s). Per Page: 10

- **Syslog Server**

Syslog Server is now available on GWN7600 and GWN700LR. Configuration page is as below:



- **Configurable web UI access port**

Under System →Maintenance, following configuration is available now:

- 1) Web WAN Access;
- 2) Web HTTP Access;
- 3) Web HTTPS Port

- **E-mail notifications**

Email notification allows the administrator to select a predefined set of system events and to send notification upon the change of the set events.

Email notification configuration is under System → Email/Notification.

Selectable system events are listed as below:

Email/Notification

Email Notification

Enabled

Memory Usage  ?

CPU Usage  ?

WAN Port 1 Usage

WAN Port 2 Usage

Firmware Upgrade  ?

Add/Remove Network Group  ?

Additional SSID  ?

Time Zone Change  ?

Administrator Password Change  ?

AP Offline  ?

Save Reset

## **FIRMWARE VERSION 1.0.3.25**

### **PRODUCT NAME**

GWN7600

### **DATE**

9/20/2017

### **IMPORTANT UPGRADING NOTE**

This is the initial official release of GWN7600LR

### **BUG FIX**

- Fixed issue that GWN7600's 5G radio power won't take effect after select frequency to only 5G.
- Fixed issue that WiFi client cannot connect to the 802.11g AP WIFI when it uses the 802.11b protocol.
- Fixed issue that WeChat authentication for Captive portal sometimes behaves abnormal and it will be hard for WIFI client to authenticate when issue happens.
- Fixed issue that Captive Portal Policy changes require a reboot to take effect.
- Fixed issue that device cannot catch packet if a value is set in "File Size" option.
- Fixed issue that 2.4GHz mode need to be enabled for changing Channel Width and Active Spatial Streams.
- Fixed issue that WeChat authentication of Captive portal does not work, when adopting WIFI has WEP security mode.
- Fixed issue that If only 802.11r is enabled, Voice enterprise feature will not take effect.
- Fixed issue that iPhone does not work with current Minimum RSSI design.
- Internal bug fixes

### **KNOWN ISSUE**

- "Band Steering" and "Gateway MAC address" options and requires a system reboot to take effect.

- Configuring Radius server address with domain name instead of IP will cause the WIFI under configuration become open without authentication.
- “Hostname” on client page and the “Top AP” \ “Top SSID” \ “Top Clients” on overview page may show empty occasionally.
- After clicking on the reset button in maintenance page, it may prompt "Reset failed!".
- When Facebook and WeChat authentication are enabled at the same time, client cannot redirect to landing page after Facebook auth success.
- After many times of enabling and disabling Captive Portal, there is chances that WIFI clients can access to Internet without authentication challenge.



## **FIRMWARE VERSION 1.0.3.19**

### **PRODUCT NAME**

GWN7600

### **DATE**

7/14/2017

### **ENHANCEMENT**

- Added support for Captive Portal
- Added support for 802.11k/r/v (Enable Voice Enterprise)
- Added support for Failover Master
- Added support for VLAN assignment via RADIUS
- Added support for Select Band per SSID Added support for Exact Radio Power Configuration in dBm
- Added support for AP Locating by Blinking LED
- Added support for Per-Client/Per-SSID Bandwidth Management
- Added support for Limit Client Count per SSID
- Added support for WIFI schedule
- Added support for LED control
- Added support for Enabling/Disabling DHCP option 66 for firmware upgrade

### **BUG FIX**

- Internal bug fixes

## KNOWN ISSUE

- "Band Steering" and "Gateway MAC address" options and requires a system reboot to take effect.
- Configuring Radius server address with domain name instead of IP will cause the WIFI under configuration become open without authentication.
- "Hostname" on client page and the "Top AP" \ "Top SSID" \ "Top Clients" on overview page may show empty occasionally.
- GWN7600's 5G radio power won't take effect after select frequency to only 5G.
- Client cannot connect to the 802.11g AP WIFI when it uses the 802.11b protocol.
- After clicking on the reset button in maintenance page, it may prompt "Reset failed!".
- WeChat authentication for Captive portal sometimes behaves abnormal and it will be hard for WIFI client to authenticate when issue happens.
- When Facebook and WeChat authentication are enabled at the same time, client cannot redirect to landing page after Facebook auth success.
- After many times of enabling and disabling Captive Portal, there is chances that WIFI clients can access to Internet without authentication challenge.
- Device cannot catch packet if a value is set in "File Size" option.
- Captive Portal Policy changes require a reboot to take effect.
- 2.4GHz mode need to be enabled for changing Channel Width and Active Spatial Streams.
- WeChat authentication of Captive portal does not work, when adopting WIFI has WEP security mode.
- If only 802.11r is enabled, Voice enterprise feature will not take effect.
- iPhone does not work with current Minimum RSSI design.

## NEW FEATURE OVERVIEW

- Captive Portal

You can configure different portal policies with names and adopt one policy while configuring your Network groups. Captive portal now also supports authentication by Radius and WeChat/Facebook.

Add ✕

---

Name

The field should not be empty

Expiration(s)

The field should not be empty

Authentication Type

WeChat Authentication

Facebook Authentication

Portal Page Customization

Landing Page

Enable HTTPS

Pre Authentication Rule(s)

Add new item +

Post Authentication Rule(s)

Add new item +

- 802.11k/r/v (Enable Voice Enterprise)

Configuration available at Network Group->Add/Edit->WIFI-> **Enable Voice Enterprise / Enable 11R / Enable 11K / Enable 11V**

Enable Voice Enterprise

Enable 11R

Enable 11K

Enable 11V

- **Failover Master**

Failover Master is supported on GWN7600 now. You can specify a slave AP as failover master. Whenever it detects the master is down, it will promote itself to be as failover master. After then, if master comes back, failover master will automatically go back to slave mode, or if the master doesn't come back to alive, Administrator can login to turn the failover master to true master and take over all controls.



- **AP Locating by Blinking LED**

Now, when you can't match your AP list on web with your real AP deployment in the field. This feature will help you to find your AP.

Device Type	Name/MAC	IP Address	Status	Uptime	Firmware	Actions
GWN7610	00:0B:82:97:90:8C	192.168.1.146	Master	1d 16h 3m 1s	1.0.3.15	[Refresh] [Refresh] [Refresh] [Locate the device]
GWN7610	00:0B:82:8B:4E:1C	192.168.1.21	Online	1d 16h 6m 15s	1.0.3.15	[Refresh] [Refresh] [Refresh] [Locate the device]

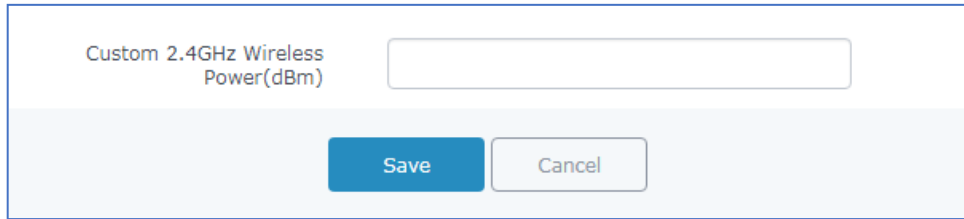
- **Select Band per SSID**

Configuration available at Network Group->Add/Edit->WIFI-> **SSID band**.

SSID Band	Dual-Band
SSID Hidden	<input type="checkbox"/>

- Exact Radio Power Configuration in dBm

Configuration available at Access Point->Edit->Configuration-> **Custom 2.4GHz Wireless Power (dBm)**.



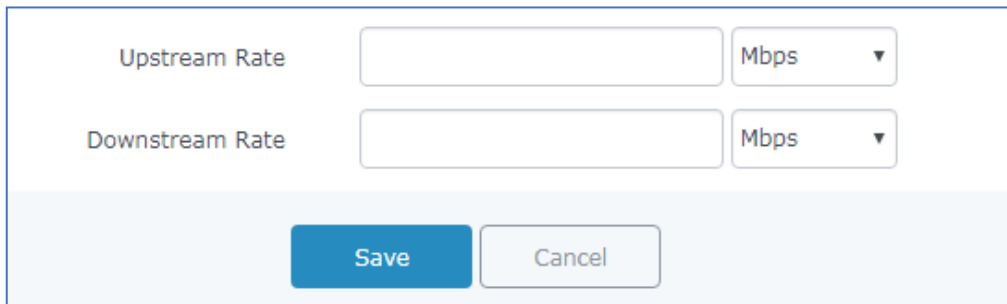
Custom 2.4GHz Wireless Power(dBm)

Save Cancel

- Per-Client/Per-SSID Bandwidth Management

Configuration available at

Per-SSID: Network Group->Add/Edit->WIFI-> **Upstream Rate / Downstream Rate**.

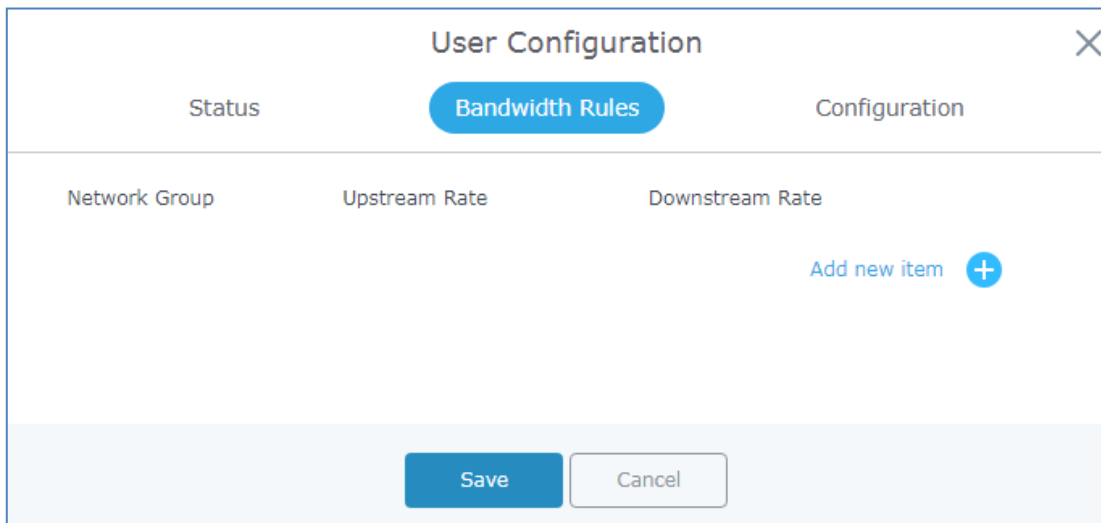


Upstream Rate  Mbps ▾

Downstream Rate  Mbps ▾

Save Cancel

Per-Client: Client->Edit->Bandwidth Rules-> Add new item.



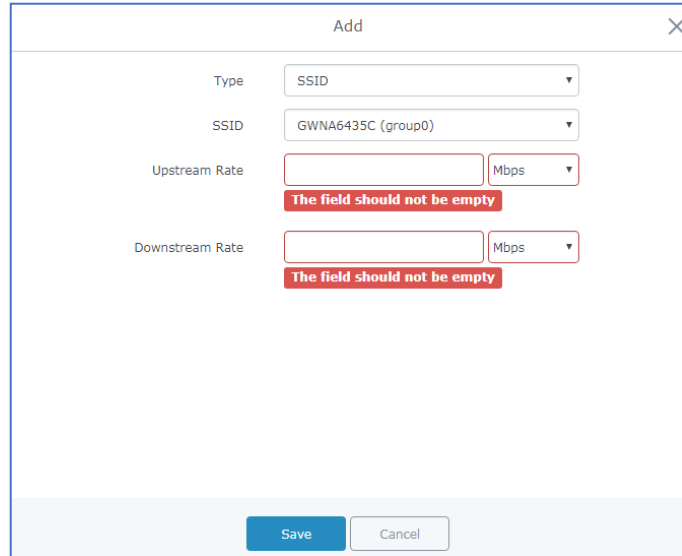
User Configuration [X]

Status **Bandwidth Rules** Configuration

Network Group	Upstream Rate	Downstream Rate
Add new item +		

Save Cancel

General configuration: **Bandwidth Rules** on left root menu bar.



The 'Add' dialog box contains the following fields:

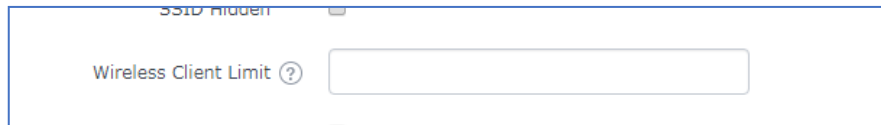
- Type: SSID (dropdown)
- SSID: GWNA6435C (group0) (dropdown)
- Upstream Rate: [Empty field] Mbps (dropdown)
- Downstream Rate: [Empty field] Mbps (dropdown)

Red error messages are displayed below the Upstream Rate and Downstream Rate fields: "The field should not be empty".

Buttons: Save, Cancel

- Limit Client Count per SSID

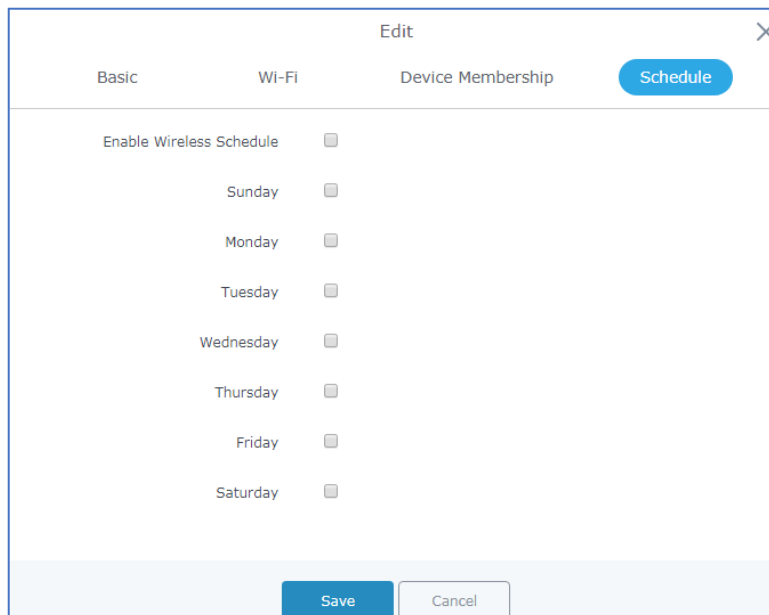
Configuration available at Network Group->Add/Edit->WIFI-> **Wireless Client Limit**.



The configuration shows a label "Wireless Client Limit" with a help icon (?) and an empty input field.

- WIFI schedule

User can configure WIFI on/off schedule under Network Group->Edit->**Schedule**.



The 'Edit' dialog box has tabs for Basic, Wi-Fi, Device Membership, and Schedule. The 'Schedule' tab is active.

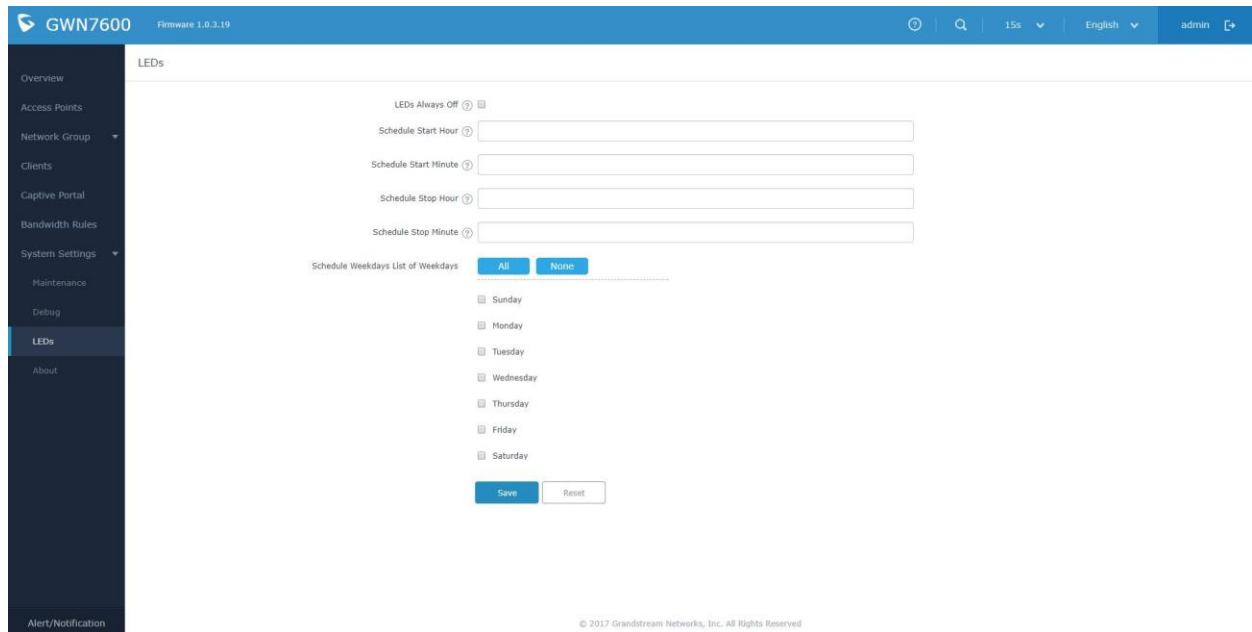
Configuration options under the 'Schedule' tab:

- Enable Wireless Schedule:
- Sunday:
- Monday:
- Tuesday:
- Wednesday:
- Thursday:
- Friday:
- Saturday:

Buttons: Save, Cancel

- LED control

User can define the LED on/off schedule in following page.



- Enabling/Disabling DHCP option 66 for firmware upgrade

Configuration available at System Settings->Maintenance->Upgrade-> **Allow DHCP options 66 and 43 override.**

Allow DHCP options 66 and 43 override

## **FIRMWARE VERSION 1.0.1.36**

### **PRODUCT NAME**

GWN7600

### **DATE**

3/15/2017

### **IMPORTANT UPGRADING NOTE**

This is the initial official release of GWN7600