



GRANDSTREAM

CONNECTING THE WORLD



GWN7600 Access Points
Webinar

AGENDA



- **Founded in 2002**
- **30+ employees**
- **Over 125,000 customers worldwide**

Office: Amherst, New York
Contact Us: 1-800-398-VoIP



AGENDA



*Since 2002 VoIP Supply
has delivered
unparalleled service
and expertise to over
125,000 customers
worldwide.*



Hardware

featuring over 60 manufacturers that offer over 16,000 products

Experts on Your Side

the most qualified professionals become your extended team!

CloudSpan MarketPlace

a single place to shop various VoIP service providers - finding the perfect match for your client's diverse business needs

Fulfillment

provisioning and professional services from multiple warehouse locations in North America; providing real-time access to manage your projects from order through delivery

Refresh & Reclaim

offering certified reconditioned devices at a fraction of the cost plus offering an outlet for selling off used and excess VoIP equipment

AGENDA



The Simplest way to sell cloud services & make \$

1. Sign VoIP Supply's CloudSpan Reseller Agreement
2. Introductions & training w/CloudSpan vendors
3. Leverage resources for marketing & quoting
4. Cash your commission checks!

Benefits of CloudSpan

- No quotas/commitment levels
- Best in class commissions and spiffs/incentives
- Sell hardware + services
- Programs for single person through SMB to enterprise
- Commissions grow as your business grows, higher than if you go direct



Become a VoIP Supply Partner

Call or Email Jon Garbin at (716) 531-4271 or jgarbin@voipsupply.com

- Complete partner program agreements & paperwork
- Create an Onboarding Game Plan with your Account Representative (Training & Equipping your Team)
- Marketing & Sales Collateral - <https://www.voipsupply.com/partner-portal-home-page/>
- Opportunity Support – Consulting & Solution Design, Proposal/Pricing



Agenda



- Grandstream's offering
- Introducing GWN Series
- Installation & Deployment
- GWN76xx AP - Application Features
- GWN76xx AP – Upcoming new features

Grandstream's Offerings

IP Video Phones



Enterprise IP Phones



SMB IP Phones



DECT IP Phones



IP PBXs



IP Surveillance Cameras/NVR



Analog Telephone Adapters



VoIP Gateways



Network





What are the GWN series?

- Indoor & Outdoor powerful wireless access points with tremendous Wifi coverage and high performance networking
- Gigabit VPN Routers with high performance routing and switching power and hardware accelerated VPN client/server
- Integrated controller and centralized management through a single interface for complete network control available in every GWN model



GWN7610



GWN7600



GWN7600LR



GWN7000



Access Points - GWN7610

Enterprise 802.11ac WiFi Access Point

- Supports 250+ WiFi client devices.
- 1.75Gbps wireless throughput and 2x Gigabit wireline ports.
- 175-Meters coverage range for superior device mobility.
- Dual-band 3x3:3 MIMO technology
- Advanced Wi-Fi security features, including WEP, WPA/WPA2-PSK, WPA/WPA2-Enterprise
- Offers simultaneous dual band Wi-Fi signals.
- Embedded controller for auto-discovery, auto-provision, and management of up to 50 GWN APs.





Access Points - GWN7600

Mid-Tier 802.11ac Wave-2 WiFi Access Point

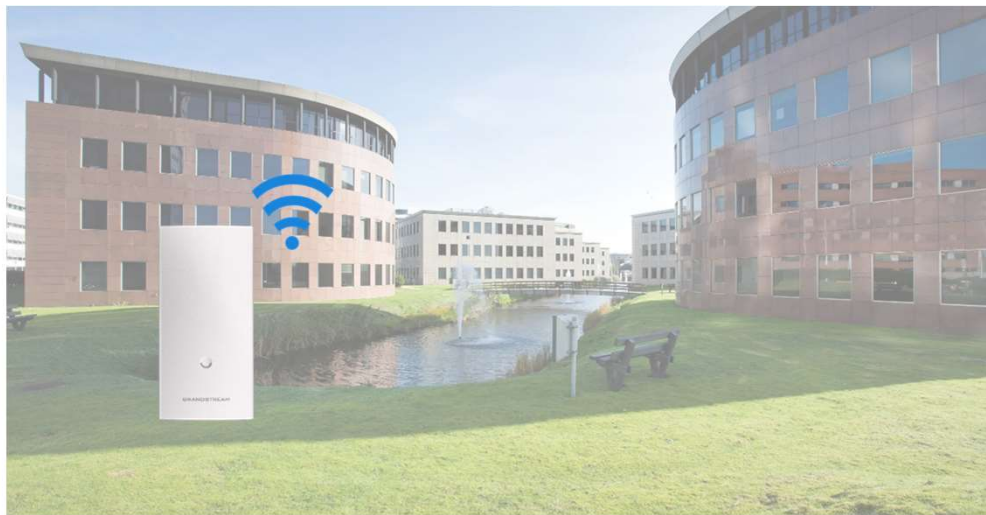
- Supports 450+ WiFi client devices.
- 1.27Gbps wireless throughput and 2x Gigabit wireline ports.
- 165-Meters coverage range for superior device mobility.
- Dual-band 2x2:2 MU-MIMO technology
- Advanced Wi-Fi security features, including WEP, WPA/WPA2-PSK, WPA/WPA2-Enterprise
- Offers simultaneous dual band Wi-Fi signals.
- Embedded controller for auto-discovery, auto-provision, and management of up to 30 GWN APs.





Access Points - GWN7600LR

Enterprise 802.11ac Wave-2 Outdoor Long Range WiFi Access Point



- Supports 450+ WiFi client devices.
- 1.27Gbps wireless throughput and 2x Gigabit wireline ports.
- 300-Meters coverage range for superior device mobility.
- Dual-band 2x2:2 MU-MIMO with beam forming technology
- Advanced Wi-Fi security features, including WEP, WPA/WPA2-PSK, WPA/WPA2-Enterprise
- Offers simultaneous dual band Wi-Fi signals.
- Embedded controller for auto-discovery, auto-provision, and management of up to 30 GWN APs.



Access Points - GWN76xx Overview

	GWN7610	GWN7600	GWN7600LR
Wi-Fi Standards	IEEE 802.11 a/b/g/n/ac	IEEE 802.11 a/b/g/n/ac (Wave-2)	IEEE 802.11 a/b/g/n/ac (Wave-2)
Antennas	3x 2.4 GHz, gain 3 dBi, internal antenna 3x 5 GHz, gain 3 dBi, internal antenna	2x 2.4 GHz, gain 3 dBi, internal antenna 2x 5 GHz, gain 3 dBi, internal antenna	2x 2.4 GHz, gain 4 dBi, internal antenna 2x 5 GHz, gain 4 dBi, internal antenna
Max WiFi Throughput	Up to 1.75 Gbps	Up to 1.27Gbps	Up to 1.27Gbps
Coverage Range	575ft. (175 meters)	541ft. (165 meters)	984ft. (300 meters)
Frequency Bands	2.4GHz radio : 2.400 - 2.4835 GHz 5GHz radio : 5.150 - 5.250 GHz, 5.725 - 5.850 GHz		
Channel Bandwidth	2.4G : 20 and 40 MHz 5G : 20,40 and 80 MHz		
MIMO	3x3:3 2.4GHz , 3x3:3 5GHz	2x2:2 2.4GHz , 2x2:2 5GHz	2x2:2 2.4GHz , 2x2:2 5GHz
Maximum TX Power	5GHz :26dBm 2.4GHz :26dBm	5GHz :22dBm 2.4GHz :22dBm	5G : 22dBm (FCC) / 20dBm (CE) 2.4G : 22dBm (FCC) / 17dBm (CE)
Network Interfaces	2x autosensing 10/100/1000 Base-T Ethernet Ports		



Access Points - GWN76xx Overview

	GWN7610	GWN7600	GWN7600LR
BSSID	16 BSSID per AP		
Concurrent Clients	250+	450+	450+
WiFi and System Security	WEP, WPA/WPA2-PSK, WPA/WPA2 Enterprise (TKIP/AES), anti-hacking secure boot and critical data/control lockdown via digital signatures, unique security certificate and random default password per device		
Network Protocols	IPv4, 802.1Q, 802.1p, 802.1x, 802.11e/WMM, 802.11r/k		
QoS	802.11e/WMM, VLAN, TOS		
Embedded Controller	Up to 50 GWN APs in a network.	Up to 30 GWN APs in a network.	Up to 30 GWN APs in a network.
Auto Power Saving	Self power adaptation upon auto detection of PoE or PoE+	N/A	Self power adaptation upon auto detection of PoE or PoE+



Router- GWN7000

Enterprise Multi-WAN Gigabit VPN Router

- 7 Gigabit ports (2 WAN and 5 LAN)
- Hardware accelerated VPN including PPTP, L2TP/IPSec and OpenVPN
- Embedded provisioning master to control up to 300+ GWN76xx APs
- Multi WAN ports with load balancing and failover
- Centralized web interface to provision entire network
- 1 million packets/second routing & 10Gbps aggregate switching power
- Rich firewall features including NAT, DMZ, Port, Forwarding, SPI and UPnP
- Peripheral support through USB ports





Installation & Deployment

GWN76xx AP – Discovery using MAC address

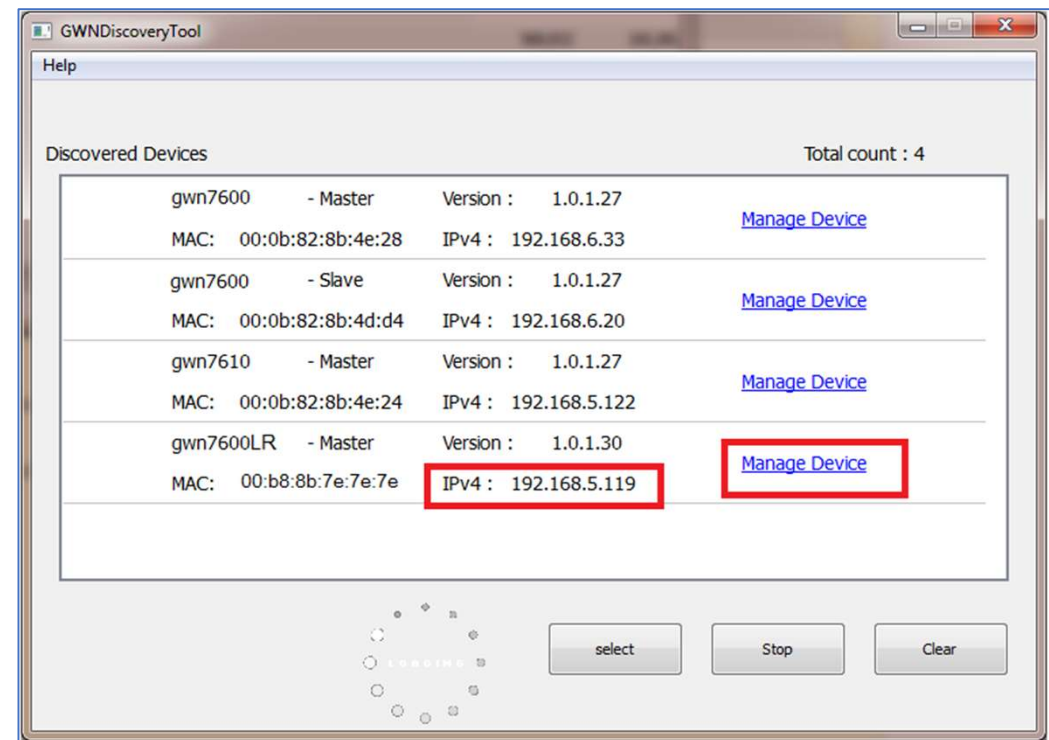
- Locate the MAC address on the MAC tag of the unit, which is on the underside of the device, or on the package.
- From a computer connected to same Network as the GWN76XX, type in the following address using the GWN76XX's MAC address on your browser `https://gwn_<mac>.local`
- For example, if a GWN76XX has the MAC address 00:0B:82:8B:4E:28, this unit can be accessed by typing https://gwn_000b828b4e28.local/ on the browser.



Installation & Deployment

GWN76xx AP – Discovery using GWN Discovery Tool

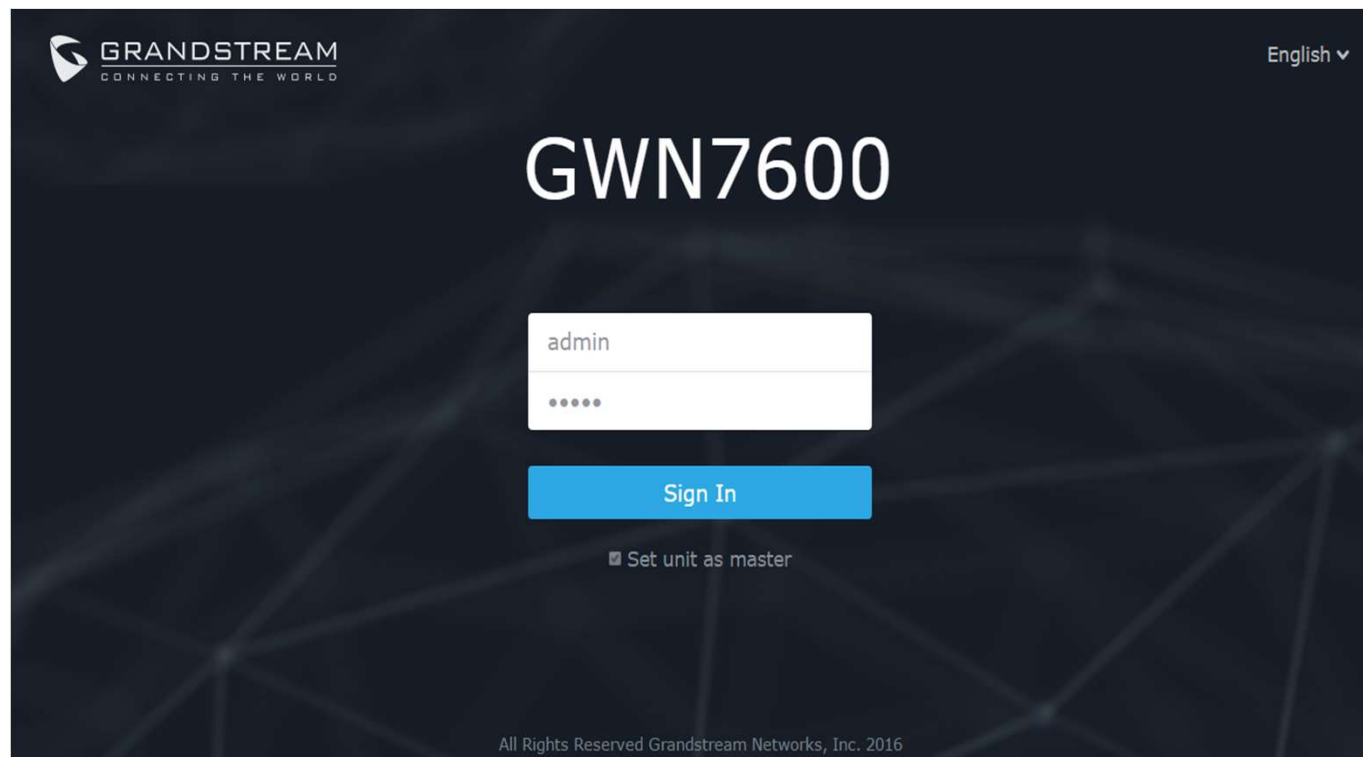
- Open the GWNDISCOVERYTool, click on **Select** to define the network interface, then click on **Scan**.
- The tool will discover all GWN76XX Access Points connected on the network showing their MAC, IP addresses and firmware version.
- Click on **Manage Device** to be redirected directly to the GWN76XX configuration interface, or type in manually the displayed IP address on your browser.





Installation & Deployment

GWN76xx AP – WebUI Access

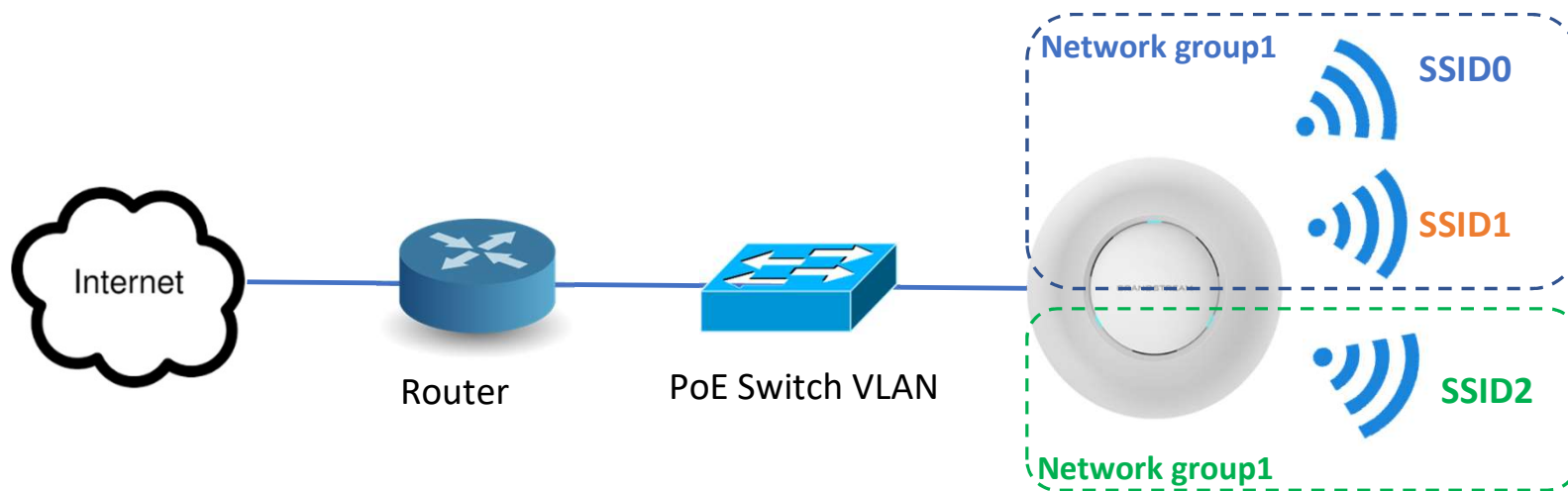


Important: The GWN76XX embedded Web server responds to HTTPS by default



Installation & Deployment

GWN76xx AP - Standalone Architecture





Installation & Deployment

GWN76xx AP - Standalone Architecture

- ❑ The GWN76XX can be used in Standalone mode, where it can act as Master Access Point Controller or in Slave mode and managed by another GWN76XX Master.
- ❑ GWN76XX can be used as standalone access point out of box, or after factory reset with Wi-Fi enabled by default.
- ❑ After powering the GWN76XX and connecting it to the network, GWN76XX will broadcast a default SSID based on its MAC address **GWN[MAC's last 6 digits]** and a random password.

GRANDSTREAM Model: GWN7610
Input: DC 24V 1A

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference.
(2) this device must accept any interference received, including interference that may cause undesired operation.

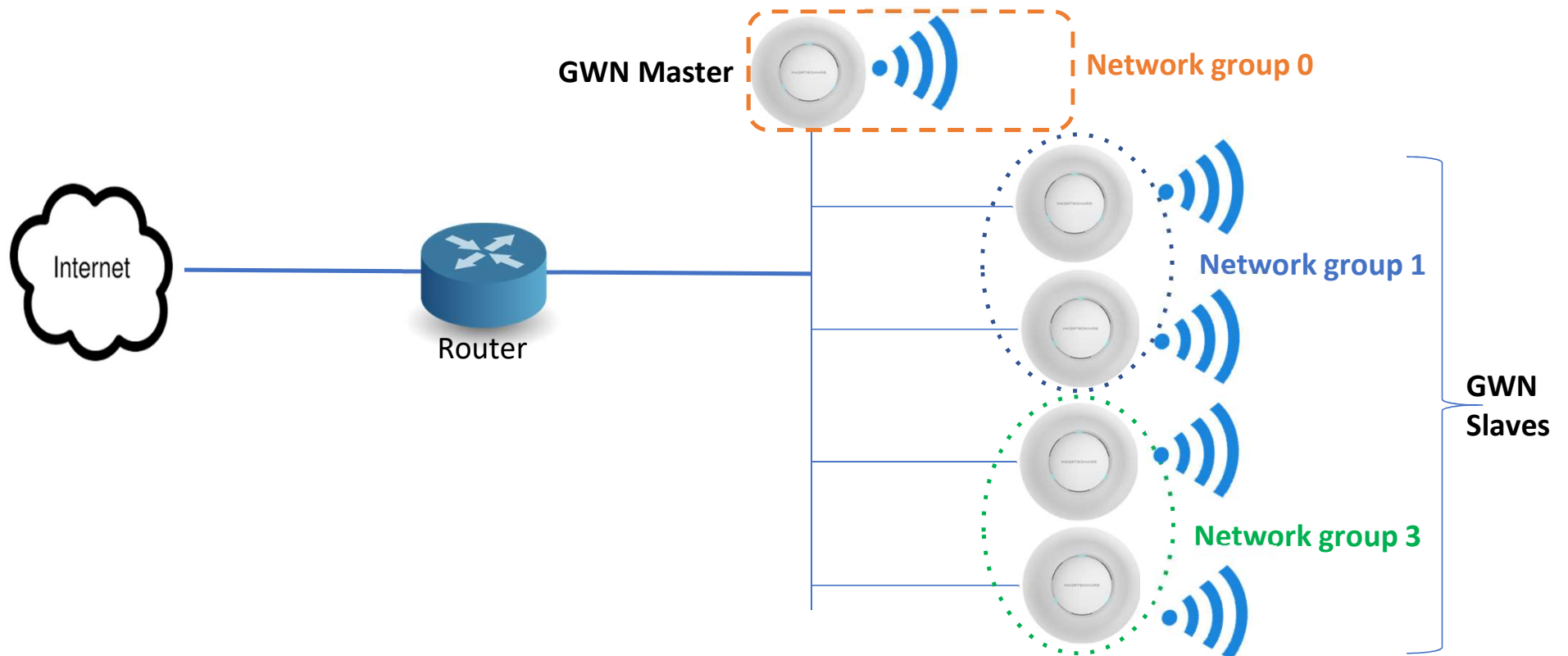
S/N 22V9MF0E30616552
MAC 000B82616552
WiFi Password: AA11BB22
SSID: GWN616552
(US)P/N 964-00006-17A001

Complies with CAN ICES-3(B)/NMB(B)
IC:11964A-GWN7610
FCC ID:YZZGWN7610
Made in China



Installation & Deployment

GWN76xx AP - Master/Slave Architecture





Installation & Deployment

GWN76xx AP – Master/Slave Architecture

When the GWN76XX is acting as a Master, it will allow you to manage all other GWN APs and monitor all clients from a single interface

GWN7610 Firmware 1.0.2.14

Access Points [Discover AP](#)

Device Type [Search](#)

[Upgrade](#) [Reboot](#) [Add to Network Groups](#) [Settings](#)

Device Type	Name/MAC	IP Address	Status	Uptime	Firmware	Actions
GWN7610	00:0B:82:8B:4E:24	192.168.5.122	Master	51m 1s	1.0.2.14	Edit Refresh

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

Discovered Devices

Device Type	MAC	IP Address	Firmware	Actions
GWN7610	00:0B:82:A4:14:BC	192.168.1.76	1.0.1.27	Link
GWN7610	00:0B:82:8B:4D:D8	192.168.1.24	1.0.2.14	Link
GWN7600	00:0B:82:8B:58:30	192.168.1.176	1.0.1.33	Link

Showing 1-3 of 3 record(s). Per Page: 10



Installation & Deployment

Embedded Controller

- GWN700x and GWN76xx can act as Controller for all GWN Wifi access points
- Main features:
 - Auto-Discovery
 - Pairing Devices
 - Provisioning
 - Managing WiFi Network/Settings
 - Managing Groups and SSIDs
 - Managing Clients
 - Master Failover






Installation & Deployment



Embedded Controller - Discovery...Pairing...Provisioning

1. Discovery

Device Type	MAC	IP Address	Firmware	Actions
GWN7610	00:0B:82:8B:4D:D8	192.168.1.24	1.0.2.15	

2. Pairing

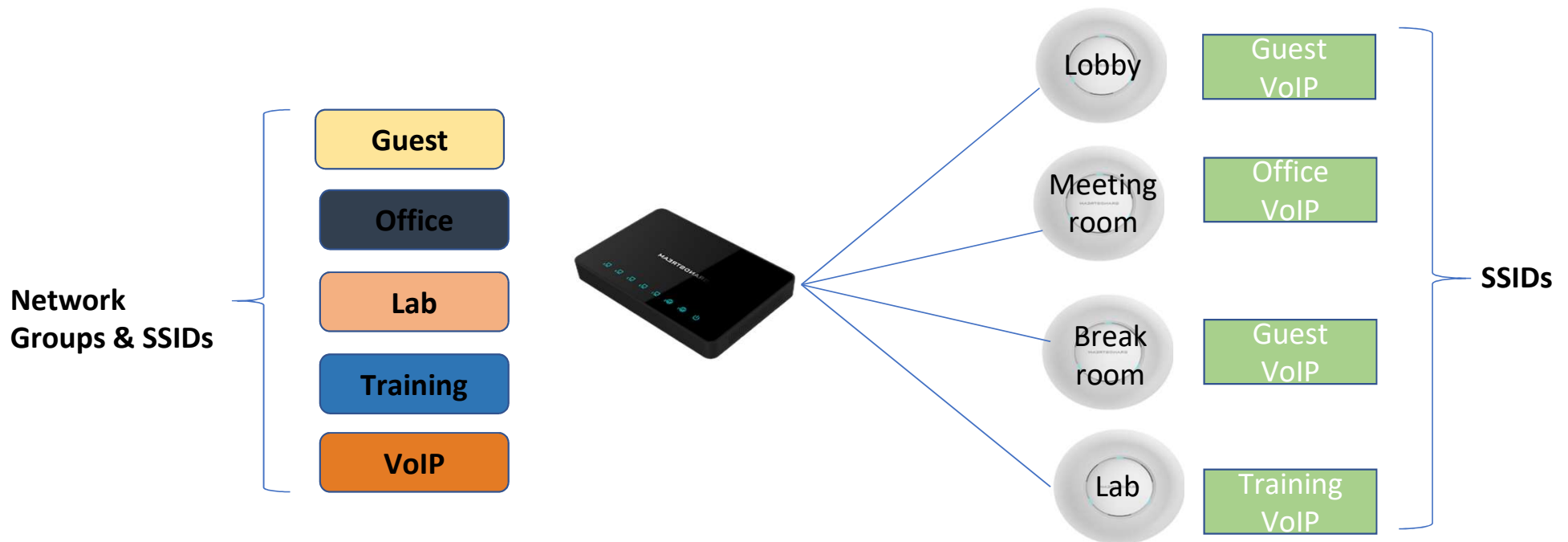
3. Provisioning

<input type="checkbox"/>	Device Type	Name/MAC	IP Address	Status	Uptime	Firmware	Actions
<input type="checkbox"/>	GWN7610	00:0B:82:8B:4D:D8	192.168.1.24	Provisioning		1.0.2.15	 



Installation & Deployment

Embedded Controller - Managing Groups & SSIDs



1 Create Network Groups and SSIDs

2 Assign Access points per network Group/SSIDs



Installation & Deployment

Embedded Controller - Client Management

Connected clients to different network groups can be shown and managed from a single interface, Clients information displayed are :

- MAC address
- Hostname
- Connection type wired/wireless
- Radio channel
- Throughput
- Aggregate usage

MAC	Hostname ▲	Type	IP Address	Radio/Channel Status	AP	Throughput	Aggregate	Actions
00:0B:82:76:F4:29		Wired	192.168.6.213	Offline	Wired	TX:0b/s RX:0b/s	TX:0b RX:0b	
00:0B:82:75:21:20		Wired	192.168.6.141	Online	Wired	TX:0b/s RX:0b/s	TX:0b RX:0b	
B0:83:FE:6D:3C:C6		Wired	192.168.6.237	Online	Wired	TX:0b/s RX:0b/s	TX:0b RX:0b	
00:0B:82:6B:10:52		Wired	192.168.6.145	Offline	Wired	TX:0b/s RX:0b/s	TX:0b RX:0b	
00:0B:82:5E:66:D9		Wired	192.168.6.229	Offline	Wired	TX:0b/s RX:0b/s	TX:0b RX:0b	
24:77:03:C8:72:90	DESKTOP-1A7...	Wireless	192.168.6.150	5GHz 36 Offline	00:0B:82:8B:4E:28	TX:515B/s RX:0b/s	TX:5.61MB RX:6.78MB	
24:77:03:F3:E4:14	DESKTOP-UDU...	Wireless	192.168.6.93	2.4GHz 1 Offline	00:0B:82:8B:4D:D4	TX:17.47KB/s RX:24.09KB/s	TX:34.95KB RX:48.18KB	
A4:1F:72:6B:FD:09	EMEA-PC.lan	Wired	192.168.6.74	Offline	Wired	TX:0b/s RX:0b/s	TX:0b RX:0b	
88:51:FB:57:7D:B0	Surveillance-PC...	Wired	192.168.6.75	Online	Wired	TX:0b/s RX:0b/s	TX:0b RX:0b	
F0:9A:51:0B:82:33	android-c887b...	Wireless	192.168.6.29	2.4GHz 1 Offline	00:0B:82:8B:4D:D4	TX:0b/s RX:0b/s	TX:652.51KB RX:113.40KB	

Showing 61-70 of 123 record(s). ◀ 1 2 3 4 5 6 7 8 ... 12 13 ▶ Jump to: Go Per Page: 10 ▼

GWN's admin can rename, block or assign a static IP to each client from this page.



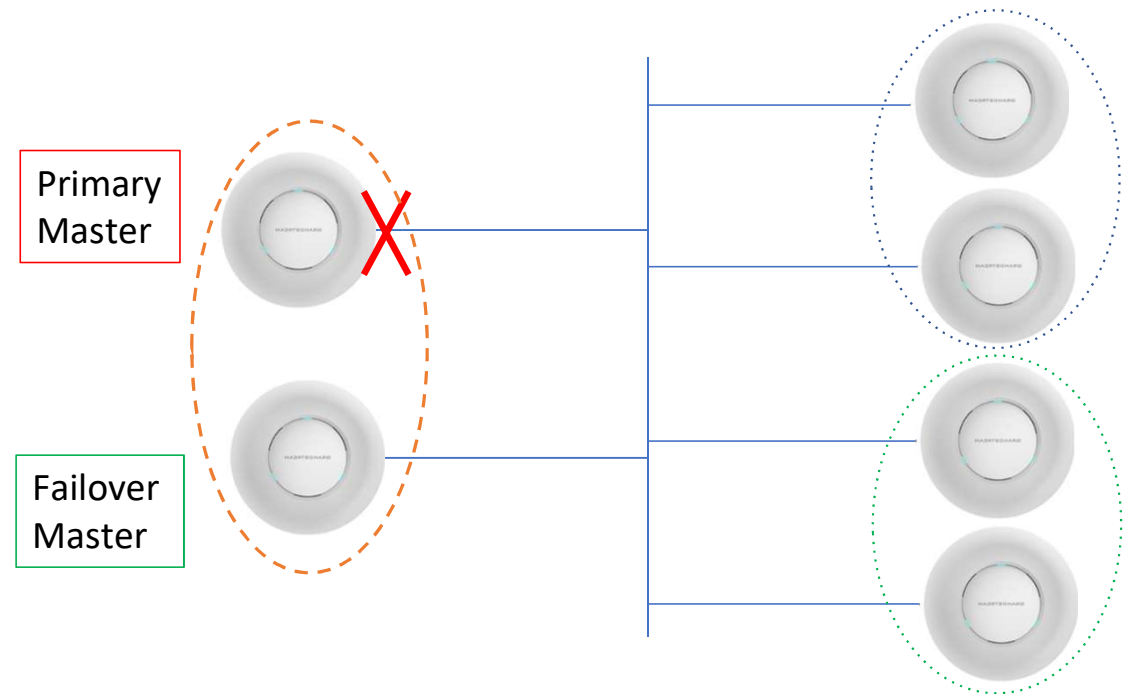
Installation & Deployment

Embedded Controller – Master Failover

In a Master-Slave architecture, having a backup Master is critical for redundancy and failover function, thus, and in order to avoid a single point of failure in your wireless network

Log into the Web UI of the Master GWN

- Go to Access Points page.
- Press Failover
- Select from the available paired Slave Aps the candidate to become a failover Master.
- Save and Apply the settings.





GWN76XX AP – Application Features

- Monitoring & Reporting
- Band Steering
- Client Isolation
- Client Bridge
- WiFi Scheduler
- LED Scheduler
- Bandwidth Management
- Roaming
- Captive Portal
- Security
- Maintenance & Troubleshooting

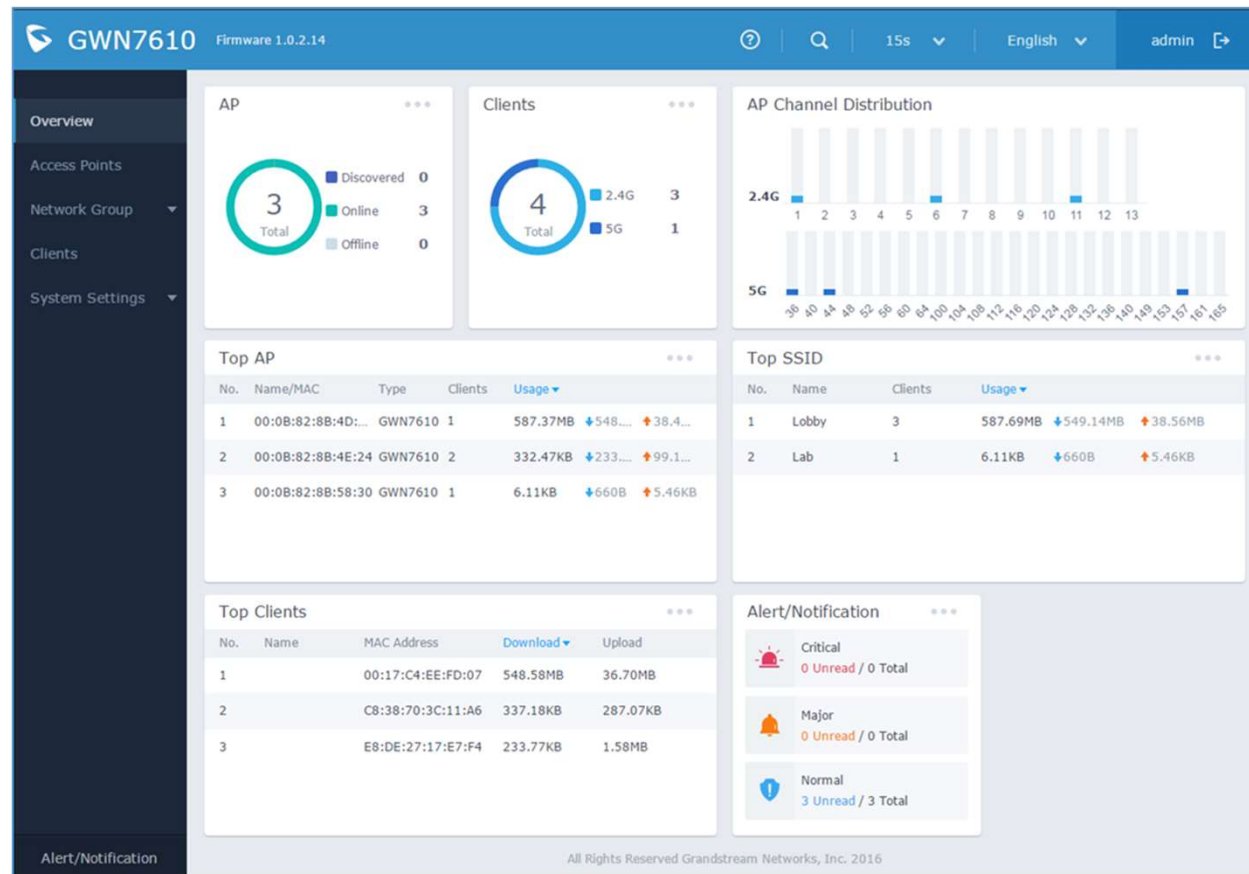


GWN76XX AP – Application Features

Monitoring & Reporting- Overview

Overview page provides an overall view of the GWN76XX's information presented in a Dashboard style for easy monitoring. It allows the administrator to monitor the following :

- Access points and Clients
- Access points Distribution
- Top Access points
- Top Clients
- Top SSID
- Alert/Notification





GWN76XX AP – Application Features

Monitoring & Reporting- Status

Status page provides specific information related to each access point, this page can be found under **Access points == > Edit access point == > Status** and contains the following information :

- Mac Address
- Part Number
- Firmware version
- IP Address
- Uptime
- Load average
- Link speed
- Wireless channels
- Wireless power

Device Configuration	
Status	Clients
MAC	00:0B:82:8B:58:30
Product Model	GWN7600
Part Number	9640000612A
Boot Version	255.255.2
Firmware Version	1.0.3.25
Network Group	group0
IP Address	192.168.54.13
Uptime	4m 38s

Current Time	2017-09-13 02:32:41
Load Average (?)	3.13 3.04 2.19
Link Speed	NET/POE : 100M/FD NET : Disconnected
2.4GHz Radio Status	Channel : 6 Clients Count : 0 Wireless Power(dBm) : 22
5GHz Radio Status	Channel : 149 Clients Count : 0 Wireless Power(dBm) : 22



GWN76XX AP – Application Features

Monitoring & Reporting – Email Notification

GWN Access point can be configured to send emails to notify the administrator about specific operations or abnormal behavior occurring on the access points, the following can be monitored :

- Memory usage
- CPU usage
- Firmware upgrade
- Add/Remove Network Group
- Add additional SSID
- Time zone change
- Admin password change
- AP offline



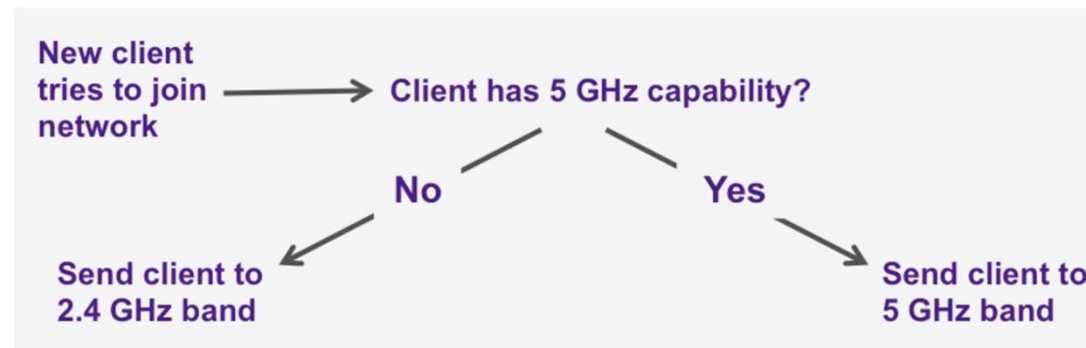
Note : This feature is supported on GWN7610 and pending on GWN7600/GWN7600LR



GWN76XX AP – Application Features

Band Steering

- Used to move dual-band clients to 5G band and leave the 2.4G band to legacy clients for efficient use and to benefit from the maximum throughput supported by the client.





GWN76XX AP – Application Features

Client Isolation

GWN76xx Client Isolation feature supports 3 modes:

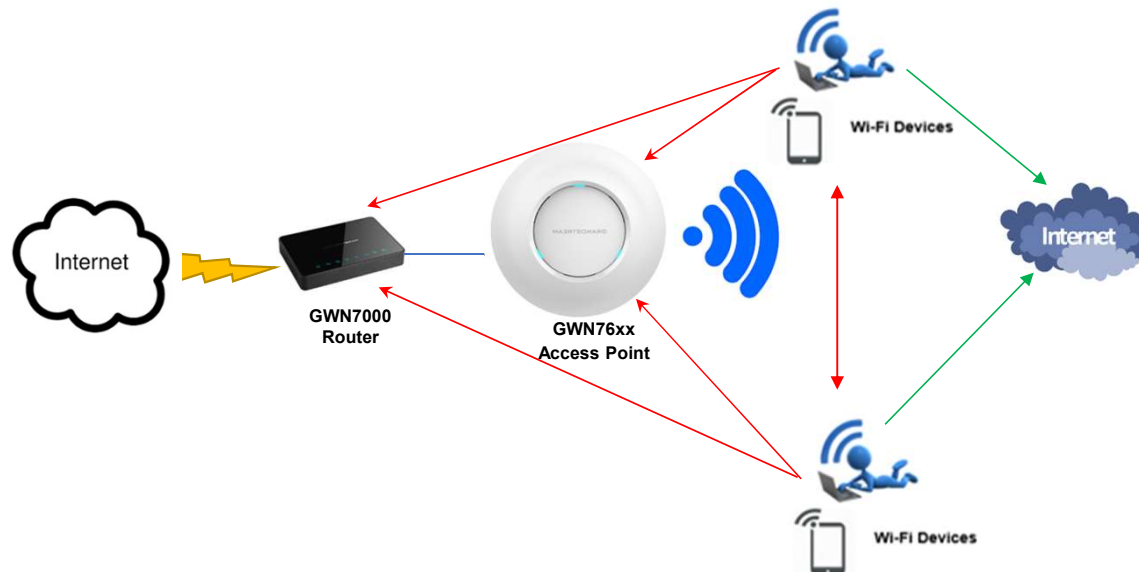
- **“Internet” Mode:** Wireless clients will be allowed to access only the internet services and they cannot access any of the management services, either on the router GWN7000 nor the access points GWN76xx.
- **“Gateway MAC” Mode:** Wireless clients can only communicate with the gateway, the communication between clients is blocked and they cannot access any of the management services on the GWN76xx access points.
- **“Radio” Mode:** Wireless clients can access to the internet services, GWN7xxx router and the access points GWN76xx but they cannot communicate with each other.



GWN76XX AP – Application Features

Client Isolation – Internet Mode

Using **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 GWN7000 nor the access points GWN76xx.

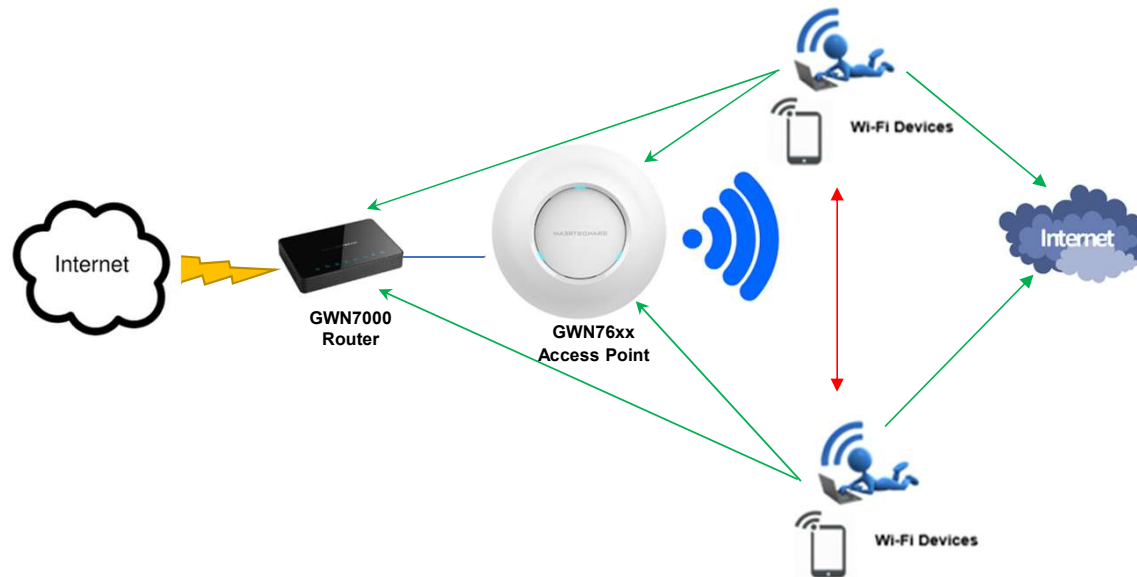




GWN76XX AP – Application Features

Client Isolation – Radio Mode

Using **Radio Mode**, Wireless clients will be able to access to the internet services, GWN7xxx router and the access points GWN76xx but they cannot communicate with each other.

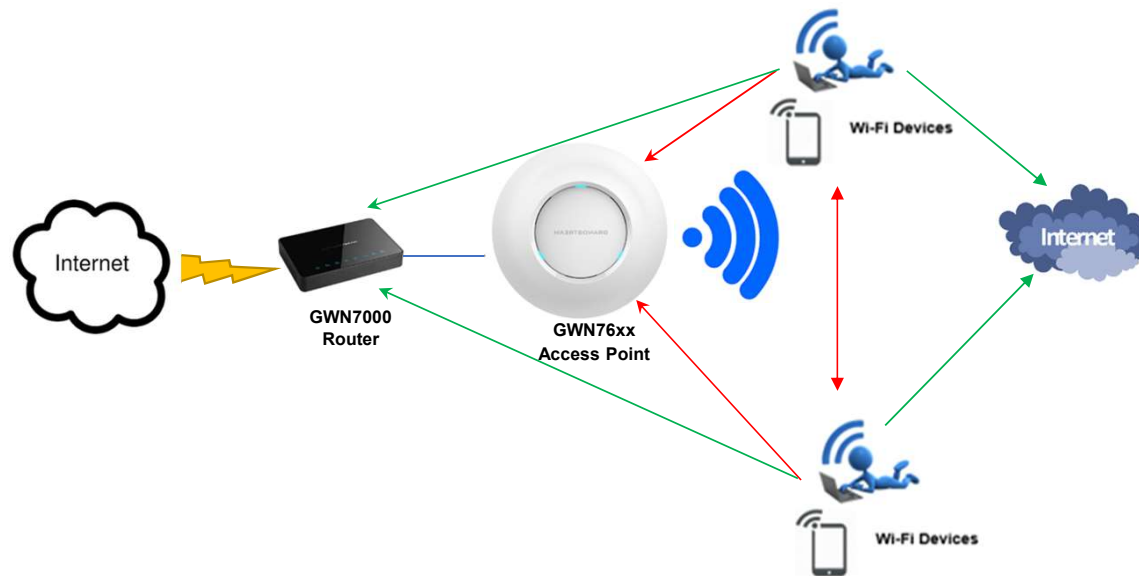




GWN76XX AP – Application Features

Client Isolation – MAC Mode

Using **Gateway Mode**, Wireless clients can only communicate with the gateway and access to network services, the communication between clients is blocked and they cannot access any of the management services on the GWN76xx access points.





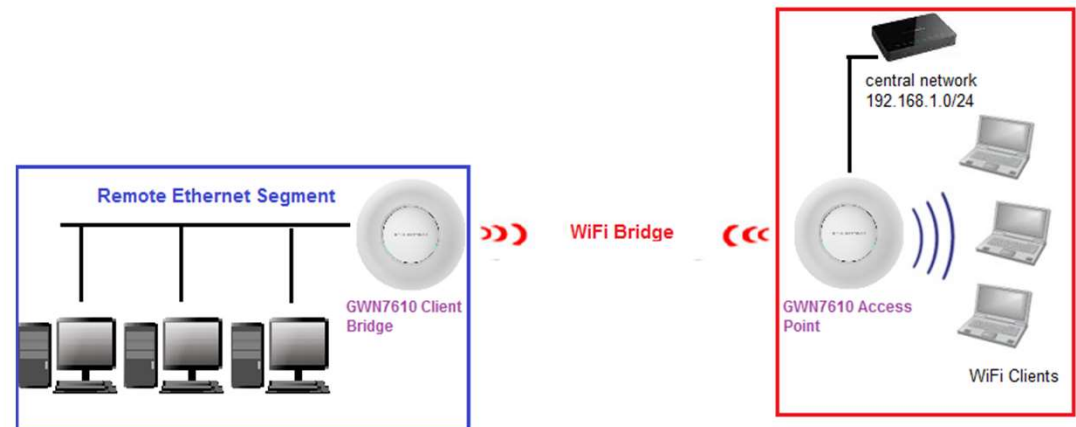
GWN76XX AP – Application Features

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.

Log into the Web UI of the Master GWN

- The access point that will be operating on bridge mode, must be set with a fixed IP before the activation of the option.
- Enabled from Network Group configuration.
- 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.



	GWN7610	00:0B:82:8B:4E:28	192.168.6.37	Online	1.0.3.21	
--	---------	-------------------	--------------	--------	----------	--

Note : This feature is supported on GWN7610 and pending on GWN7600/GWN7600LR



GWN76XX AP – Application Features

Wifi Scheduler

- Configure your Schedule for when to turn ON/OFF Wi-Fi.
- Advanced schedule planning (by Hours, Minutes, Days and Weekly schedule)
- Customized scheduler per SSID.
- Ability to choose which Network Group and Access Points to apply the scheduler.
- Save radio and energy resources !!
- Ideal for different type of business using opening and closing times.





GWN76XX AP – Application Features

Wifi Scheduler

Basic	Wi-Fi	Device Membership	Schedule
	Enable Wireless Schedule	<input checked="" type="checkbox"/>	
	Sunday	<input type="checkbox"/>	
	Monday	<input checked="" type="checkbox"/>	
	Schedule Start Time	<input type="text" value="8"/> : <input type="text" value="0"/>	
	Schedule End Time	<input type="text" value="17"/> : <input type="text" value="0"/>	
	Tuesday	<input checked="" type="checkbox"/>	
	Schedule Start Time	<input type="text" value="8"/> : <input type="text" value="0"/>	
	Schedule End Time	<input type="text" value="17"/> : <input type="text" value="0"/>	
	Wednesday	<input checked="" type="checkbox"/>	
	Schedule Start Time	<input type="text" value="9"/> : <input type="text" value="0"/>	
	Schedule End Time	<input type="text" value="17"/> : <input type="text" value="30"/>	
	Thursday	<input checked="" type="checkbox"/>	



GWN76XX AP – Application Features

LED Scheduler

- Configure your Schedule for when to turn ON/OFF AP LEDs.
- Ability to always turn off AP LEDs.
- Useful for many installations like residential and resorts...
- Advanced schedule planning (by Hours, Minutes, Days and Weekly schedule)
- Intuitive and easy configuration
- Reducing energy !!





GWN76XX AP – Application Features

LED Scheduler

LEDs

LEDs Always Off

Schedule Start Hour

Schedule Start Minute

Schedule Stop Hour

Schedule Stop Minute

Schedule Weekdays List of Weekdays

Sunday

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday



GWN76XX AP – Application Features

Bandwidth management

➤ Feature allowing to limit bandwidth for wired and wireless users (Upstream and Downstream rates)

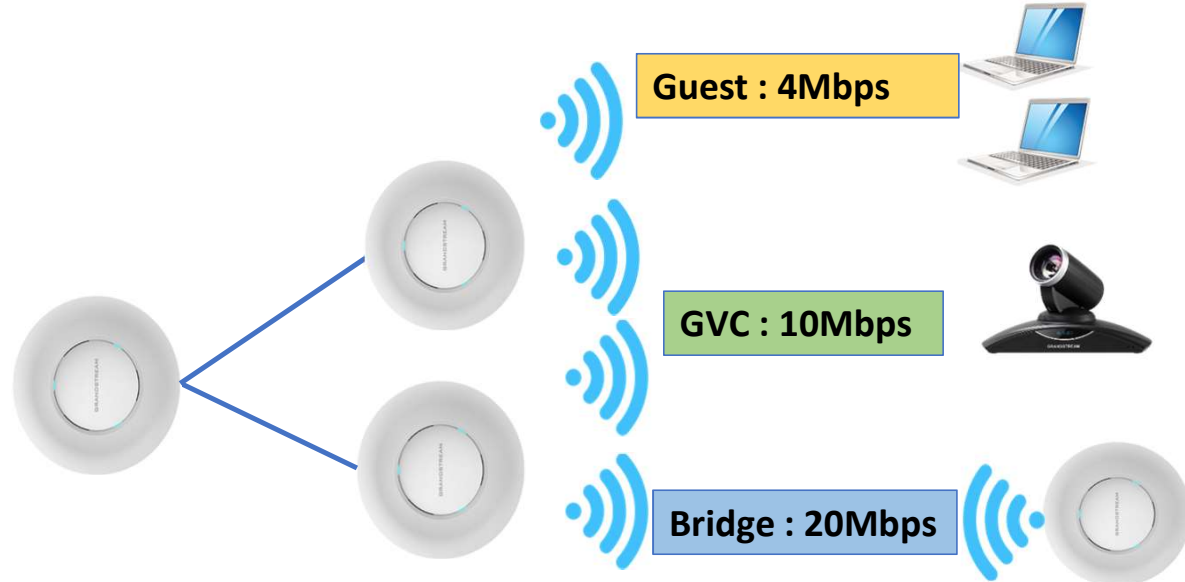
➤ Limit bandwidth utilization per SSID, MAC or IP addresses.

- Per-SSID

Navigate on the web GUI under “Network Group->Add /Edit->WiFi” and you can set the Upstream and Downstream rate in Mbps.

- Per-Client

Navigate on the web GUI under “Clients->Edit->Bandwidth Rules” where you can set the Upstream and Downstream rate in Mbps





GWN76XX AP – Application Features

Roaming

Roaming is the process by which a client device moves from one AP coverage to another AP coverage. The security of data transfers is important during roaming. The most secure option is the use of WPA2-Enterprise encryption, but the normal roaming under WPA2-enterprise is poor for time-sensitive applications such as Voice Over IP.

To make the shortest roaming process while ensuring security, some different roaming methods and standards are supported by GWN AP series:

- Minimum RSSI
- PMK Caching
- Enterprise Voice 802.11 r/k/v.

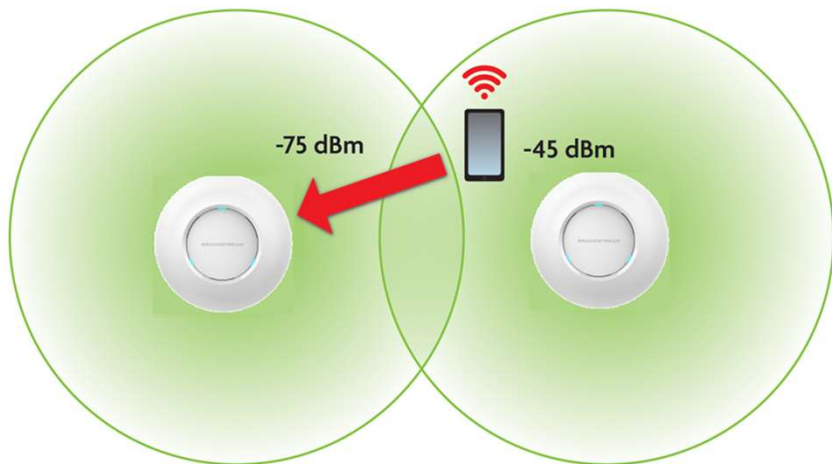




GWN76XX AP – Application Features

Roaming – Minimum RSSI

Minimum RSSI (Received Signal Strength Indication) is used to help with client roaming and prevent client from connecting to the wrong AP which can affect its performance.



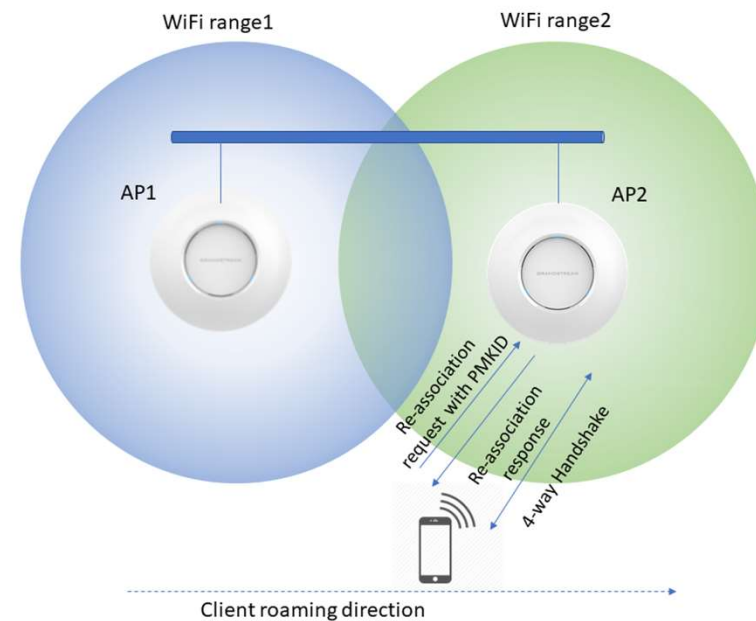
Basic	Wi-Fi	Device Membership	Schedule
Wireless Client Limit ?	120		
Enable Captive Portal	<input type="checkbox"/>		
Security Mode	WPA/WPA2		
WPA Key Mode	PSK		
WPA Encryption Type	AES		
WPA Pre-Shared Key ?		
Use MAC Filtering	Disabled		
Client Isolation ?	<input type="checkbox"/>		
Enable RSSI ?	<input checked="" type="checkbox"/>		
Minimum RSSI (dBm) ?			
Enable Voice Enterprise	<input checked="" type="checkbox"/>		
Upstream Rate		Mbps	
Downstream Rate		Mbps	



GWN76XX AP – Application Features

Roaming – PMK Caching

PMK Caching is enabled by default in GWN76xx AP series so when client roaming back to previous AP, 802.X authentication will not be needed.





GWN76XX AP – Application Features

Roaming – Enterprise voice 802.11 r/k/v

Enterprise voice has shorter scan time and does omit the four-way handshakes which reduces considerable the roaming time and reduces the packet loss

The screenshot shows the configuration page for the GWN76XX AP, specifically the Wi-Fi tab. The 'Enable Voice Enterprise' checkbox is checked and highlighted with a red box. Other settings include: Wireless Client Limit (120), Enable Captive Portal (unchecked), Security Mode (WPA/WPA2), WPA Key Mode (PSK), WPA Encryption Type (AES), WPA Pre-Shared Key (masked), Use MAC Filtering (Disabled), Client Isolation (unchecked), Enable RSSI (checked), Minimum RSSI (dBm) (empty), Upstream Rate (empty), and Downstream Rate (empty).

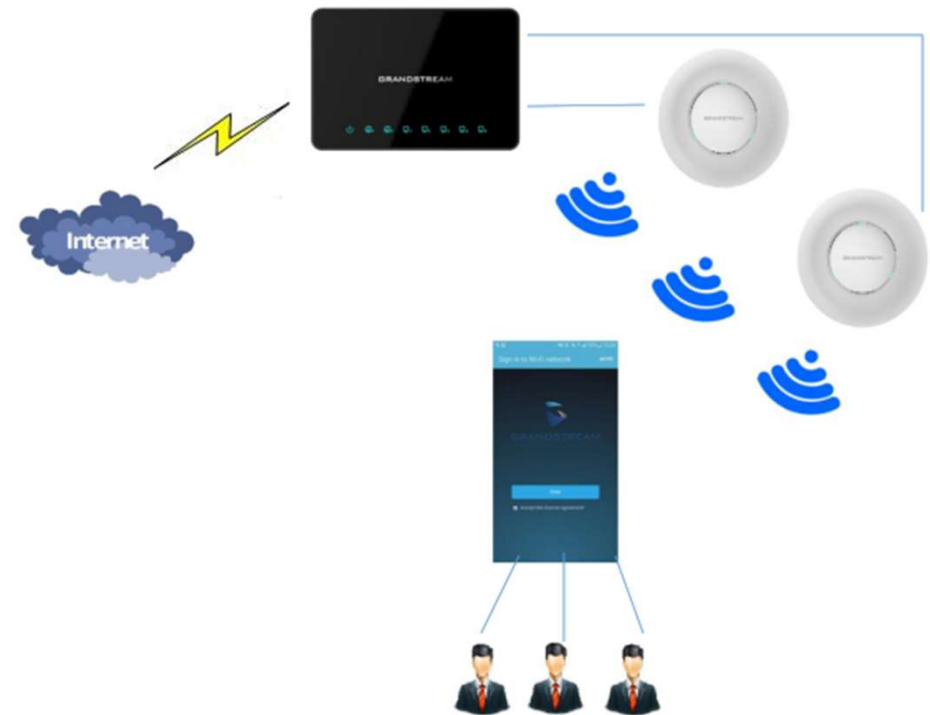
Roaming Type	Normal Roaming	PMK Caching	802.11r/k/v
RTP lost Packets	33-53	9-14	1-3



GWN76XX AP – Application Features

Captive Portal

- Allows to define a Portal Web Page that will be displayed on WiFi clients' browsers when attempting to access the Internet.
- Captive portal can be used in different environments including airports, hotels, coffee shops, business centers and others offering free WiFi hotspots for Internet users.

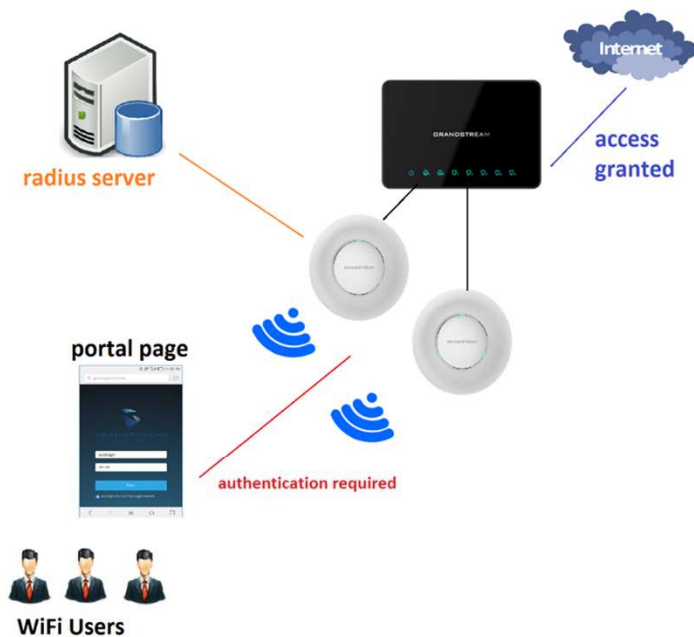




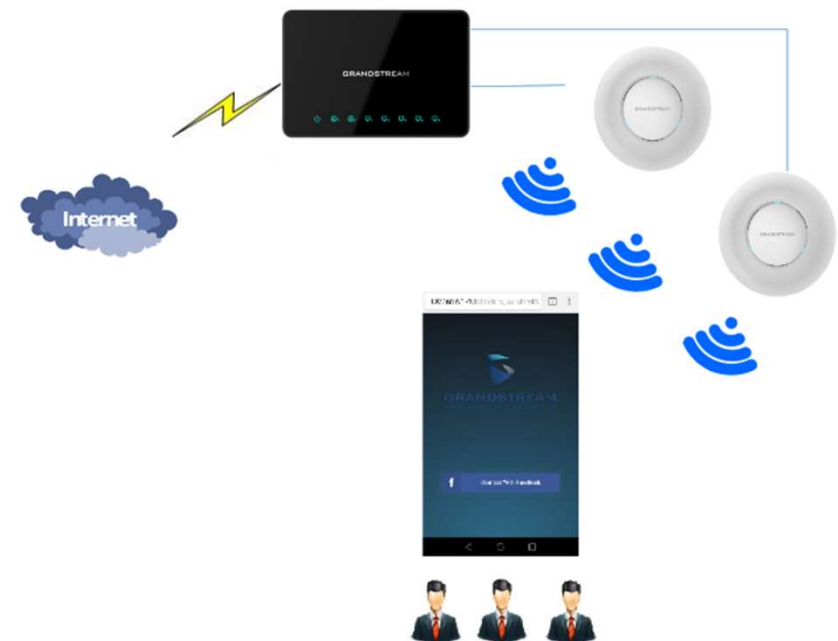
GWN76XX AP – Application Features

Captive Portal – Authentication methods

RADIUS Authentication



Facebook Authentication



Note : Facebook authentication is supported on GWN7600/GWN7600LR and pending on GWN7610



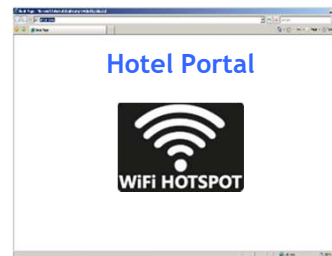
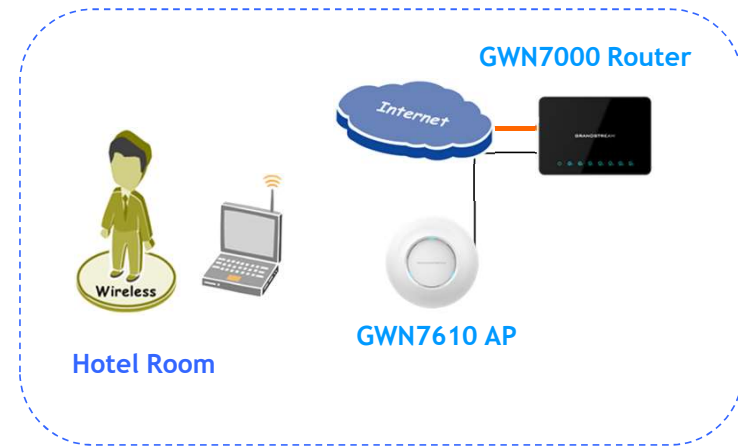


GWN76XX AP – Application Features

Captive Portal - Setup

1. Connect to your GWN76XX Access Point's Web Interface.
2. Go to System Settings-> Captive Portal->Policy.
3. Choose the Authentication type(No authentication, Radius, Facebook).
4. Choose the customizable landing page that will be shown once a client tries to connect to the GWN

1 Guests will find Wi-Fi coverage in their rooms



2 Captive Portal will bring connectivity services while allowing or denying customized protocols



GWN76XX AP – Application Features

Captive Portal - Customize

1. Connect to your GWN76XX Access Point's Web Interface.
2. Go to System Settings-> Captive Portal->Files.
3. Upload your customized HTML pages and related images/logos.

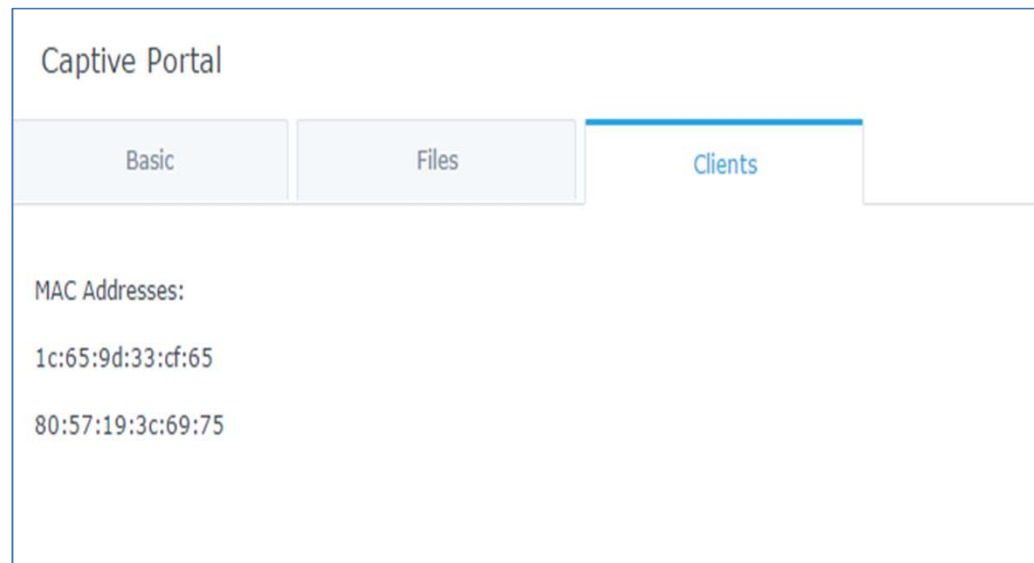
The screenshot shows the web interface for a GWN7610 device with firmware 1.0.3.8. The user is logged in as 'admin'. The 'Captive Portal' section is active, and the 'Files' tab is selected. The interface shows a file management table with columns for Name, Type, Path, and Actions.

Name	Type	Path	Actions
images	Folder	/images	
logo.png	File	/images/logo.png	
favicon.ico	File	/favicon.ico	
portal_default.html	File	/portal_default.html	
portal_pass.html	File	/portal_pass.html	



GWN76XX AP – Application Features

Captive Portal - Supervise



The Captive portal page offers also to administrators to see which clients are connected to the related SSID, which can be useful for management and monitoring...



GWN76XX AP – Application Features

Security – Unique X.509 security certificate per device

- Each individual GWN device has its own unique X.509 certificate
- The X.509 certificate contains the device MAC address as the CN
- The certificate can be used as the secure device identifier during provisioning, pairing, controller-device communication and others
- Unlike common generic certificate shared among many devices from other vendors, a compromise of one GWN device does not affect the rest
- X.509 certificate based authentication is much safer than password based authentication

```
Certificate:
Data:
  Version: 3 (0x2)
  Serial Number: 1757570 (0x1ad182)
  Signature Algorithm: sha256WithRSAEncryption
  Issuer: C=US, ST=California, L=City of Industry, O=Grandstream Networks, OU=Software Engineering,
  CN=VPN/emailAddress=xxu@grandstream.com
  Validity
    Not Before: Feb  5 07:10:05 2017 GMT
    Not After : Feb  3 07:10:05 2027 GMT
  Subject: C=US, ST=California, L=City of Industry, O=Grandstream Networks, Inc., OU=Software Engine
  ering, CN=000B82AC8E60/emailAddress=support@grandstream.com
```



GWN76XX AP – Application Features

Security – Firmware protection

- GWN76xx firmware is protected against hacking via a combination of encryption and digital signatures
- Tampering with firmware files will fail the digital signature verification and an illegally modified firmware can not be installed on the device.
- Firmware file is encrypted so that hackers cannot get inside information on what is in the firmware and what is running on the device by trying to reverse-engineer the firmware images





GWN76XX AP – Application Features

Security – Secure boot and runtime protection

- Before the system boots up, GWN76xx will check the firmware images in the flash via digital signatures to make sure they are not tampered with
- RF parameters are also checked against a digital signature before Wi-Fi radio is enabled. If the verification fails, Wi-Fi will not be enabled
- Kernel modules are also protected with digital signatures. The signature will be verified before the kernel loads a module
- Critical flash sections, such as RF parameter and boot sector are physically write-protected and cannot be unlocked/modified by end users or hackers
- FCC latest regulations require device vendors to protect RF parameters so that end users cannot modify them. Vendors such as TP-Link, Ubiquiti, Asus etc. have all be fined for violations.





GWN76XX AP – Application Features

Security – Wifi encryption

- Security strength order:
WPA2 + AES > WPA + AES > WPA + TKIP > WEP > Open
- WEP and WPA are not secure and should not be used
- WPA2 with AES is the recommended option

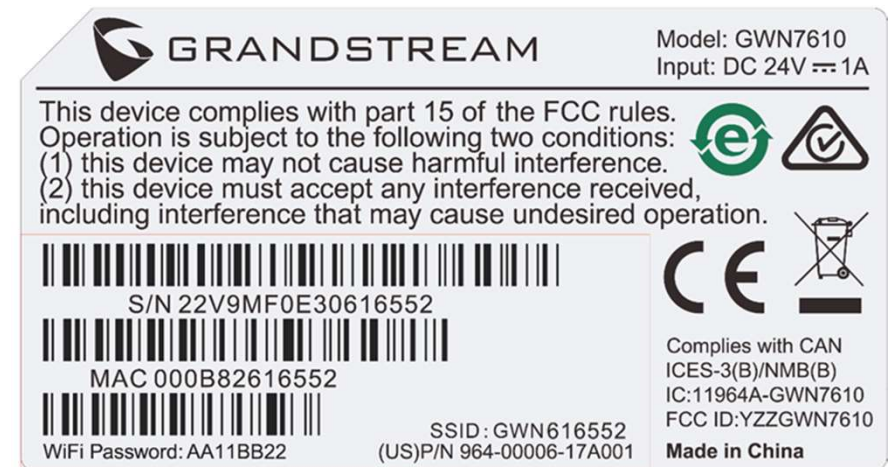
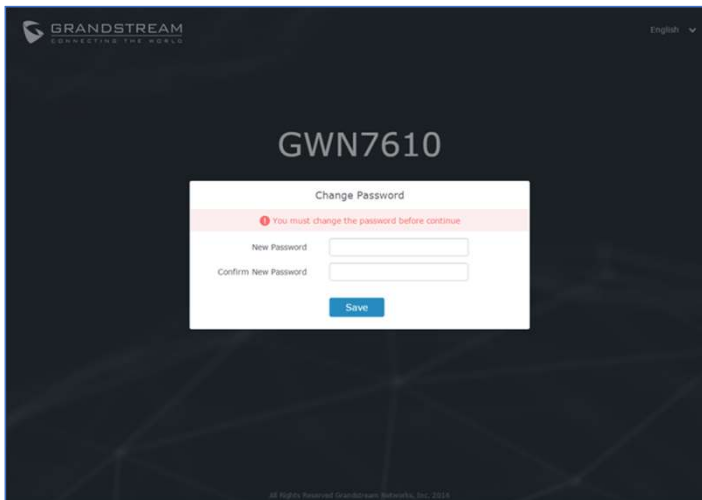




GWN76XX AP – Application Features

Security – Password management

- Each device has its unique default SSID
- Each device has a RNG random string as the default Wi-Fi password
- Users are forced to change the Web UI default password on first login





GWN76XX AP – Application Features

Maintenance & Troubleshooting – Upgrade & provisioning

- Remote or local provisioning/upgrade
- Can be done via HTTP/TFTP/HTTPS
- Scheduled upgrade/provisioning
- Config files encryption
- Encrypted firmware with a unique certificate





GWN76XX AP – Application Features

Maintenance & Troubleshooting – Syslog and packet capture

- GWN can send its own syslog events to a remote Server
- GWN's syslog can be viewed from the webUI in real-time
- Packet capture can be done from the webUI
- Interface selection (WAN, network Group)
- Ability to filter traffic by IP, Port , Protocol
- Automatic file clean up
- Packet capture files can be downloaded from webUI

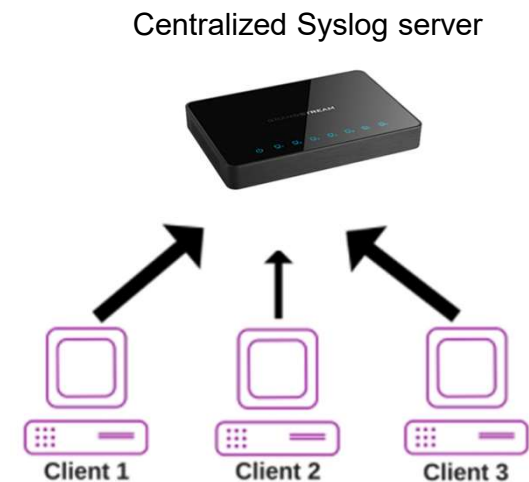




GWN76XX AP – Application Features

Maintenance & Troubleshooting – Log server

- GWN7610 Can act as a centralized syslog server
- Stores syslog traffic from different clients
- Clients sending syslog can be local or remote
- Log files download from webUI
- Automatic File clean up



Note : This feature is supported on GWN7610 and pending on GWN7600/GWN7600LR



GWN76XX AP – Application Features

Maintenance & Troubleshooting – Ping/Traceroute

- Ping can be used to verify the connectivity between GWN and another devices
- GWN supports both IPv4 and IPv6 Ping
- A Built-in ping tool is supported by GWN76XX
- When ping fails for some reason, traceroute can show at which level the connection fails.
- Traceroute can be used for both IPv4 and IPv6
- Traceroute tool is built-into GWN76XX





GWN76XX AP – Application Features

Maintenance & Troubleshooting – Core files

- GWN can generate and store core files when its system crashes
- The core files can be used for find the root cause of the crash
- Core files can be downloaded from the webUI
- Core files can be also cleaned from the webUI.



GWN7600 AP – GWN.Cloud

Monitoring and managing all your GWN AP

Beta

The screenshot displays the GWN.Cloud website interface. At the top left is the Grandstream logo with the tagline "CONNECTING THE WORLD". The main content area features a cityscape background with wireless signal icons. The text "GWN.Cloud" is prominently displayed, followed by the subtitle "Monitoring and management for all your Grandstream APs". An orange "Download Brochure" button is located below the text. On the right side, there is a dark-themed sign-in panel with the "GWN" logo, the text "Sign in", and two input fields for "Email/Login name" and "Password". A "Forgot Password?" link is positioned below the password field. A blue "Sign In" button is centered below the input fields. At the bottom of the sign-in panel, it says "Don't have an account? Sign up". The footer of the page contains the copyright notice "Copyright © 2018 Grandstream Networks, Inc. All rights reserved." and a language selector set to "English".



GWN7600 AP – GWN.Cloud

Monitoring and managing all your GWN AP

Beta



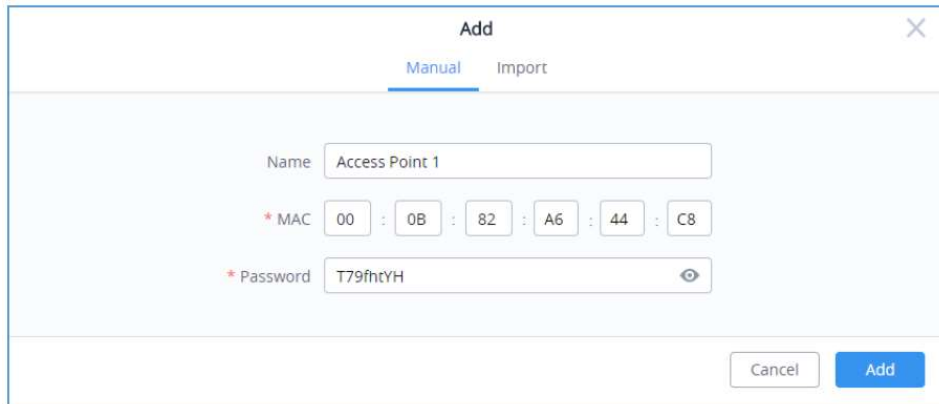


GWN7600 AP – GWN.Cloud

Beta

Adding your GWN APs

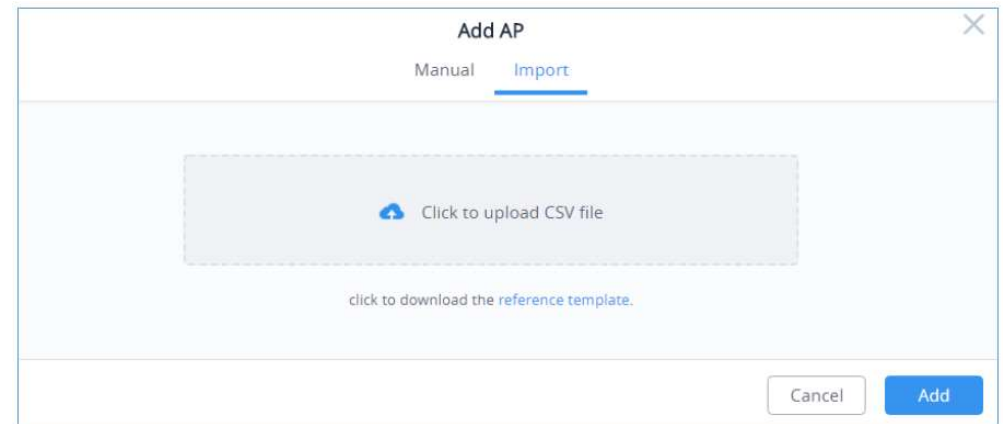
Method 1: Adding a New AP - Manual/Import



The 'Add' dialog box has a close button (X) in the top right corner. It features two tabs: 'Manual' (selected) and 'Import'. The 'Manual' tab contains the following fields:

- Name: Access Point 1
- * MAC: 00 : 0B : 82 : A6 : 44 : C8
- * Password: T79fhtYH (with an eye icon for visibility toggle)

At the bottom right, there are 'Cancel' and 'Add' buttons.



The 'Add AP' dialog box has a close button (X) in the top right corner. It features two tabs: 'Manual' and 'Import' (selected). The 'Import' tab contains the following elements:

- A dashed box with a cloud upload icon and the text 'Click to upload CSV file'.
- Below it, the text 'click to download the reference template.' with a blue link.

At the bottom right, there are 'Cancel' and 'Add' buttons.



GWN7600 AP - GWN.Cloud

Beta

Adding your GWN Aps:

Method 2: Adding a New AP - using GWN.Cloud Application (Android):





GWN7600 AP – GWN.Cloud

Beta

Adding your GWN Aps:

Method 3: Adding a New AP - Transfer APs from Local Master

Access Points

Device Type Search Transfer AP Discover AP Fallover

Upgrade Reboot + Add to SSIDs Configure Settings

	Device Type	Name/MAC	IP Address	Status	Uptime	Firmware	Actions
<input type="checkbox"/>	GWN7600	00:08:82:8B:58:30	192.168.6.246	Master	20m 24s	1.0.6.23	Edit Refresh Reset Reboot Upgrade Configure

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



GWN76XX AP – Application Features

Upcoming new features...

- Net port can now work as WAN. Now the router will support 3 WAN ports.
- Linkyfi support; location within a wifi network
- GRE support (a tunneling protocol to allow encapsulation of wide range of protocols, including any VPN)
- BGP, RIP and OSPF routing protocol support
- Website blocking, timed access to websites
- Airtime Fairness (giving equal amount of air time to fast devices. Faster devices will receive faster throughput, Slow devices slow throughput)
- SON/Mesh support for GWN7600/7600LR



Questions?

Please submit your questions using the Q/A feature.



(716) 531-4271 jgarbin@voipsupply.com

