Grandstream Networks, Inc.

GWN771X - User Manual

INTRODUCTION

The GWN7711(P) Series are Layer 2 lite managed switches for small to medium-sized businesses, offering scalable, secure, high-performance networks. They support VLAN for traffic segmentation, QoS for prioritizing traffic, IGMP snooping for network optimization, and robust security features. The PoE model provides dynamic PoE output for various devices, including IP phones and cameras. Easy management options include local web interface and GWN.Cloud, suitable for hotels, home offices, and small-to-medium businesses.

The GWN7710R is a 6-Port (5GE+1SFP) Outdoor Lite Managed PoE Switch with IP66-rated shell for harsh weather conditions. It builds scalable, secure, high-performance networks in scenic locations like hotels and restaurants. It supports VLAN segmentation, various QoS management modes, bandwidth control, and Storm Control for enhanced performance. Integrated PoE supports long-distance power supply and data transmission. Managed via local web interface and GWN.Cloud, its compact design supports versatile installation methods for indoor and outdoor areas.

PRODUCT OVERVIEW

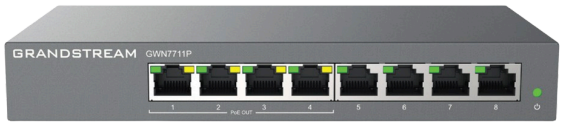
Feature Highlights

- **GWN7711**

 GWN7711	• 8 Gigabit Ethernet ports • Built-in QoS allows for prioritization of network traffic. • Whisper Quiet: fanless • LED Indicators; Per Port: Link/Activity/PoE power state Per Device: Power • Storm Control to monitor traffic levels

GWN7711 Features at a glance

- **GWN7711P**

 GWN7711P	• 8 Gigabit Ethernet ports • 4 PoE Out ports • Built-in QoS allows for prioritization of network traffic. • Whisper Quiet: fanless • LED Indicators; Per Port: Link/Activity/PoE power state Per Device: Power • Storm Control to monitor traffic levels.

GWN7711P Features at a glance

- **GWN7710R**

 **GWN7710R**	● 5 Gigabit RJ45 ports (4 PoE output ports, 1 PoE input port) ● IP66 dustproof and waterproof rating; Wide operating temperature range: -40°C to 60°C ● Built-in QoS allows for prioritization of network traffic ● LED Indicators; Per port: Link/Activity/PoE Power state Per device: Power ● IEEE 802.3 at/af or 24V /48V DC passive PoE out, Up to 30W on each port

GWN7710R Features at a glance

GWN7711/P Technical Specifications

	GWN7711	GWN7711P
Network Protocol	Network Protocol IPv4, IEEE 802.3i, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3x, IEEE 802.1p, IEEE 802.3af, IEEE 802.3at	
Gigabit Ethernet Ports	8	
PoE Out Ports	/	4
Power Supply	External 5VDC/0.6A	External 48-53.5VDC/1.22A
PoE Output	/	**Port 1-4 compliance with the 802.3af/at standard:** ● Support up to 30W on each PoE port, total 60W Power Budget. **Port 1-4 can also switch to 24VDC Passive PoE-Out mode via WebUI:** ● Port 1 (up to 30W): 24VH 1.3A pins 1,2,4,5 (+) 3,6,7,8 (-). ● Port 2-4 (up to 15W): 24V 0.65A pins 4,5 (+) 7,8 (-).
Max Total PoE Output Power	/	60W
Maximum Output Power per PoE Port	/	30W
Auxiliary Ports	1x Reset Pinhole	
Forwarding Mode	Store-and-forward	

Total non-blocking throughput	8Gbps	
Switching Capability	16Gbps	
Jumbo Frame	2K/3K/4K/5K/6K/7K/8//9K/12K/15K	
Forwarding Rate	11.9Mpps	
MAC	8K MAC address capacity	
VLAN	● 4K VLANs ● Port-based VLAN, 802.1Q VLAN	
LAG	4	
Multicast	IGMP Snooping, Report Message Suppression	
QoS	● Auto prioritization of the incoming port of the packet ● Priority Mapping ● Queue scheduling, including SP, WRR, WFQ ● Supports port priority, 802.1p priority and DSCP priority ● Bandwidth control ● Storm control ● Rate limit	
DHCP	DHCP client	
Maintenance	Backup and restore, system reboot, factory reset, firmware upgrade, monitoring including port statistics, port mirroring, cable test and loop prevention, Ping watchdog	
Security	● Storm control ● Port VLAN isolation ● Filtering MAC adress ● Kensington Security Slot (Kensington Lock) support	
Mounting	Desktop/Wall-mount	
LED Indicators	● **Per Port:** Link/Activity - Green ● **Port 1-4:** PoE power state - Yellow ● **Per Device:** Power - Green	
Environmental	● **Operating Temperature:** 0 to 40 °C (32 to 104 °F) ● **Storage Temperature:** -20 to 60 °C (-4 to 140 °F) ● **Operating Humidity:** 10% to 90% Non-condensing ● **Storage Humidity:** 10% to 90% Non-condensing	
Dimensions (LxWxH)	● **Unit:** 164 x 80 x 30mm ● **Package:** 202 x 166 x 54mm	● **Unit:** 190 x 100 x 28mm ● **Package:** 230 x 210 x 51mm

Enclosure	Plastic	Metal
Weight	Unit: 0.17kg Entire Package: 0.38kg	Unit: 0.44kg Entire Package: 0.92kg
Package Content	1x Switch, 1x QIG, 1x Power Adapter	
Compliance	FCC, CE, RCM, IC	

GWN7711(P) *Technical Specifications*

GWN7710R Technical Specifications

Network Protocol	IPv4, IEEE 802.3i, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3x, IEEE 802.1p, IEEE 802.3af, IEEE 802.3at
Communication Ports	• 5*Gigabit Ethernet Ports • 1 * 1G/2.5G SFP Port
Power Supply	• 12V-57V DC input • Standard PoE /PoE+/PoE++
PoE In and PoE Out Ports	• PoE In: Port5; • PoE Out: Port1~Port4
PoE Output	• Standard PoE output Mode (Default) • Passive 24VDC or 48VDC output Mode (Configured via UI)
PoE Output Budget	• Powered by Standard PoE In (802.3af/at/bt): 802.3af input: 3W output budget 802.3at input: 15W output budget 802.3bt input: 60W output budget • Powered by DC In (12V~57V): DC In>12V: 60W output budget DC In>24V: 72W output budget DC In>36V: 100W output budget
Max Output Power per Port	• Standard PoE output Mode: Port 1~Port4 up to 30W on each PoE port; • Passive PoE output Mode: Port 1：4-pair 48V DC up to 60W or 4-pair 24V DC up to 30W Port 2~Port4：2-pair 48V DC up to 30W or 2-pair 24V DC up to 15W * Note： •4-Pair： Powered on pins： 1,2,4,5(+)， 3,6,7,8(-) •2-Pair： Powered on pins： 4,5(+)， 7,8(-)
Auxiliary Port	1x Reset Pinhole
Forwarding Mode	Store-and-forward
Total non-blocking throughput	6Gbps
Switching Capability	15Gbps
Jumbo Frame	2K/3K/4K/5K/6K/7K/8K/9K/12K/15K

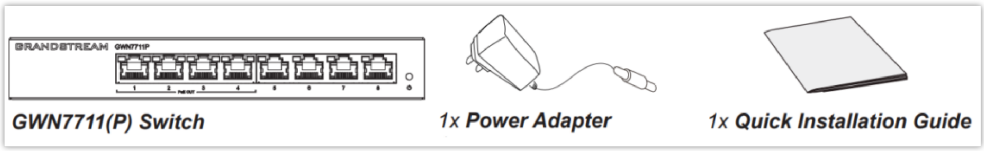
Forwarding Rate	11.16Mpps
Pack Buffer	4Mbits
MAC	8K MAC address capacity
VLAN	• Supports up to 32 VLANs (out of 4K VLAN IDs) • port-based VLAN, 802.1Q VLAN
LAG	3
Multicast	IGMP Snooping ,Report Message Suppression • Auto prioritization of the incoming port of the packet • Supports port priority, 802.1P priority, and DSCP priority
QoS	• Bandwidth control • Storm Control • Rate limit
DHCP	DHCP client
Maintenance	Backup and restore, System reboot, Factory Reset, Firmware upgrade, Monitoring including port statistics, Port mirroring, Cable test and loop prevention, Ping
Security	• Storm control • Port VLAN isolation • Filtering MAC address
Mounting	Pole/Wall-Mount//DIN-Rail • Per device System on : Green
LED Indicators	• Per Ethernet port Link/Activity: Green； • Per Passive PoE out port 48VDC: Orange • Per Passive PoE out port 24VDC: Blue
ESD	± 10kV Air, ± 16kV Contact
Surge	CM 6KV
Environmental	• Operating Temperature: -40 to 60 °C (-40 to 140 °F) • Storage Temperature: -40 to 70 °C (-40 to 158 °F) • Operating Humidity: Support IP66 waterproof • Storage Humidity: 10% to 95% Non-condensing
Dimensions (L x W x H)	Unit: 210 x 150 x 52mm Package: 466 x 286 x 258mm
Weight	Unit: 0.75KG Entire Package :1.35KG
Package Content	1x Switch, Rack-mounting Standard Brackets , 1x QIG,4x assembled screw, 4x expansion screw ,2 x Metal straps,1x Phoenix connector
Compliance	FCC, CE, RCM, IC

INSTALLATION

Before deploying and configuring the GWN771x switch, the device needs to be properly powered up and connected to the network. This section describes detailed information on the installation, connection, and warranty policy of the GWN771x switch.

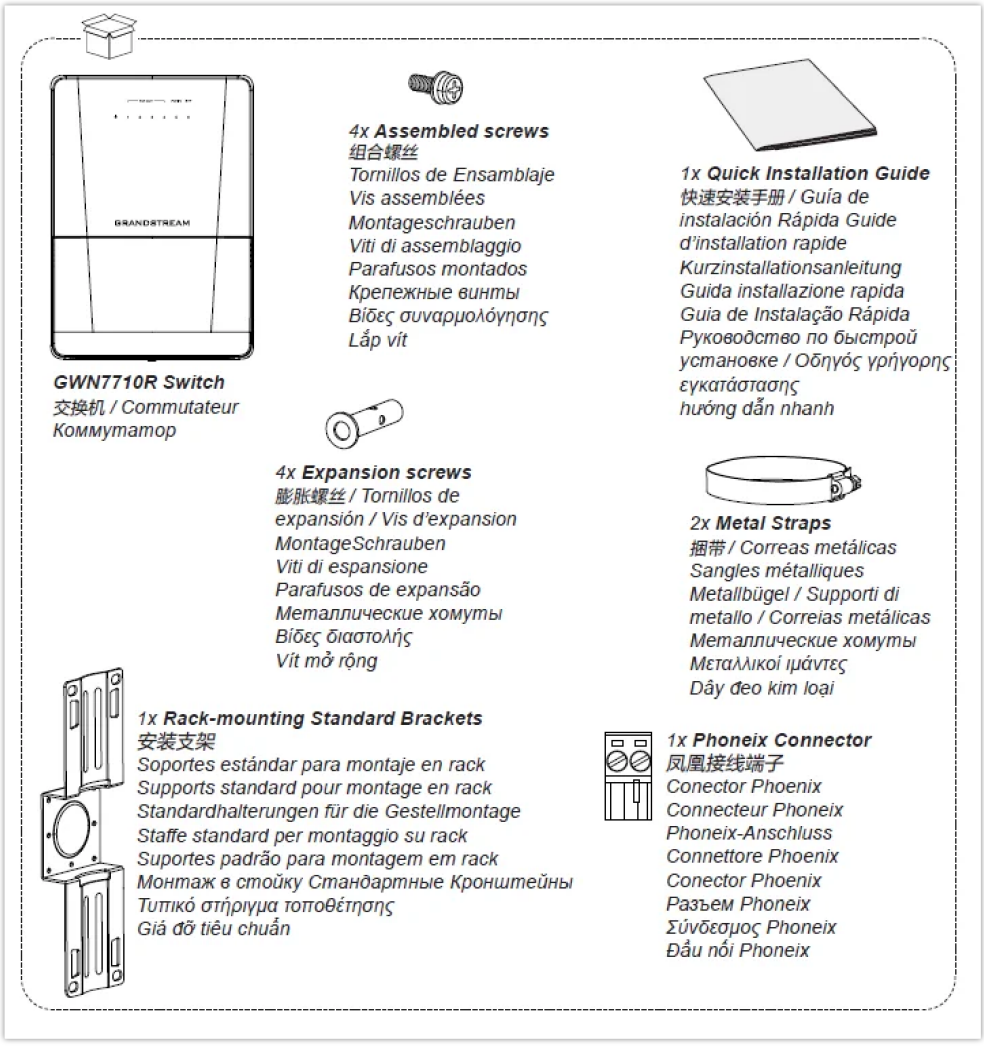
Package Contents

- **GWN7711(P)**



GWN7711(P) package contents

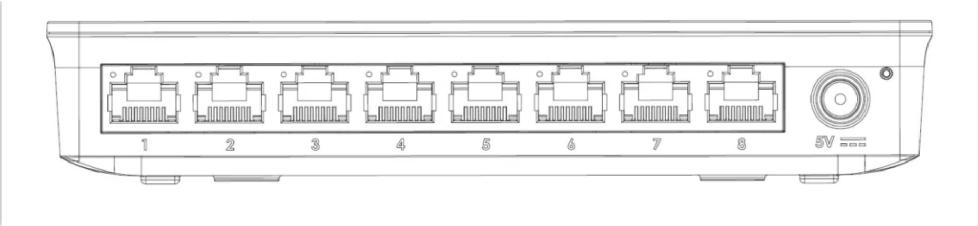
- **GWN7710R**



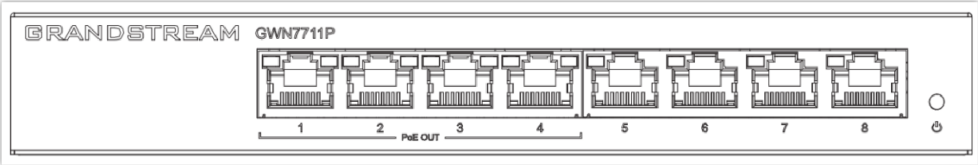
GWN7710R Package Content

Port Description

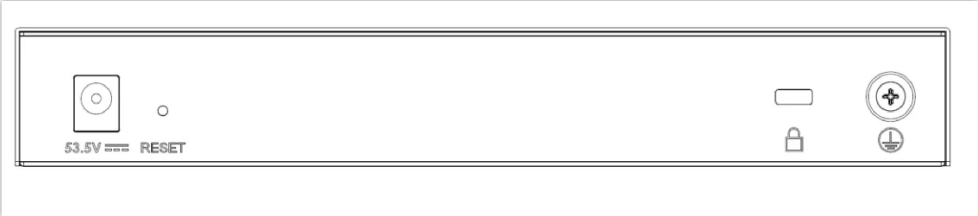
- **GWN7711(P)**



GWN7711 Ports



GWN7711P Ports : Front View

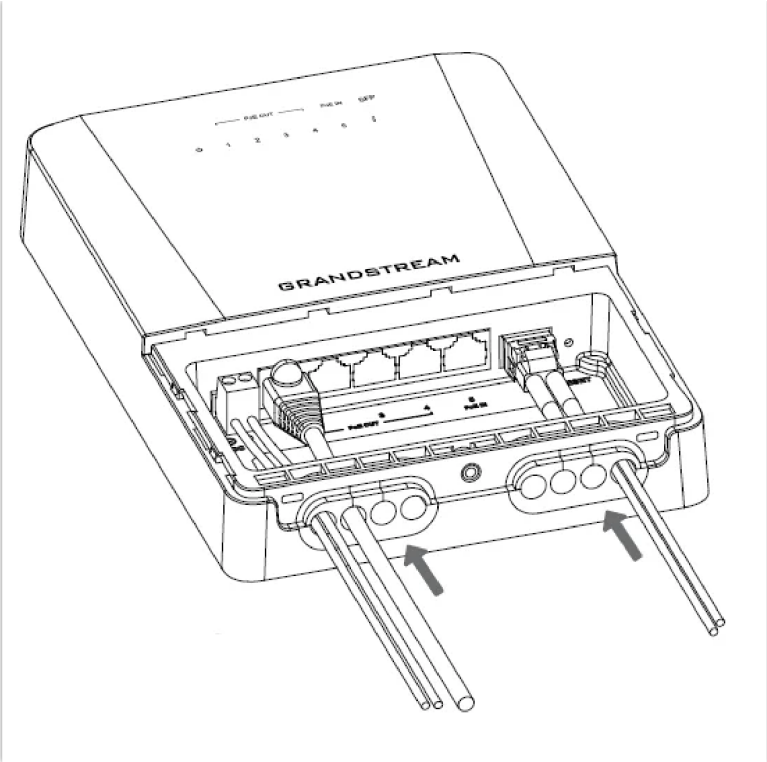


GWN7711P Ports : Back View

	GWN7711	GWN7711P
Gigabit Ethernet Ports	8	
PoE Out Ports	/	4
PoE Output	/	**Port 1-4 compliance with the 802.3af/at standard:** ● Support up to 30W on each PoE port, total 60W Power Budget. **Port 1-4 can also switch to 24VDC Passive PoE-Out mode via WebUI:** ● Port 1 (up to 30W): 24VH 1.3A pins 1,2,4,5 (+) 3,6,7,8 (-). ● Port 2-4 (up to 15W): 24V 0.65A pins 4,5 (+) 7,8 (-).
Auxiliary Port	1x Reset Pinhole	
Power Outlet	5V	DC 53.5V
Grounding Terminal	/	Safely divert electrical surges and reduce interference
Kensington Lock	/	Physical security lock to stop theft and unauthorized movement of the unit

GWN7711(P) Ports

- **GWN7710R**



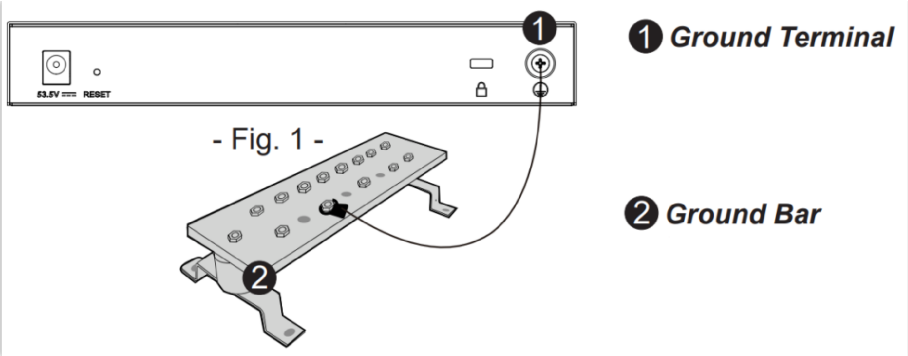
	GWN7710R
Gigabit Ethernet Ports	5 (**PoE Out** Ports: 4, **PoE IN** Ports: 1) • Powered by Standard PoE In (802.3af/at/bt): 802.3af input: 3W output budget 802.3at input: 15W output budget 802.3bt input: 60W output budget • Powered by DC In (12V~57V): DC In>12V: 60W output budget DC In>24V: 72W output budget DC In>36V: 100W output budget
2.5G SFP Port	1
2-pin DC IN port	Passive 24VDC or 48VDC output Mode (Configured via UI)
Auxiliary Port	1x Reset Pinhole

GWN7710R Ports

Grounding and Accessing GWN771x

Grounding the GWN7711/P Switch

1. Remove the ground screw from the back of the switch, and connect one end of the ground cable to the wiring terminal of the switch.
2. Put the ground screw back into the screw hole, and tighten it with a screwdriver.
3. Connect the other end of the ground cable to the other device that has been grounded or directly to the terminal of the ground bar in the equipment room.



GWN7711P Grounding the switch

Note:

Ground cable is not provided; Switch grounding is only supported on GWN7711P.

Safety Compliances

The GWN7711(P) Switch complies with FCC/CE and various safety standards. The GWN7711(P) power adapter is compliant with the UL standard. Use the universal power adapter provided with the GWN7711(P) package only. The manufacturer's warranty does not cover damages to the device caused by unsupported power adapters.

Warranty

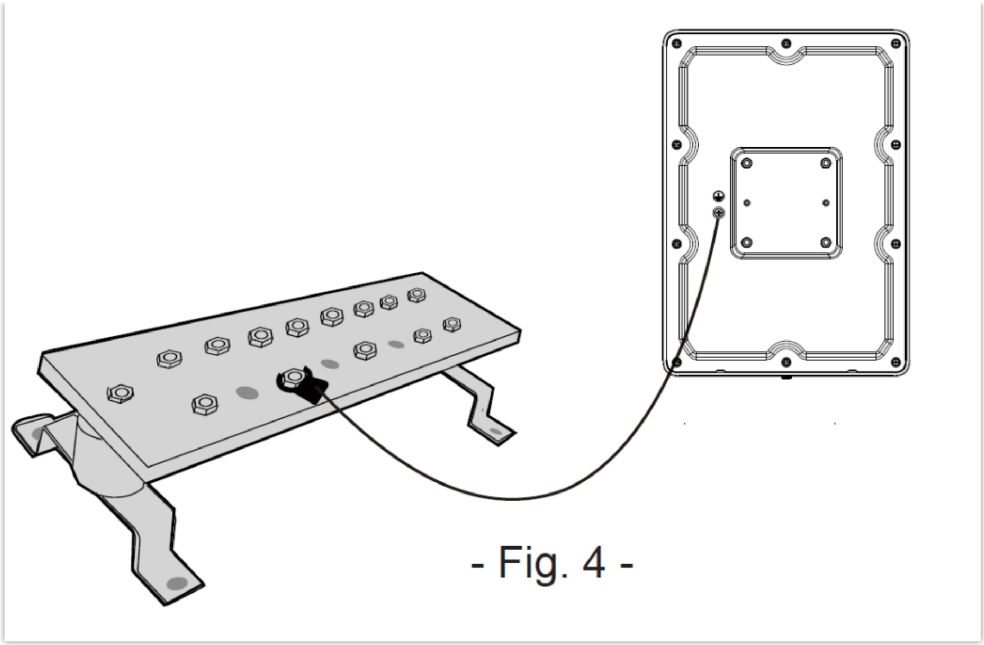
If GWN7711(P) Switch was purchased from a reseller, please contact the company where the device was purchased for replacement, repair or refund. If the device was purchased directly from Grandstream, contact our Technical Support Team for an RMA (Return Materials Authorization) number before the product is returned. Grandstream reserves the right to remedy the warranty policy without prior notification.

Grounding the GWN7710R Switch

1. Remove the ground screw from the back of the device, and connect one end of the ground cable to the wiring terminal of the device.
2. Put the ground screw back into the screw hole, and tighten it with a screwdriver.
3. Connect the other end of the ground cable to other device that has been grounded or directly to the terminal of the ground bar in the equipment room.

Note

Ground cable is not provided.

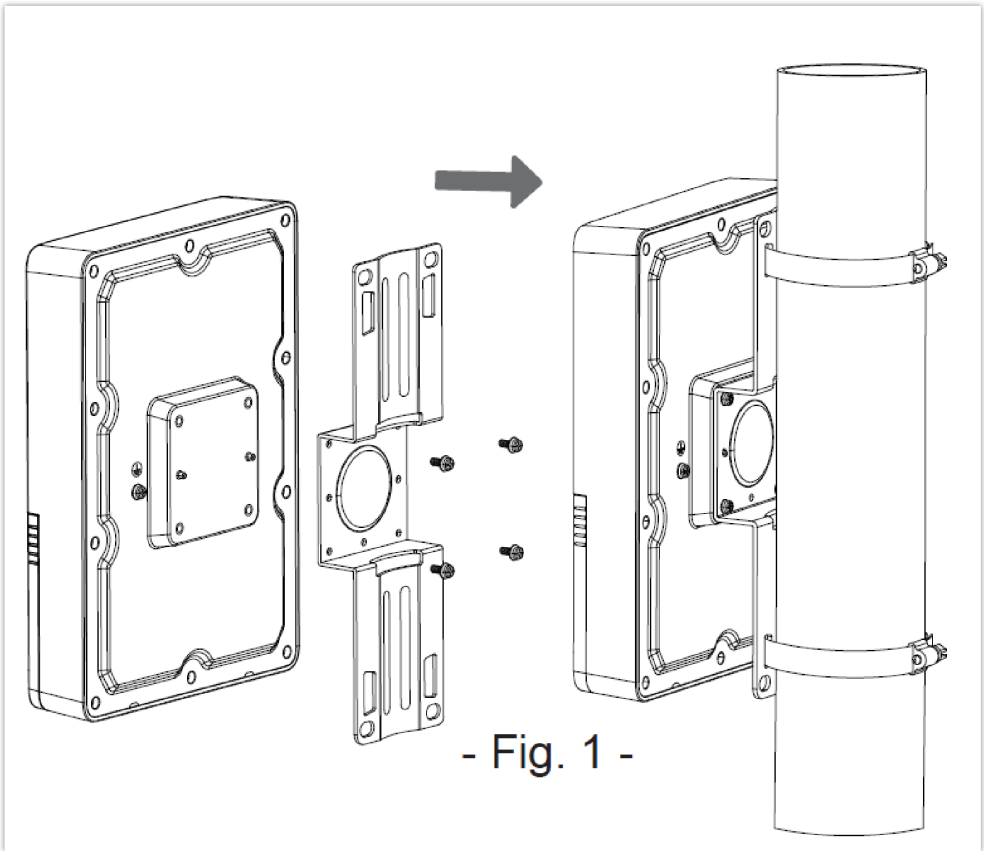


GWN7710R Grounding Terminal

Mounting methods for the GWN7710R

Pole Mount

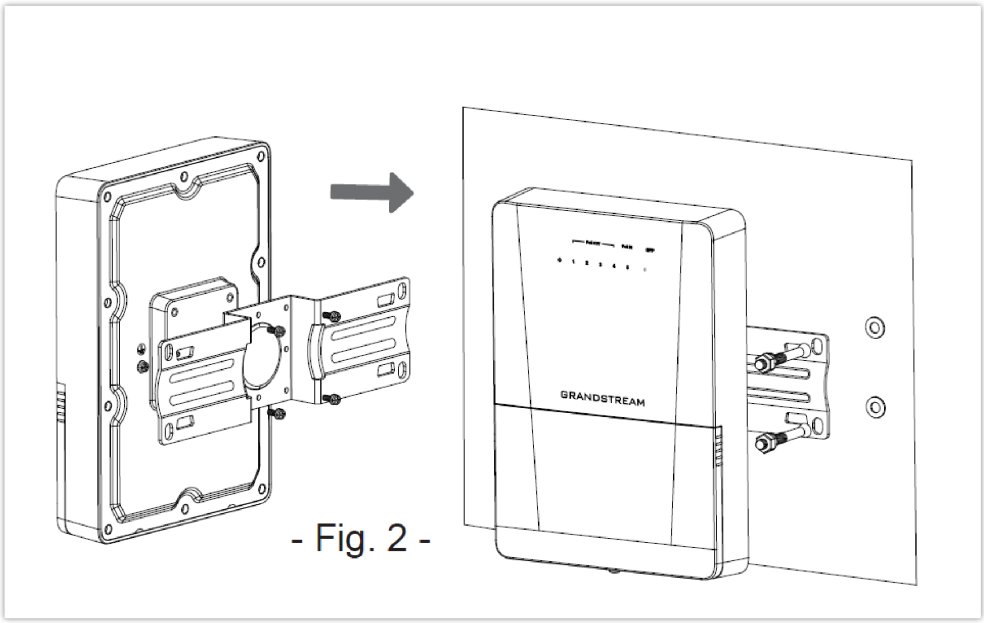
1. Attach the bracket to the back of the unit using the assembled screws.
2. Open the metal straps by turning the locking mechanism counter-clockwise. You can loosen it by hand or use a flathead screwdriver.
3. Straighten out the end of the metal straps and slide it through the back of the bracket.
4. Wrap the metal strap around the pole and use a flathead screwdriver to tighten the locking mechanism by turning it clockwise



GWN7710R Pole Mount

Wall Mount

1. Rotate the bracket 90° and attach it horizontally on the back of the device with assembled screws.
2. Drill four holes on the wall referring to the positions of the ones on the bracket. Then, fix an expansion screw in each hole.
3. Attach the device by securing the bracket with the expansion screws on the wall.

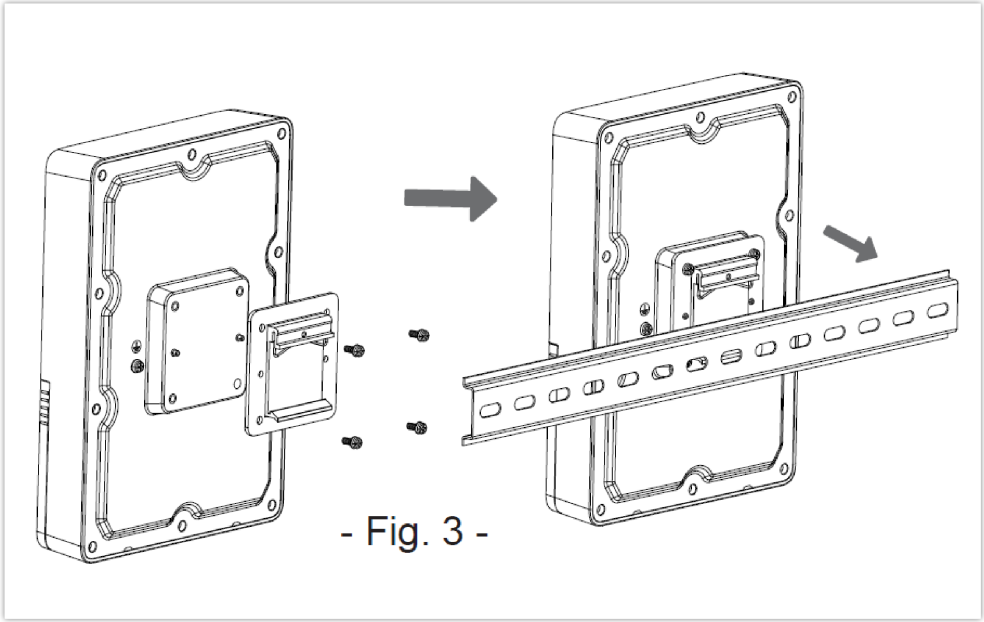


GWN7710R Wall Mount

DIN-Rail Mount

1. Attach the DIN-Rail bracket with screws on the back of the device.
2. Clamp the DIN-Rail bracket to the universal guide rail.

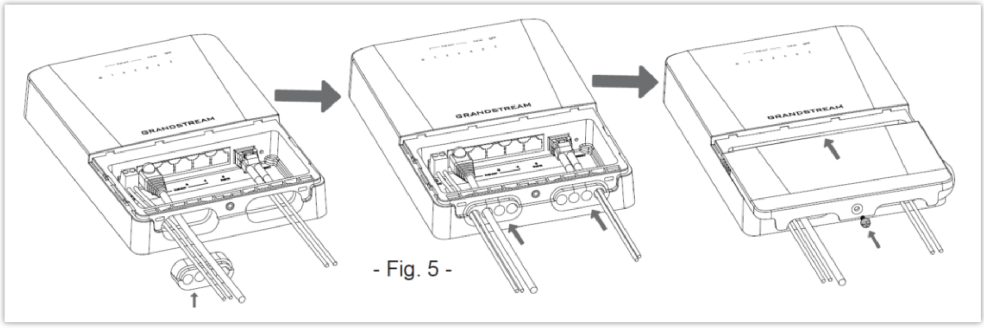
> **Note**
>
> DIN-Rail bracket is not provided.



GWN7710R DIN-Rail Mount

Cable Installation For GWN7710R

1. Insert the cable through the hole under the device housing and connect it to the corresponding interface, then insert the other end of the cable into the waterproof silicone plug.
2. Insert the waterproof silicone plug into the designated position under the device housing.
3. Push the anti-water shell in the direction of the arrow until the bottom shell is completely closed, and then use screws to fix it.



GWN7710R Cable Installation

GWN7710R PoE Output mode

The table below displays the cables for configuring Power over Ethernet (PoE) to connected devices in outdoor environments. PoE Output mode enables the switch to provide power to devices like outdoor access points, surveillance cameras, or other PoE-enabled equipment, simplifying installation by eliminating the need for separate power sources. This setup ensures continuous operation of outdoor network devices, even in remote locations, enhancing network connectivity and management flexibility.

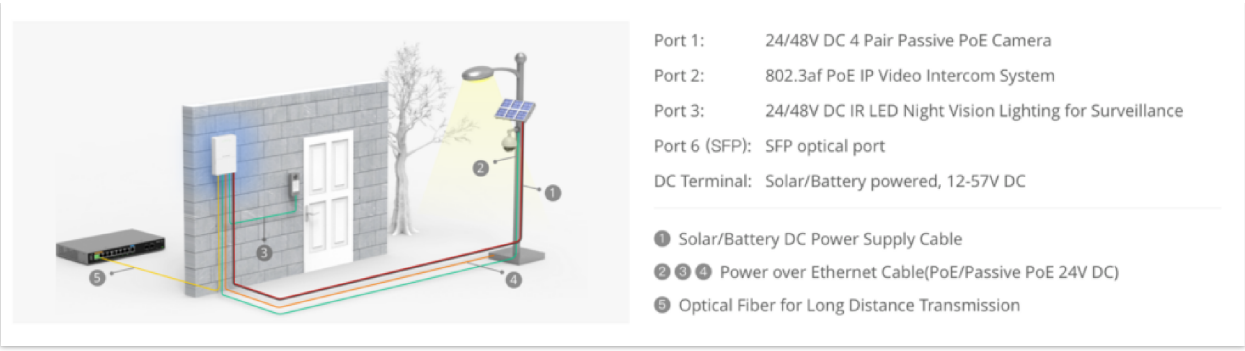
PINS	T568A Color	T568B Color	2-Pair	4-Pair
1	white/green stripe	white/orange stripe		DC ⊕
2	green solid	orange solid		DC ⊕
3	white/orange stripe	white/green stripe		DC ⊖
4	blue solid	blue solid	DC ⊕	DC ⊕
5	white/blue stripe	white/blue stripe	DC ⊕	DC ⊕
6	orange solid	green solid		DC ⊖
7	white/brown stripe	white/brown stripe	DC ⊖	DC ⊖
8	brown solid	brown solid	DC ⊖	DC ⊖
*4-Pair: power on pins 1,2,4,5(+) 3,6,7,8(-) *2-Pair: power on pins 4,5(+) 7,8(-)				

GWN7710R PoE Output mode

GWN7710R Deployment Cases

Solar DC + Fiber Optic Cable

This deployment involves installing GWN7710R powered by solar direct current (DC) energy and connected via fiber optic cables outdoors. This setup is ideal for remote locations or areas without reliable power sources, where traditional electrical wiring is impractical. Solar panels generate electricity, which powers the network switches, ensuring continuous connectivity. Fiber optic cables provide high-speed and reliable data transmission over long distances, making it suitable for various outdoor networking applications such as surveillance, environmental monitoring, or rural connectivity.



Solar Cable Installation

PoE++ RJ45 Power and Data

This set up is using Power over Ethernet (PoE++) technology to provide both power and data connectivity to outdoor devices via RJ45 connections. This setup eliminates the need for separate power sources for each device, simplifying installation and maintenance. PoE++ delivers higher power levels over Ethernet cables, making it suitable for outdoor applications such as IP cameras, wireless access points, or outdoor lighting, where traditional power sources are not available.

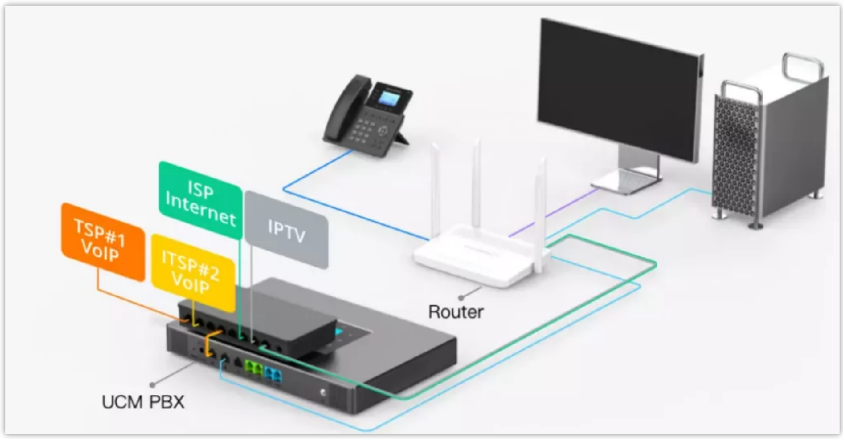
RJ45 Power and Data

GWN7711(P) Deployment Cases

802.Q VLAN Trunk for Multi-Dedicated SIP Trunking

Using VLAN Trunking to merge multiple ITSP streams into a single port connecting to UCM, and aggregate Internet and IPTV into another port connecting to router and switch.

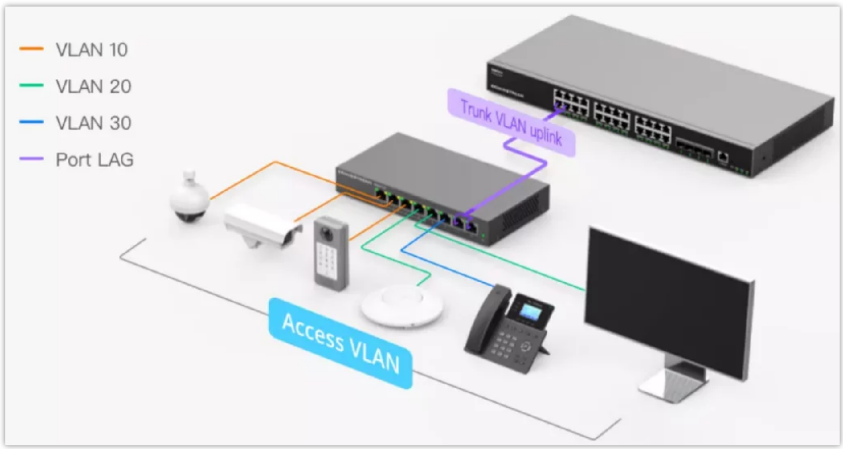
- Port 1: Access VLAN 10 ITSP 1 SIP trunk
- Port 2: Access VLAN 20 ITSP 2 SIP trunk
- Port 4: Trunk VLAN(10/20) to UCM
- Port 6: Access VLAN 30 Internet service
- Port 7: Access VLAN 40 IPTV service
- Port 8: Trunk VLAN(30/40) to Router



PoE & VLAN Isolation for IP Camera

Use VLAN to isolate the IP Camera/Internet/IPTV traffic. Use link aggregation to increase upstream bandwidth.

- Port 1: 24V/48V 4 Pair Passive PoE Camera
- Port 2: 24V 2 Pair Passive PoE Camera
- Port 3: 802.3af PoE IP Video Intercom System
- Port 4: Wireless 802.3af PoE AP
- Port 5: Network Equipment PC, printer, etc.
- Port 6: GRP VoIP Phone, etc.
- Port 7-8: Uplink Aggregation Group



PoE & VLAN Isolation for IP Camera

GETTING STARTED

LED Indicators

The front panel of the GWN7711(P) has LED indicators for power and interface activities, the table below describes the LED indicators' status.

LED Indicator	Status	Description
Power	Off	Power off.
	Solid green	Power on.
Link/Act	Off	No device is connected.
	Solid green	Port is connected and there is no activity.
	Flashing green	Port is connected and data is transferring.
PoE LED (GWN7711P)	Off	Not providing PoE power.
	Solid yellow	Standard PoE normal power supply (connect PD to negotiate power supply); 24V or 48V forced-mode PoE power supply.

	Flashing yellow	PoE power supply anomaly (Port Overload / 24V Throttling / PSE Throttling).

GWN7711(P) LED Indicators

Below is LED Indicator for GWN7710R:

LED Indicator	Status		Description
Power	Green	Off	Power off
		On	System power on
	Red	On	Low temperature starting
PoE Out Port	Green	On	Link
		Flashing	Active
	Orange	On	48VDC PoE output; (Force on when passive PoE mode)
		1S On 1S Of	48VDC PoE output overload/Short-circuit
	Blue	On	24VDC PoE output; (Force on when passive PoE mode)
		1S On 1S Of	24VDC PoE output overload/Short-circuit
PoE In Port	Green	On	Link
		Flashing	Active
	Orange	On	Powered by PoE In
SFP	Green	On	Link
		Flashing	Active

GWN7710R LED Indicators

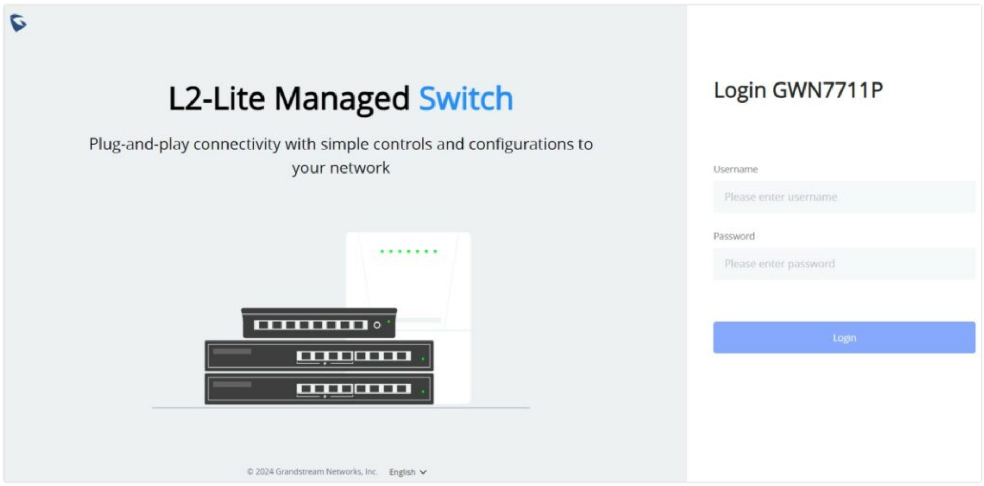
Access and configure

> **Note:**
>
> If no DHCP server is available, the GWN7711(P) default IP address is 192.168.0.254.

Login using the Web UI

1. A PC uses a network cable to correctly connect any RJ45 port of the switch.
2. Set the Ethernet (or local connection) IP address of the PC to 192.168.0.x (“x” is any value between 1-253), and the subnet mask to 255.255.255.0, so that it is in the same network segment with the switch IP address. If DHCP is used, this step could be skipped.

3. Type the switch's management IP address http:// in the browser, and enter username and password to log in. (The default administrator username is "admin" and the default random password can be found at the sticker on the GWN7711(P) switch).



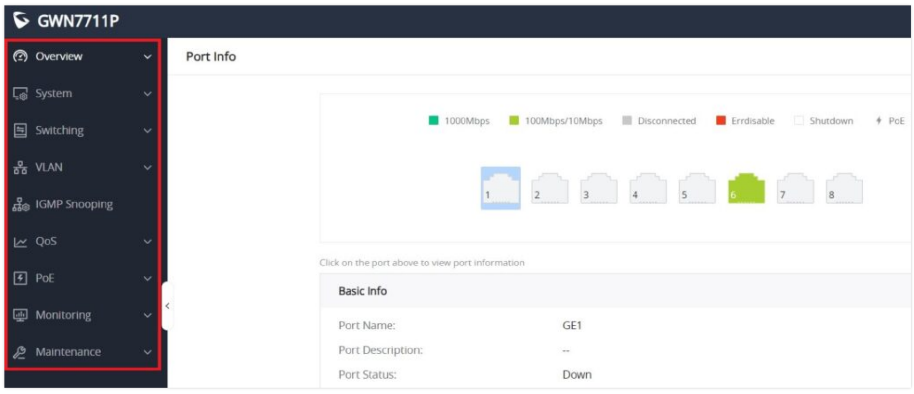
GWN7711(P) login page

Configure using GWN.Cloud/GWN Manager

Type https://www.gwn.cloud (https://<gwn_manager_IP> for GWN Manager) in the browser, and enter the account and password to log in to the cloud platform. If you don't have an account, please register first or ask the administrator to assign one for you. To add GWN switch to GWN.Cloud/GWN manager refer to online documentation: https://documentation.grandstream.com.

WebUI Configuration

GWN7711(P) WebUI includes 9 main sections to configure and manage the switch and check the connection status.

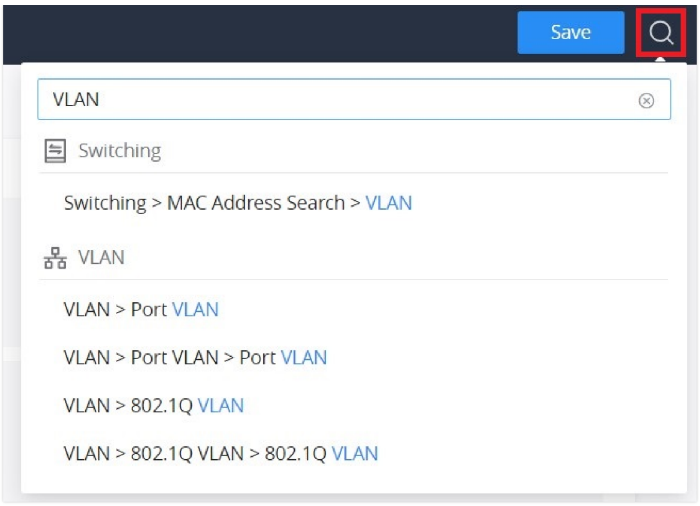


WebUI configuration

Search

GWN7711(P) Switches have search functionality to help the user find the right configuration, settings, parameters, etc.

On the top of the page, there is a search icon, the user can click on it and then enter the keyword relevant to his search, and then he will get all the possible locations of that keyword.



Search

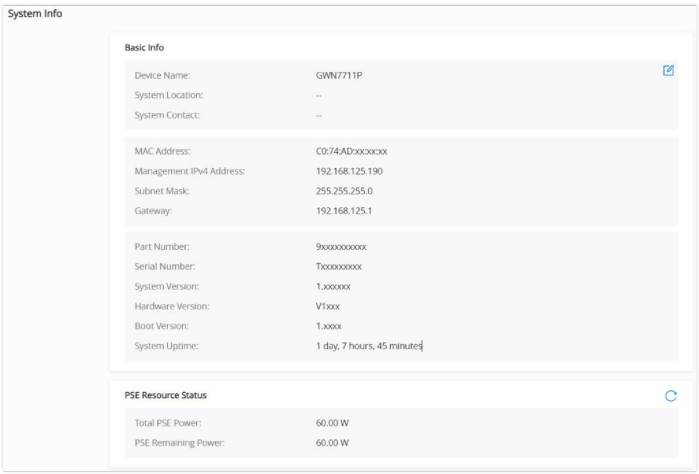
OVERVIEW

The overview is the first section that displays System information on the first page “System Info” and Port status on the second page “Port Info”. This section provides the user with a general and global view of the GWN7711(P) system and port status for easy monitoring.

System Info

System Info is the first page after successfully logging into the GWN7711(P) Web Interface. It provides an overall view of the GWN7711(P) Switch information like, Device name, MAC Address, System Version, etc.

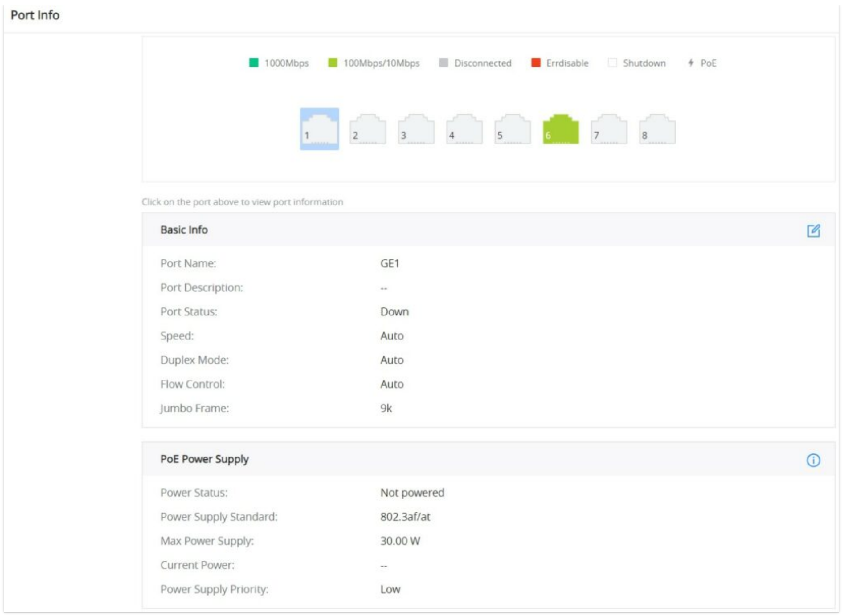
To name the device please click on , then enter the desired name.



System Info

Port Info

This page displays the status for each port on the GWN7711(P) switches indicated by color code (green, red, grey, white, etc) and PoE symbol. Please refer to the figure below:



Port Info page

The following table explains the color code and the symbols used:

	Grey: Linkdown
	White: shutdown
	**Green:** 1000 Mbps speed
	**Light green:** 100 Mbps/10 Mbps speed
	**Red:** ErrDisable
	**Symbol:** PoE Power is enabled.

Ports Labels and Color code

Note: a PoE symbol and color code combination is also possible. Ex:  in this case, the port is using 1000 Mbps speed and also using PoE at the same time.

There are 3 main sections for each port:

- **Basic Info:** displays info about the port name, speed, status etc.

Note: *Click on*  *to modify the port settings like Description, Speed, Duplex Mode, and Flow Control or to enable or disable the port.*

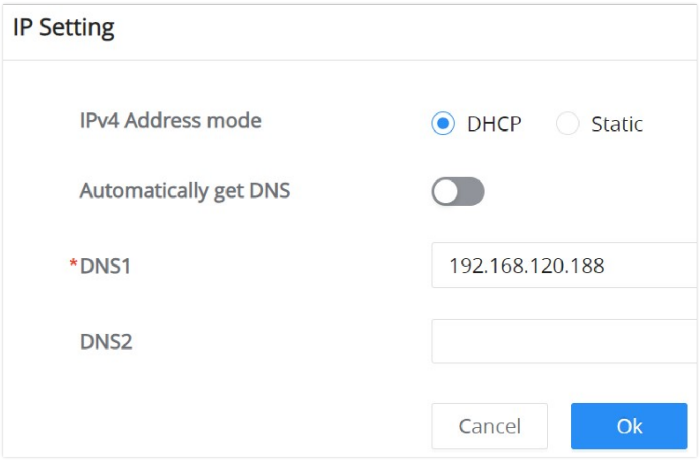
- **PoE Power Supply:** displays PoE Current Power and priority, Status etc.

Note: *Click on*  *to change PoE settings.*

SYSTEM

IP Setting

On this page, the user can either set a static IP for the switch or DHCP, If the DHCP is selected then the user can enter the preferred DNS or toggle the "**Automatically get DNS**" option ON for the DNS to be automatically set by the DHCP Server.

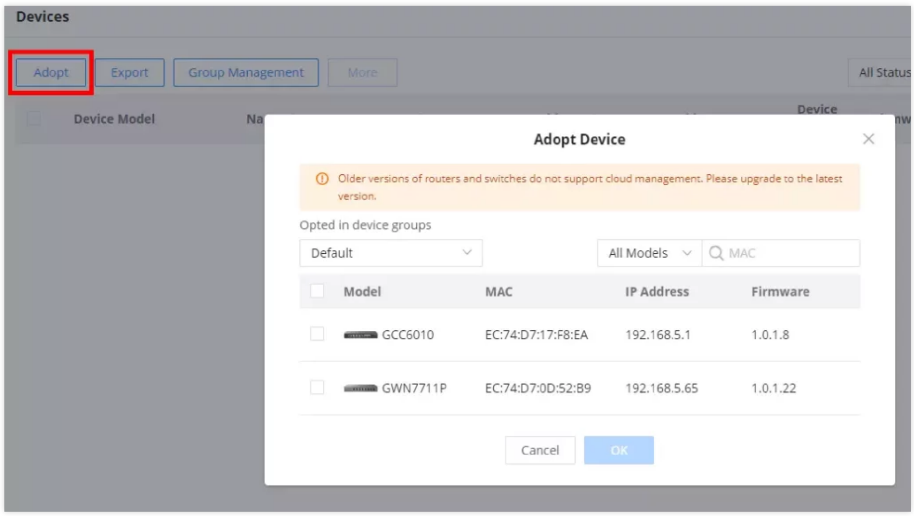


IP Setting

Manager Settings

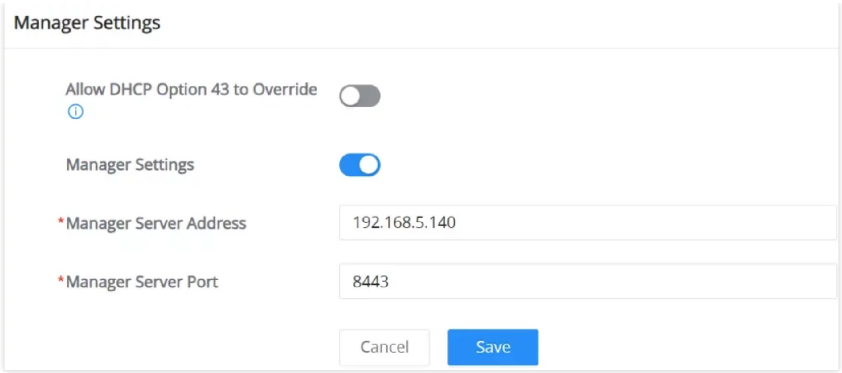
GWN771x(P) layer 2 lite switches can be managed by GWN Manager on-premise solution or GDMS Networking cloud solution.

To add GWN771x(P) switch to GWN Manager, connect first the switch to the same network as the GWN Manager. On the GWN Manager click on "**Adopt**" button as shown below for GWN Manager to scan the network and then it will displays the available GWN switches, select the switch(s) then click on "**OK**" button to complete the adoption process.



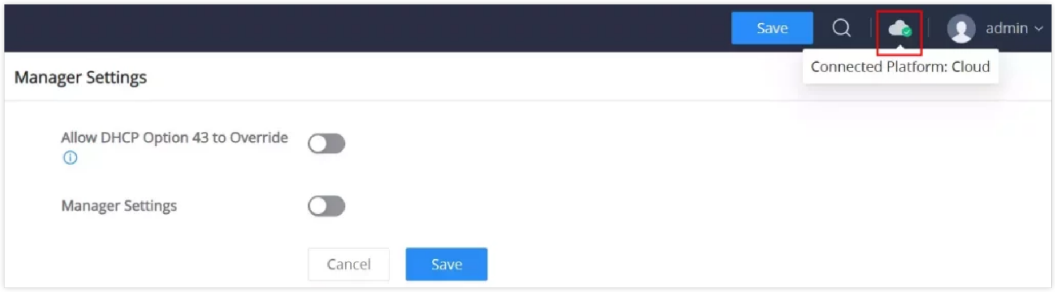
GWN Manager – adopt

To manually set the GWN Manager address and port, navigate to **System** → **Manager Settings**, then enable Manager Settings and set the Manager Server Address and Manager Server Port.



GWN Manager – add manually

When the GWN771x(P) switch is successfully added to the cloud, a cloud icon with a green check mark will appear on the Web UI's top page. This icon signifies that the switch has been integrated into the cloud, and some configurations from the cloud may now be applied to the switch. Please refer to the figure below:



GDMS Networking

b

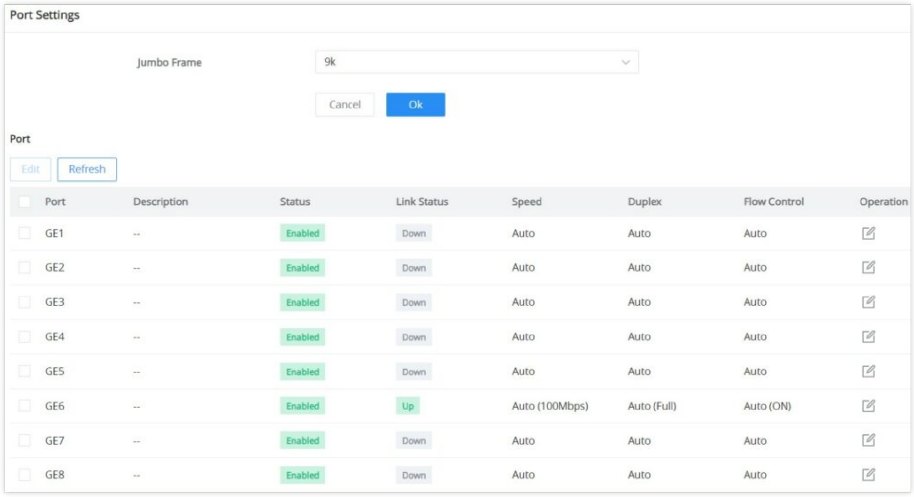
SWITCHING

The switching section covers Ports and LAG (Link Aggregation Group) configurations.

Port Settings

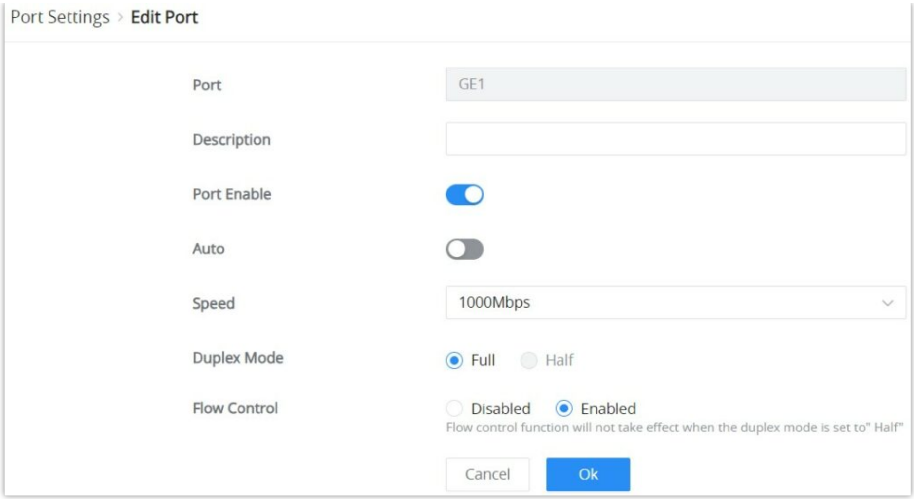
On this page, you can configure the basic parameters for GWN7711(P) Switch ports, like disabling or enabling the port, adding a Description, specifying the speed, Duplex mode, and Flow Control.

To configure a port, please navigate to **Switching → Port Settings.**



Port Settings

To configure a port, click on the "Edit" icon under the operation column.



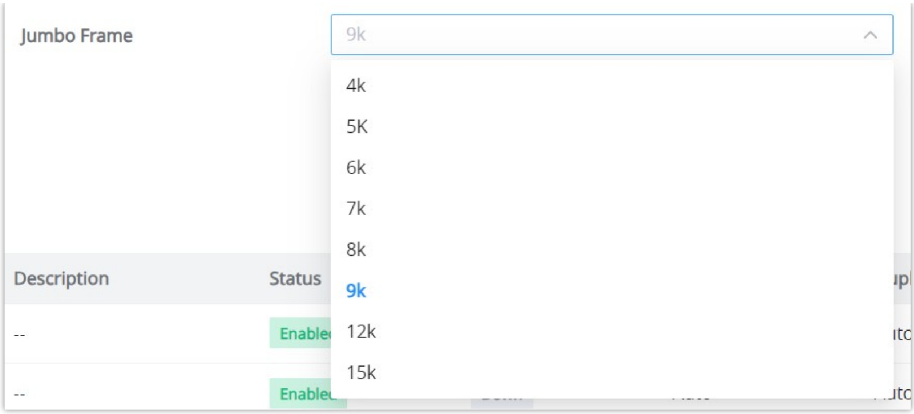
Port Settings – Edit port

Port	The selected Port to be configured.
Description	It is used to configure the information description of this interface , which can be a description of usage, etc., with a maximum of 32 characters, and the characters limited to input are numbers 0-9 , letters az / AZ and special characters.
Port Enable	Set whether to enable the interface. *it is enabled by default.*
Auto	toggle ON or OFF Auto Detect, if it's ON the speed, Duplex Mode and Flow Control will be selected automatically, and if it's OFF the user can select speed, Duplex Mode and Flow Control manually.
Speed	Set the rate of the interface: ● **Ethernet port:** the options are {10Mbps, 100Mbps, 1000Mbps}, The default is 1000Mbps.
Duplex Mode	Set the duplex mode of the interface. The options are {full-duplex, half-duplex}. *The default is Duplex.* ● **Duplex:** the interface send and receive data packets. ● **Half-duplex:** interface can only send/ receive packets.
Flow Control	Set the flow control on the interface, the options are {Disabled, Enabled}. *The default is Enabled.* After enabling it, if the local device is congested, it will send a message to the peer device to notify the peer device to temporarily stop sending packets, after receiving the message, the peer device will temporarily stop sending packets to the local and vice versa. Thus, the occurrence of packet loss is avoided.

Port Settings – Edit port

Jumbo Frame

The maximum Transmission Payload or MTU is typically 1500 bytes, in case the user requires even a bigger MTU length for a specific scenario, there is an option on the GWN7711(P) Switch to enable Jumbo Frame, the maximum Ethernet frame size ranges from 2K up to 15K. The default parameter is 9K.



Jumbo Frame

LAG

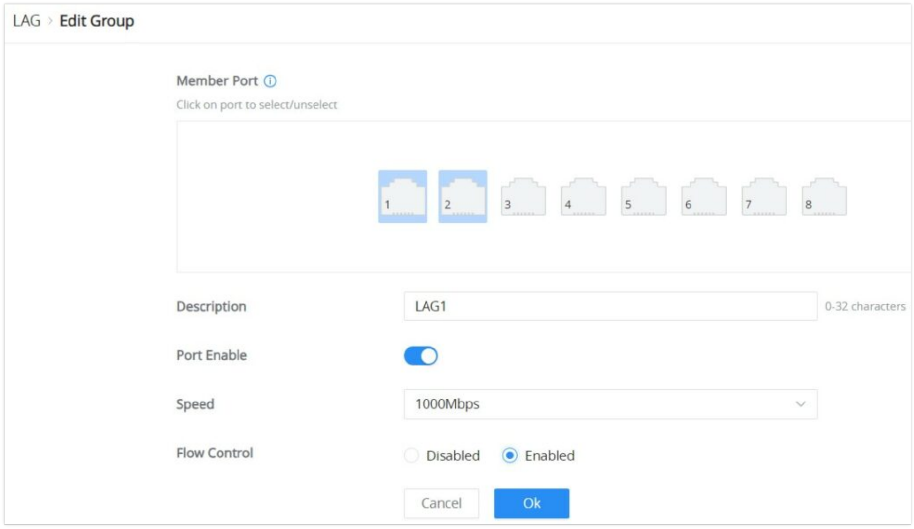
LAG means Link Aggregation Group which groups some physical ports to make a single high-bandwidth data path. Thus it can implement traffic load sharing among the member ports in a group to enhance the connection reliability.

To configure LAG, please navigate to **Switching** → **LAG**.

GWN7711(P) switches support up to 4 link aggregation groups as shown in the figure below:

To edit/configure a LAG, click on the "**Edit**" icon under the operation column.

LAG groups



Edit LAG

Member Port	Click on ports to be part of this LAG group.
Description	It is used to configure the information description for this LAG , which can be a description of usage, etc., with a maximum of 32 characters, and the characters limited to input are numbers 0-9 , letters az / AZ and special characters.
Port Enable	Set whether to enable the interface. *it is enabled by default.*

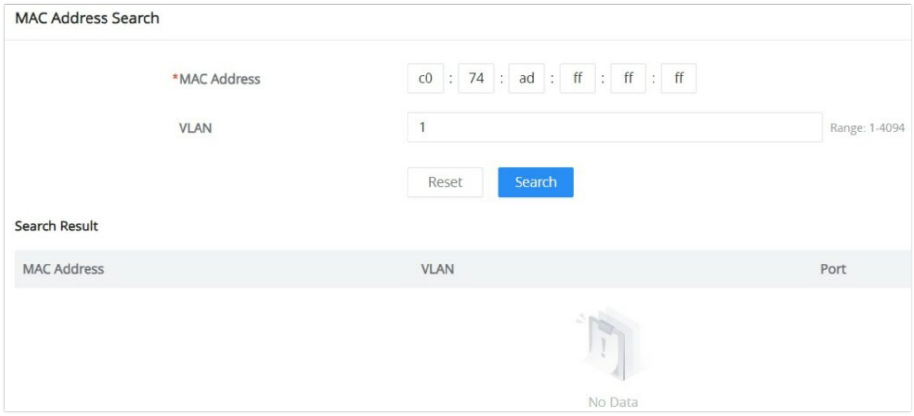
Speed	Set the rate of the interface, the options are {10Mbps, 100Mbps, 1000Mbps}. *The default is 1000Mbps.*
Flow Control	Set the flow control on the interface, the options are { Disabled, Enabled}. *The default is Enabled.* After enabling it, if the local device is congested, it will send a message to the peer device to notify the peer device to temporarily stop sending packets, after receiving the message, the peer device will temporarily stop sending packets to the local and vice versa. Thus, the occurrence of packet loss is avoided.

Edit LAG

MAC Address Search

The MAC address table records the correspondence between the MAC addresses of other devices learned by the switch and the interfaces, as well as information such as the VLANs to which the interfaces belong. When forwarding a packet, the device queries the MAC address table according to the destination MAC address of the packet. If the MAC address table contains an entry corresponding to the destination MAC address of the packet, it directly forwards the packet through the outbound interface in the entry. If the MAC address table does not contain an entry corresponding to the destination MAC address of the packet, the device will use broadcast mode to forward the packet on all interfaces in the VLAN to which it belongs except the receiving interface.

On this page, the user can search using the MAC address and the VLAN, if the device MAC address is found, it will be displayed on the Search Result section.



MAC Address Search

VLAN

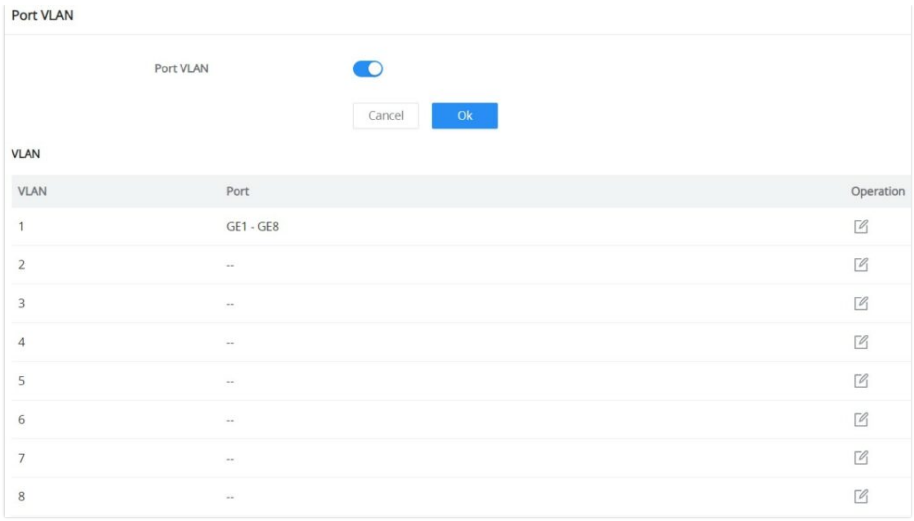
A virtual local area network, virtual LAN or VLAN, is a group of hosts with a common set of requirements that communicate as if they were attached to the same broadcast domain, regardless of their physical location. A VLAN has the same attributes as a physical local area network (LAN), but it allows for end stations to be grouped even if they are not located on the same network switch. VLAN membership can be configured through software instead of physically relocating devices or connections.

Port VLAN

On this page, the user can select which VLANs (a preset from 1 to 8) can be allowed on GWN7711(P) ports. This is a simplified way to manage VLAN from 1 to 8. To have more flexibility and control, please enable 802.1Q VLAN and Port VLAN will be disabled automatically.

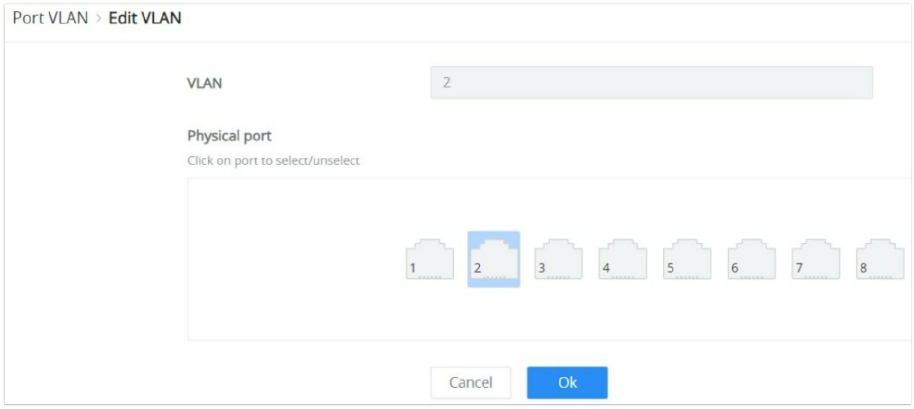
First Enable Port VLAN as shown below:

When Port VLAN is enabled, 802.1Q VLAN will be automatically disabled and the configured information will be lost.



Port VLAN

Click the "**Edit**" icon under the Operation column to edit a VLAN, then select which ports this VLAN will be allowed on.



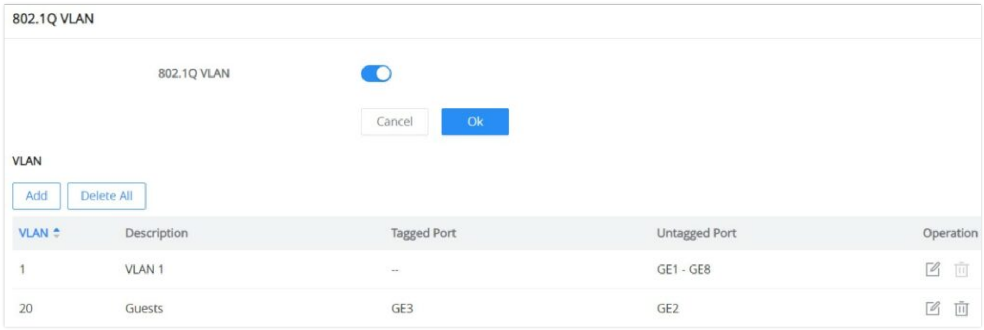
Port VLAN – Edit VLAN

802.1Q VLAN

For more flexibility and control over VLAN configuration, the user can enable 802.1Q VLAN, and this case the user is not only restricted to VLANs from 1 to 8.

Click on the "**Add**" button to add a VLAN, as shown below:

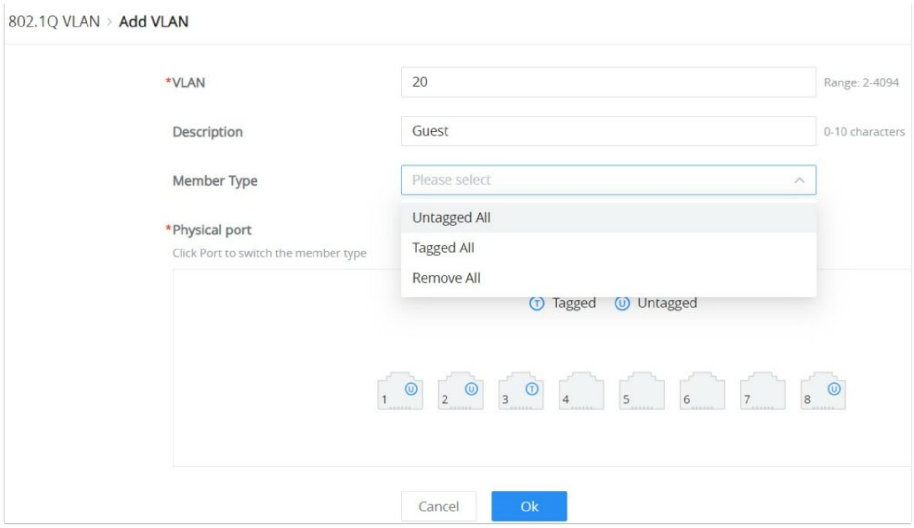
When 802.1Q VLAN is enabled, Port VLAN will be automatically disabled and the configured information will be lost.



802.1Q VLAN

On this screen, the user can configure the VLAN:

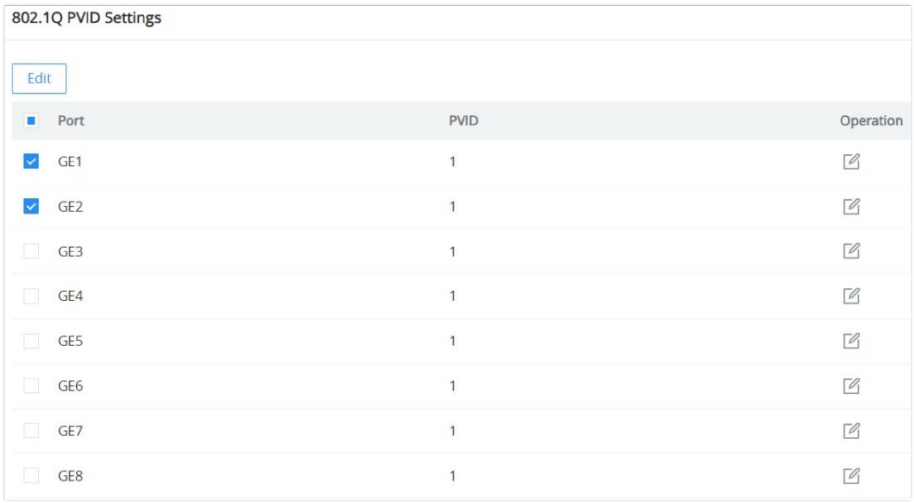
- **VLAN:** specify the VLAN ID (Range 2-4094).
- **Description:** enter a description for the VLAN.
- **Member Type:** a shortcut to untag/tag or remove all members.
- **Physical port:** select the tagged/untagged ports accordingly.



802.1Q VLAN – add/edit VLAN

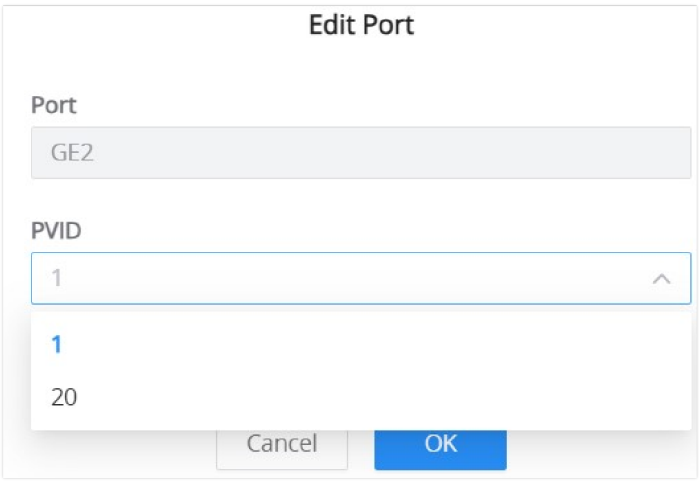
802.1Q PVID Settings

If the **802.1Q VLAN** is enabled, the user can select the PVID (Port VLAN ID) or native VLAN when there is more than one VLAN on a port. Click on the "**Edit**" icon under operation to modify the PVID on a specific port.



802.1Q PVID Settings

Under PVID, select the VLAN from the drop-down list as shown below:

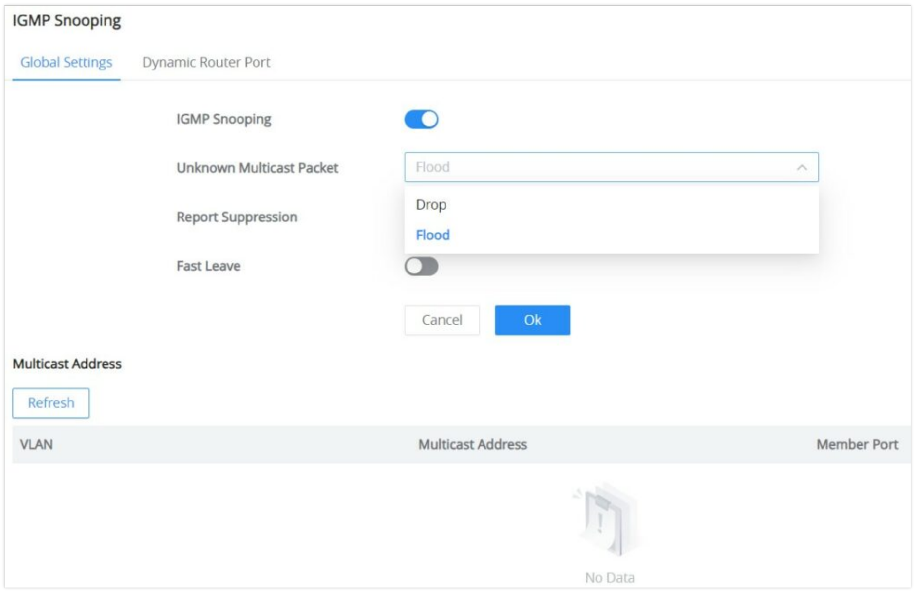


802.1Q PVID Settings – edit port

IGMP SNOOPING

The GWN7711(P) switches support IGMP snooping, which is an IPv4 Layer 2 multicast protocol that optimizes the handling of multicast traffic in a network by intelligently forwarding traffic only to the ports where interested hosts are located, based on the monitoring of IGMP messages.

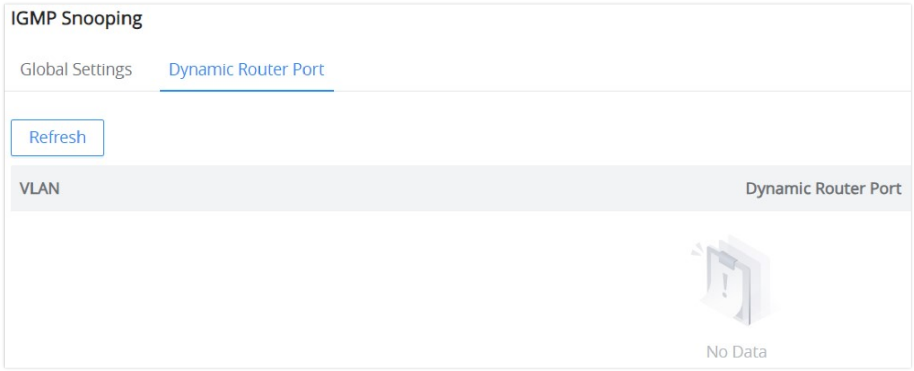
On the **Global Settings tab**, the users can enable the IGMP Snooping feature by toggling ON the feature, and for Unknown Multicast Packet will be either dropped or flooded as shown below:



IGMP Snooping – Global Settings

IGMP snooping dynamically identifies router ports by monitoring IGMP General Query messages and optimizes the forwarding of multicast traffic to those ports for efficient use of network bandwidth.

The **Dynamic Router Port** tab displays all the discovered dynamic router ports, the users can click on the "**Refresh**" button to refresh the list.



IGMP Snooping – Dynamic Router Port

QOS

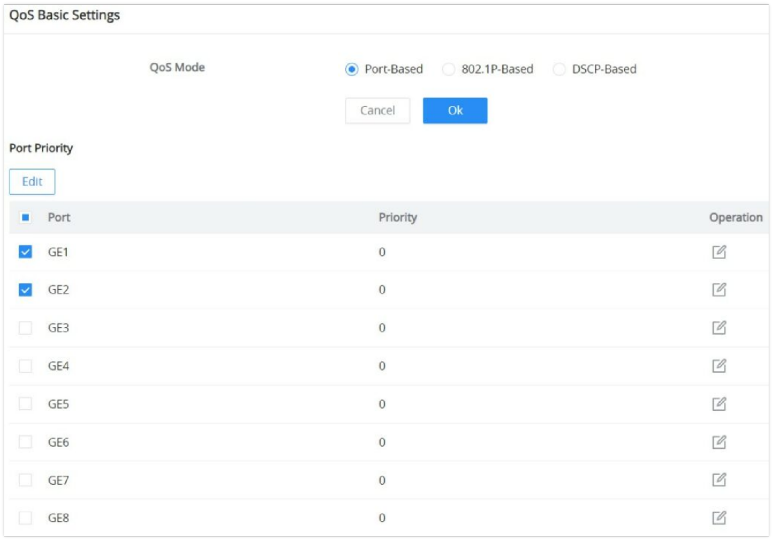
The popularity of the network and the diversification of services have led to a surge in Internet traffic, resulting in network congestion, increased forwarding delay, and even packet loss in severe cases, resulting in reduced service quality or even unavailability. Therefore, to carry out these real-time services on the network, it is necessary to solve the problem of network congestion. The best way is to increase the bandwidth of the network, but considering the cost of operation and maintenance, this is not realistic. The most effective solution is to apply" Guaranteed " policies to govern network traffic. QoS technology is developed under this background. QoS is quality of service, and its purpose is to provide end-to-end service quality assurance for various business needs. QoS is a tool for effectively utilizing network resources. It allows different traffic flows to compete for network resources unequally. Voice, video, and important data applications can be prioritized in network equipment.

QoS Basic Settings

On this page, the user can edit the port priority for each port, supported modes are:

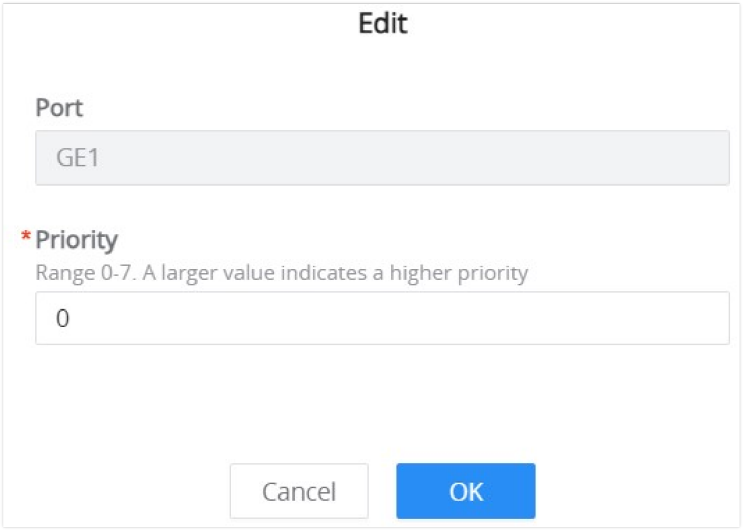
- Port-Based
- 802.1P-Based
- DSCP-Based

Please navigate to **QoS → QoS Basic Settings page**:



QoS Basic Settings

Select one or multiple ports, then click on the "Edit" button to modify the ports' priority. The priority range is from 0 to 7, a larger value indicates a higher priority, and value 0 is the default value.



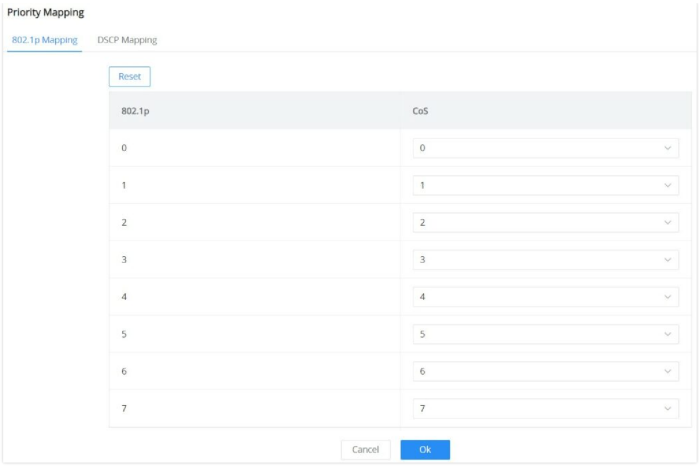
QoS Basic Settings – Edit Port Priority

Priority Mapping

Priority mapping is used to realize the conversion between the QoS priority carried in the packet and the internal priority of the device (also known as the local priority, which is the priority used by the device to differentiate the service level of the packet) so that the device provides the Differentiated QoS service quality. Users can use different QoS priority fields in different networks according to network planning.

- **802.1p Mapping**

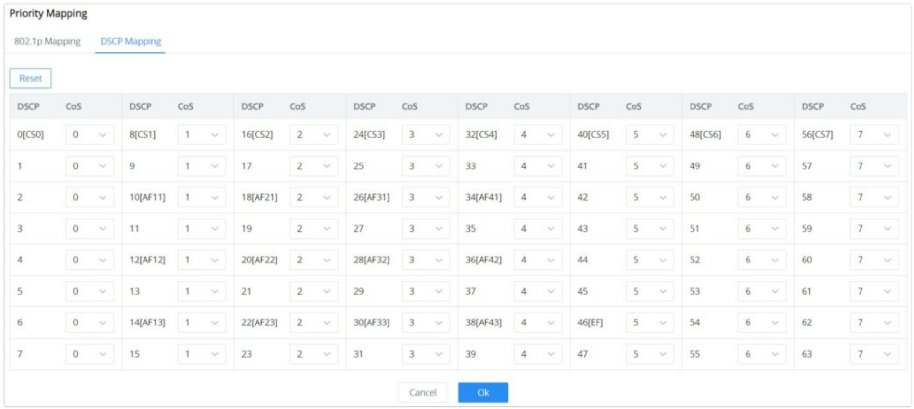
On this tab, the user can map between 802.1p and CoS (Class of Service) where 0 is the lowest priority and 7 is the highest priority for 802.1p, and by default, CoS is set to be the same (it's recommended to keep it by default only if necessary or a specific network requires it).



Priority Mapping – 802.1p Mapping

- **DSCP Mapping**

On this tab, the user can map between CoS and DSCP (Differentiated Services Code Point), in this case, 802.1p and CoS mapping must be configured first. (it's recommended to keep the default settings to keep the consistency between all switches only if it's necessary or the network requires it)



Priority Mapping – DSCP Mapping

> **Note:**
>
> Mapping can be configured based on the specific needs and requirements of the network, and it's important to ensure consistency across all network devices for effective Quality of Service (QoS) management.

Queue Scheduling

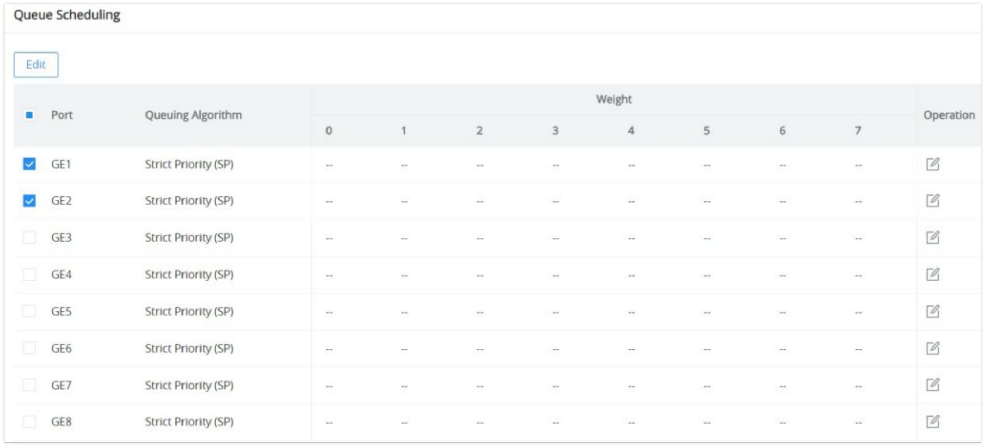
When congestion occurs in the network, the device will determine the processing order of forwarding packets according to the specified scheduling policy, so that high-priority packets are preferentially scheduled.

Queue scheduling algorithm: queue scheduling according to the switch interface.

- **Strict priority (SP) scheduling:** The flow with the highest priority is served first, and the flow with the second highest priority is served until there is no flow at that priority. Each interface of the switch supports 8 queues (queues 0-7), queue 7 is the highest priority queue, and queue 0 is the lowest priority queue. ***Disadvantage***: When congestion occurs, if there are packets in the high-priority queue for a long time, the packets in the low-priority queue cannot be scheduled, and data cannot be transmitted.
- **Weighted Round Robin (WRR) scheduling:** each priority queue is allocated a certain bandwidth, and provides services for each priority queue according to the priority from high to low. When the high-priority queue has used up all the allocated bandwidth, it is automatically switched to the next priority queue to serve it.
- **Weighted Fair Queuing (WFQ) scheduling:** Based on ensuring fairness (bandwidth, delay) as much as possible, priority considerations are added, so that high-priority packets have more opportunities for priority scheduling than low-priority packets. WFQ can automatically classify flows by their "session" information (protocol type, source and destination IP addresses, source, and destination TCP or UDP ports, priority bits in the ToS field, etc.) Place each flow evenly into different queues, thus balancing the latency of the individual flows as a whole. When dequeuing, WFQ allocates the

bandwidth that each flow should occupy at the egress according to the flow priority (Precedence). The smaller the priority value is, the less bandwidth is obtained; otherwise, the more bandwidth is obtained.

Select one or multiple ports, then click on the "**Edit**" button to modify the ports **Queuing Algorithm**. The default algorithm is set to Strict Priority (SP).

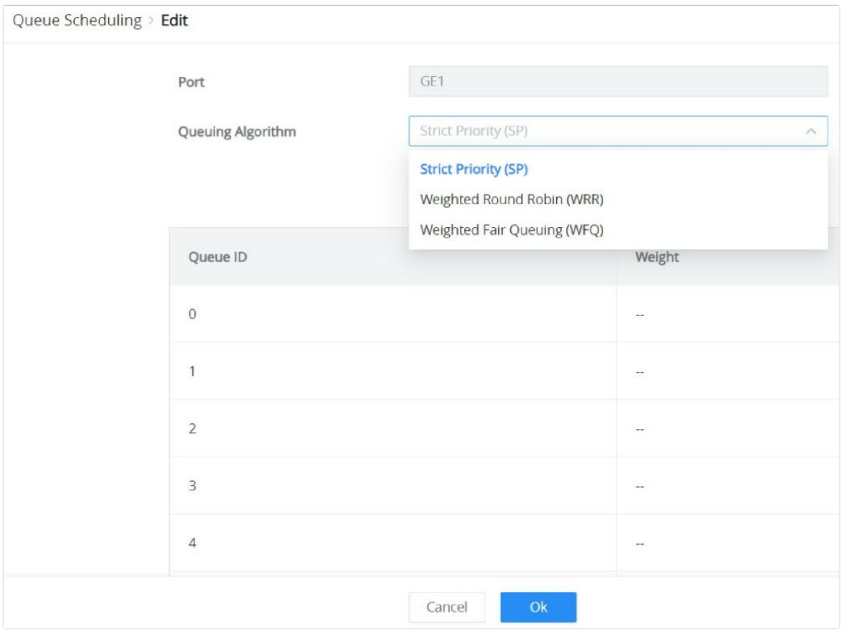


Queue Scheduling

If **Weighted Round Robin (WRR)** or **Weighted Fair Queuing (WFQ)** is selected, the Weight option can be configured accordingly, the higher the Weight the higher the traffic priority.

Note:

- **Weighted Round Robin (WRR):** Scheduled based on weighted round robin. The weight of each queue is set in packets.
- **Weighted Fair Queuing (WFQ):** Schedule according to WFQ. The weight of each queue is set by bytes.

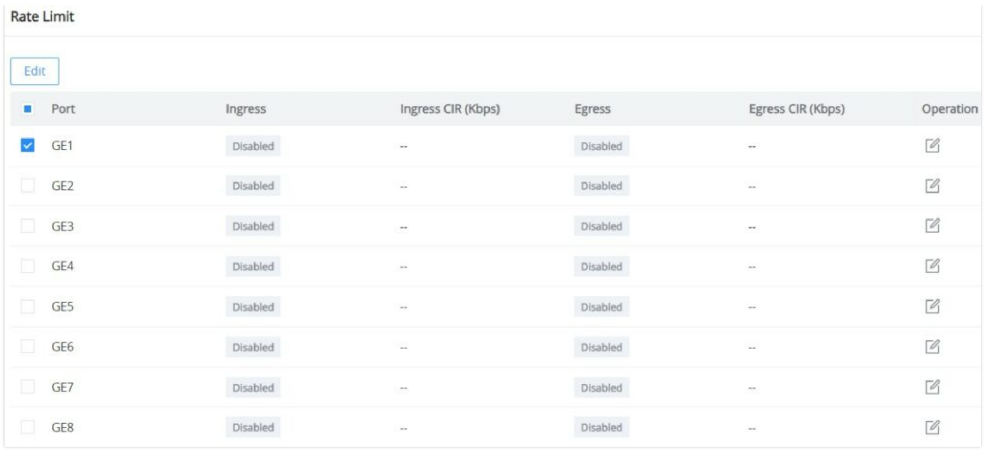


Queue Scheduling – Edit

Rate Limit

Interface rate limit can limit the total rate of all packets sent or received on an interface. The interface rate limit also uses the token bucket to control the flow. If an interface rate limit is configured on an interface of the device, all packets sent through this interface must first be processed through the token bucket of the interface rate limiter. If there are enough tokens in the token bucket, the packet can be sent; otherwise, the packet will be discarded or cached.

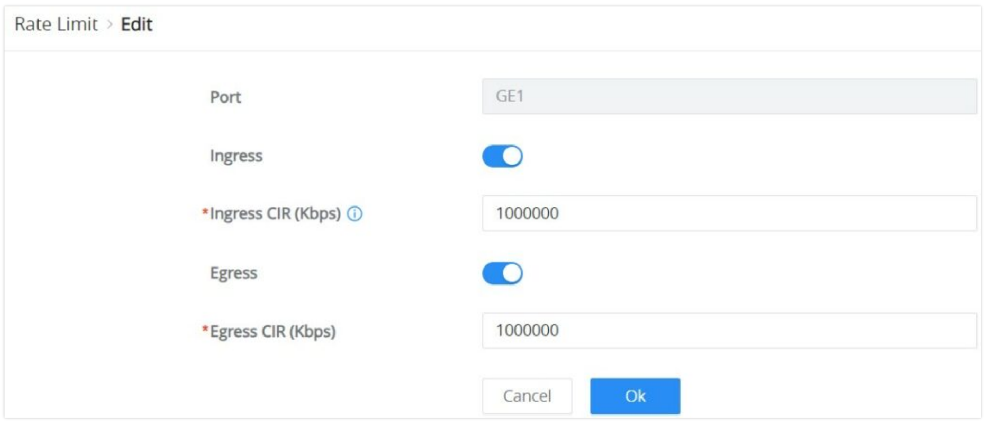
To configure Rate Limit, please navigate to **QoS** → **Rate Limit**, then select one or multiple ports, click on the "**Edit**" button to edit the port(s).



Rate Limit page

Enable the **Ingress** (incoming traffic to the switch) and then set the rate limit (in Kbps), and then enable Egress (**outgoing traffic**) and set the rate limit (in Kbps).

> **Note:**
>
> CIR is the average rate at which traffic can pass. If both Ingress and Storm Control are enabled, the smaller value between them takes effect.



Rate Limit – Edit port

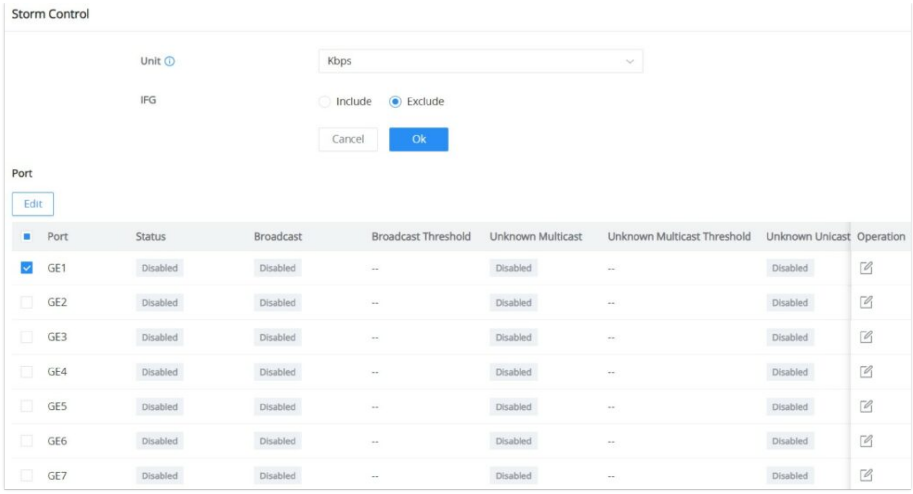
Storm Control

The GWN7711(P) switches support a storm control feature that prevents broadcast, unknown multicast, or unknown unicast by monitoring and limiting excessive traffic on a port. It helps prevent network congestion and performance problems caused by an overwhelming amount of packets. Thresholds are set to limit traffic when defined limits are exceeded.

Navigate to **QoS** → **Storm Control**, then select the unit that Storm Control will use:

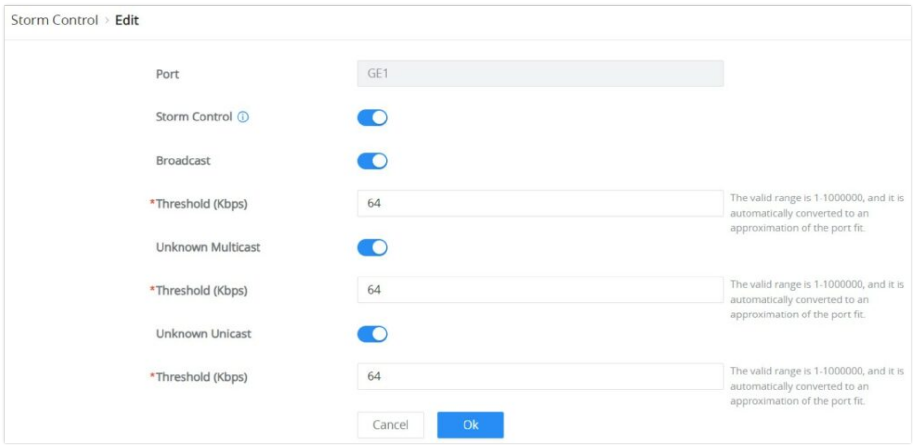
- **Kbps**
- **pps** (packet per second)

> **Note:**
>
> - When the unit is pps, Ingress enabled at the port may cause errors in the storm control threshold.
> - **IFG** (Inter-Frame Gap) is the duration between the transmissions of two consecutive frames. IFG helps in preventing collisions on the network.



Storm Control main page

Select one or multiple ports then click on the “Edit” button or icon under column operation to edit the selected port(s). Please refer to the figure and table below:



Storm Control – Edit a port

Unit	Select Unit: ● **kbps:** Storm control rate will be calculated by octet-based. ● **pps**: Storm control rate will be calculated by packet-based.
IFG	Select IFG (Inter Frame Gap): ● **Excluded:** Exclude IFG when count ingress storm control rate. ● **Included:** Include IFG when count ingress storm control rate.
Storm Control → Edit	
Port	Displays the selected port.
Storm Control	Select whether to enable Storm Control on the selected port or not.
Broadcast	Set whether to enable the storm threshold setting for broadcast packets. If Enabled Please enter a Treshhold (Kbps). ***Note:*** *The valid range is 1-1000000, and it is automatically converted to an approximation of the port fit.*
Unknown Multicast	Set whether to enable the storm threshold setting for the Unknown Multicast packets If Enabled Please enter a Treshhold (Kbps). ***Note:*** *The valid range is 1-1000000, and it is automatically converted to an approximation of the port fit.*
Unknown Unicast	Set whether to enable the storm threshold setting for the Unknown Unicast packets. If Enabled Please enter a Treshhold (Kbps).

	Note: *The valid range is 1-1000000, and it is automatically converted to an approximation of the port fit.*

Storm Control

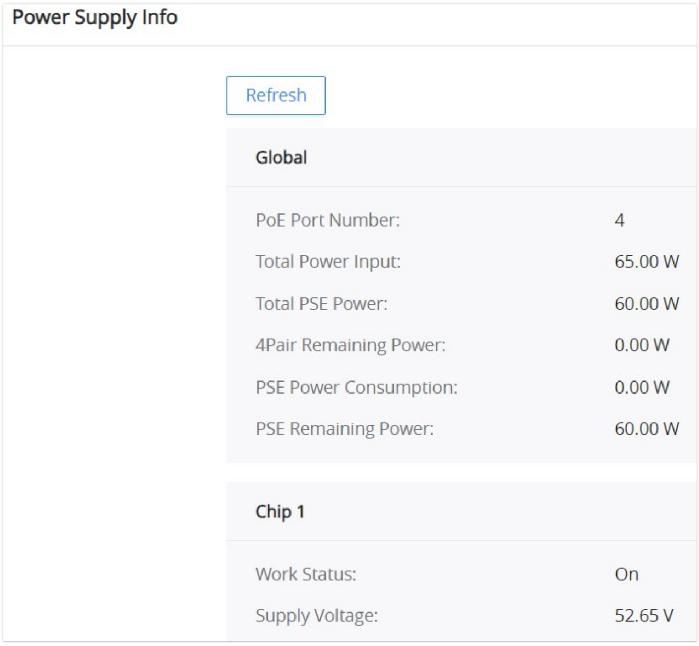
POE

Power Over Ethernet (PoE) refers to supplying power over an Ethernet network, also known as a local area network-based power supply system PoL or Active Ethernet.

Usually, the terminal devices of the access point need to use a DC power supply, but due to insufficient wiring, these devices need unified power management. At this time, the switch interface provides the power supply function, which can solve the above problems and realize the precise control of the port PoE power supply.

Power Supply Info

This page Displays the Power Supply Info like the number of PoE, Total, Remaining PoE Power, etc, and even the Supply Voltage.



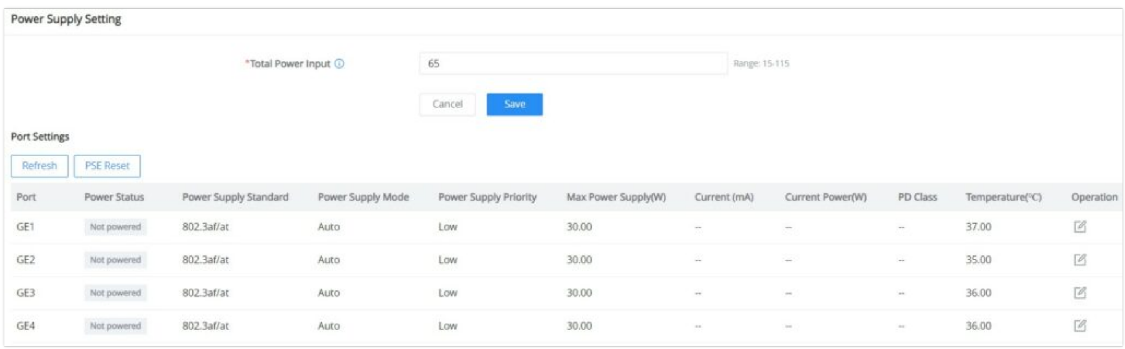
Power Supply Info

Power Supply Setting

On this page, the user can configure the total power input and configure PoE on each port that supports PoE. On the GWN7711P switch model, the ports 1-4 support PoE/PoE+.

Total Power Input: Configure proper power based on the selected power supply.

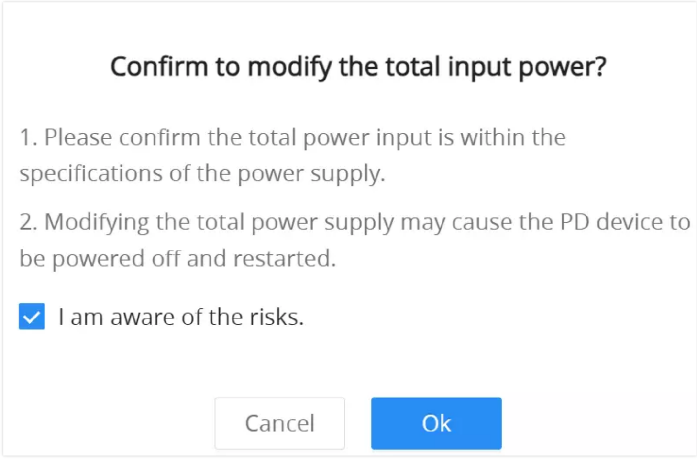
For instance, if the user sets the Total Power Input to 15 watts, this amount of power is insufficient to power both the switch and more than two access points simultaneously using PoE. Consequently, the power shortfall may cause the devices to reboot repeatedly due to the inadequate power supply.



Total Power Input

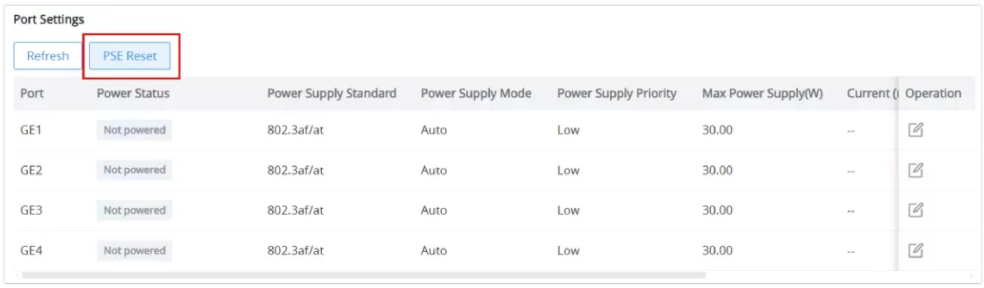
Alert:

Please configure the appropriate power according to the power supply selected. When the configured power exceeds the actual power, it may cause the device to restart repeatedly!



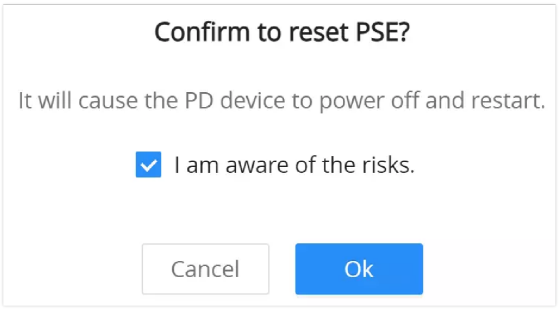
Total Power Input prompt

To reset the PSE, click on "**PSE Reset**" button as shown below:



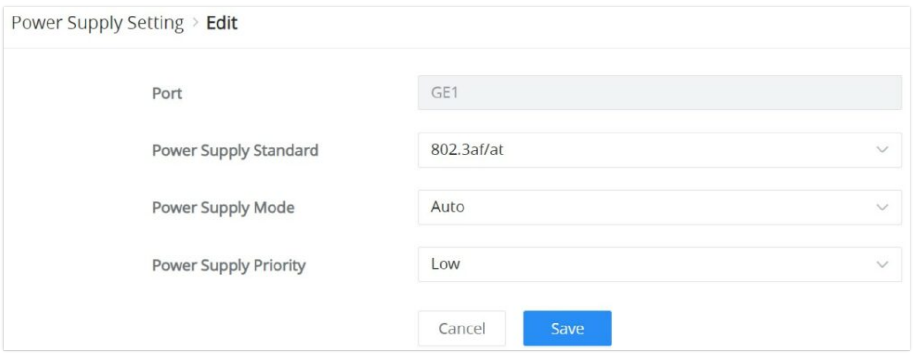
Total Power Input prompt

When resetting the Power Sourcing Equipment (PSE) on the GWN7711P switch, a confirmation dialog appears, warning that this action will power off and restart all connected Powered Devices (PDs). The user must acknowledge the risk by selecting the checkbox and clicking "**Ok**" to proceed.



PSE Reset

To edit the PoE parameters on the supported port, click on the "**Edit icon**" under the operation column, then select from the drop-down lists the power supply standard, power supply mode, and power supply priority.



Power Supply Setting – Edit port

n

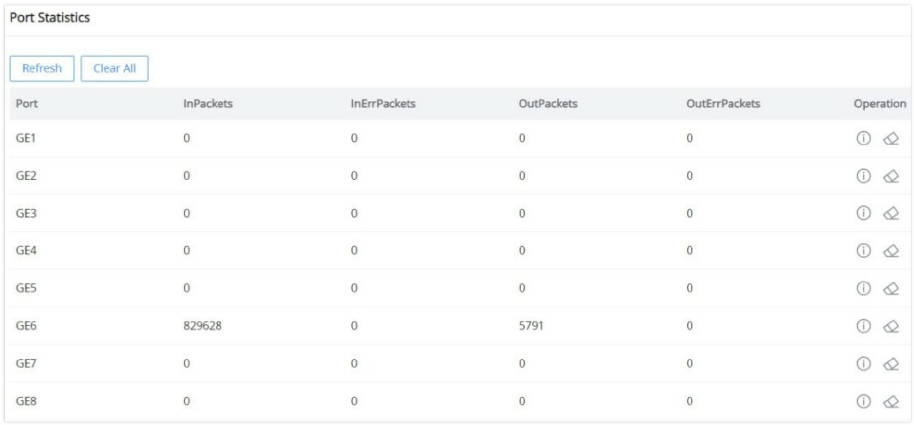
MONITORING

Port Statistics

For monitoring or even sometimes troubleshooting, the Flow Statistics displays in real time the flow of data with different units like Octects, Packets, Transmission Rate, and OutErrPackets.

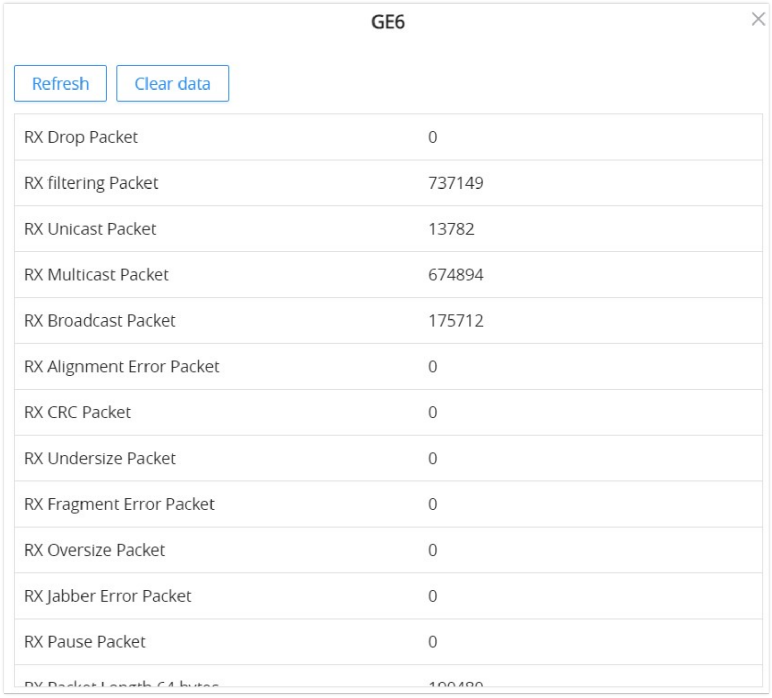
To refresh the statistics, click on the "Refresh" button, and to clear all the statistics click on the "**Clear All**" button.

To clear the data for a specific port click on the "**clear icon**" under the operation column.



Port Statistics

For more details, click on the "**Exclamation mark icon**" under the operation column next to each port.



Port Statistics – port details

Port Mirror

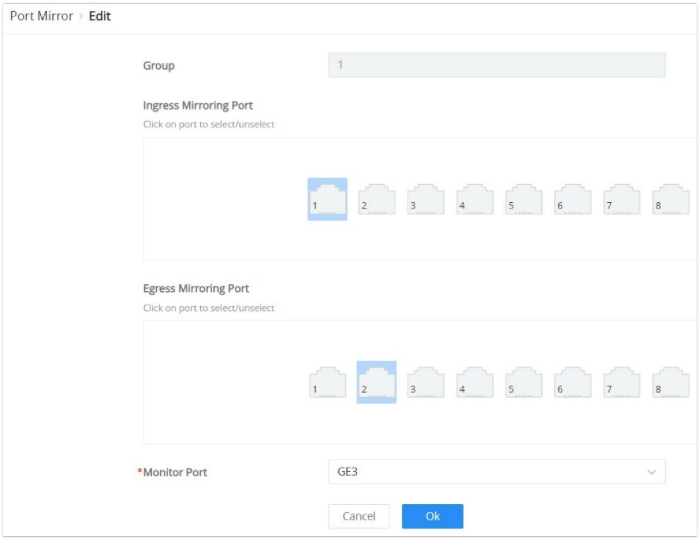
Mirroring refers to copying the packets from the specified source to the destination port. The specified source is called the mirroring source, the destination port is called the observing port, and the copied packet is called the mirroring packet.

Mirroring can make a copy of the original packet without affecting the normal processing of the original packet by the device, and send it to the monitoring device through the observation port to determine whether the service running on the network is normal.

GWN7711(P) switch supports up to 4 groups, to configure/edit a group, click on the "Edit icon" under the operation column.

Port Mirror

To start mirroring a port, first select the **Ingress** (incoming traffic to the switch) **Mirroring port**, then select the **Egress** (outgoing traffic) **Mirroring port**, and then select from the drop-down list the **Monitor port** (Monitor port cannot be the same as the Mirroring port), please refer to the figure below:



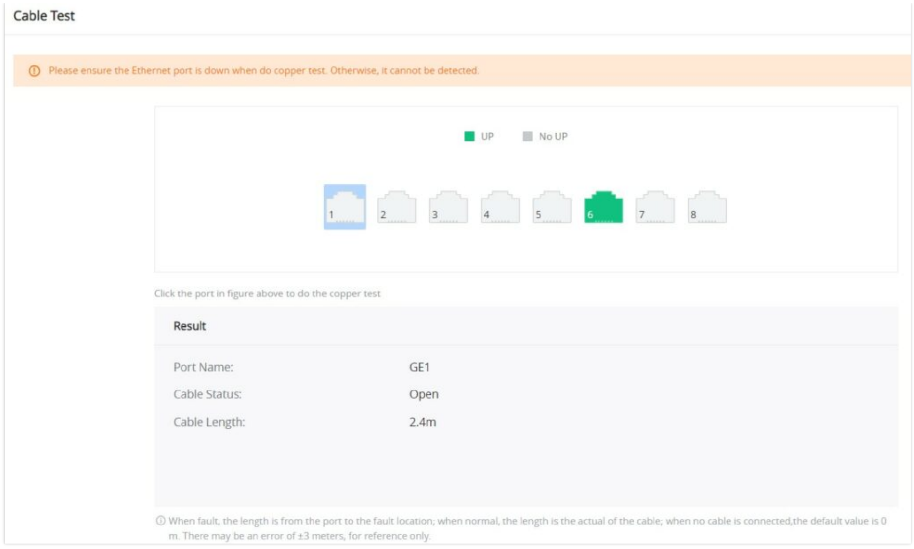
Port Mirror – Edit Group

Cable Test

The Cable Test can detect whether the cable connected to the switch is faulty and the location of the fault. Using this function can assist in the daily engineering installation diagnosis.

Please navigate to **Maintenance → Cable Test.**

> **Note:**
>
> Please ensure the Ethernet port is down when doing Cable Test. Otherwise, it cannot be detected

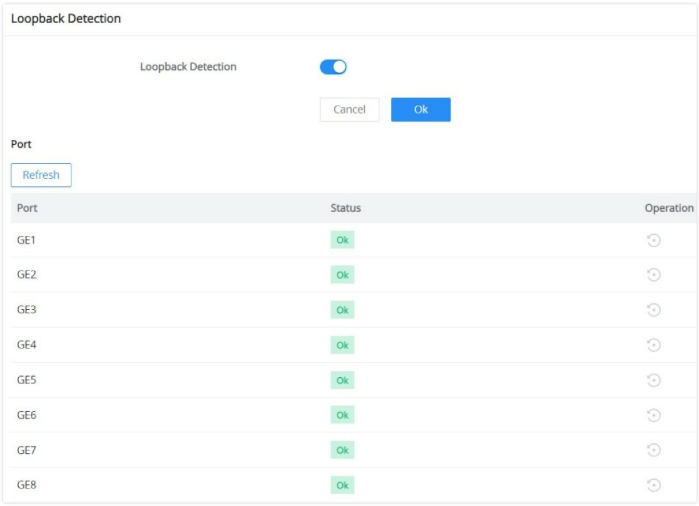


Cable Test

Loopback Detection

The GWN7711(P) switches support loopback detection, a feature commonly used in computer networking to identify and mitigate network loops that can cause broadcast storms and negatively impact network performance. Network loops occur when there is more than one path between switches on a network and data circulates endlessly, consuming network bandwidth and potentially causing network outages.

To enable loopback detection, toggle the feature by navigating to **Monitoring** → **Loopback Detection**.



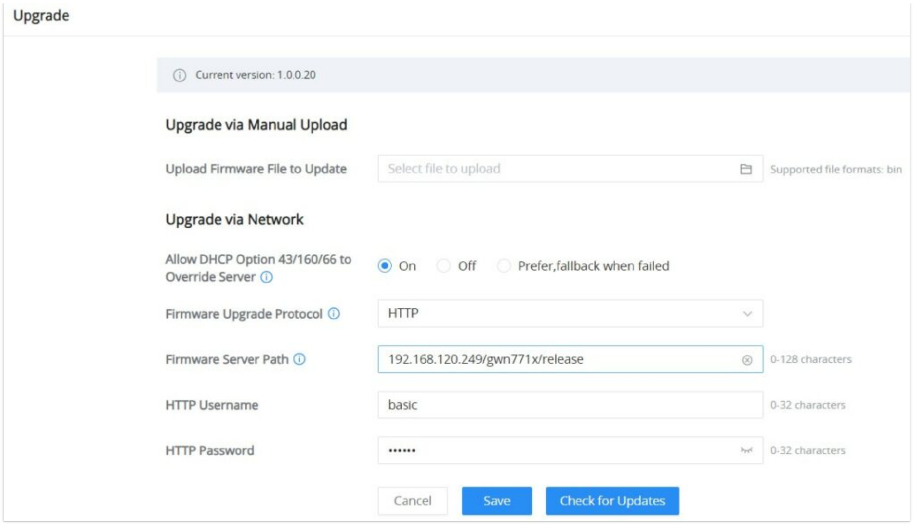
Loopback Detection

MAINTENANCE

Upgrade

GWN7711(P) Switches support manual upload firmware upgrade via a BIN file that can downloaded from the Grandstream Firmware page: https://www.grandstream.com/support/firmware

Upgrade Via Network is also supported by specifying the Firmware Server Path (For example firmware.grandstream.com).



Upgrade

Backup & Restore

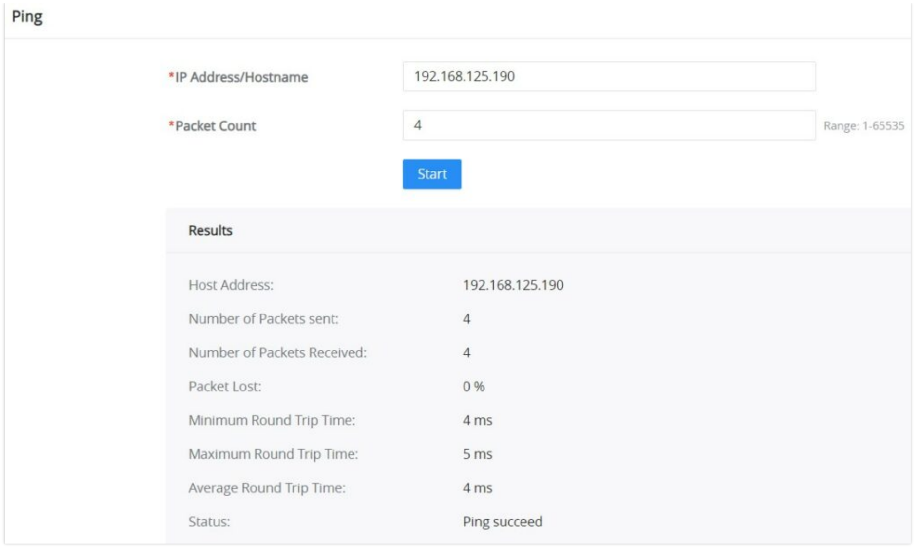
On this page, the user can back up the configuration, restore from a previously saved configuration file or factory reset the GWN7711(P).

- **Backup:** The current switch configuration can be exported and saved to your computer. In the future, if you need to restore this configuration, you can simply import the backup file.
- **Restore:** The switch configuration can be restored based on the imported configuration file. If the device fails to be restored, hold down the Pinhole button on the back of the switch for five seconds to restore the switch to factory settings.
- **Factory Reset:** After factory restoration, all configurations of the switch will be restored to factory defaults. Please use it with caution! You are recommended to back up the current configuration before factory restoration.

Backup & Restore

Ping

The user on this page can enter the IP Address or Hostname and then click "**Start**", the results of the ping command will be shown below.



Ping

CHANGE LOG

This section documents significant changes from previous versions of the GWN7711(P) switches user manuals. Only major new features or major document updates are listed here. Minor updates for corrections or editing are not documented here.

Firmware Version 1.0.1.25

- No major changes.
- This is the initial version for GWN7710R.

Firmware Version 1.0.1.22

- Added support for GDMS Networking and GWN Manager. [Manager Settings]
- Added the cloud connection status icon. [Manager Settings]
- Added the risk alarm for PSE reset. [Power Supply Setting]
- Added prompt when saving the PoE function. [Power Supply Setting]

Firmware Version 1.0.0.8

- This is the initial release.