



Grandstream Networks, Inc.

GWN771x Series

GWN771x Layer 2 lite – User Manual



The GWN7711(P) Series are Layer 2 lite managed network switches that enable small to medium-sized businesses to build scalable, secure, high-performance, intelligent business networks that are easy to use and manage. It supports VLAN for flexible and sophisticated traffic segmentation, QoS for prioritizing network traffic, IGMP snooping for optimizing network performance, and comprehensive security features against potential attacks. The PoE model provides intelligent dynamic PoE output to power IP phones, IP cameras, Wi-Fi access points, and other PoE endpoints, and the PoE model can support 24V DC passive PoE output mode. The GWN7711(P) Series is easy to manage and deploy, including the local web interface of the GWN7711(P) Series switch and GWN.Cloud. The desktop and wall-mount installation method is suitable for hotels, home offices, small-to-medium businesses, and other similar industries, making the GWN7711(P) Series the ideal managed network switch for small-to-medium businesses.

PRODUCT OVERVIEW

Technical Specifications

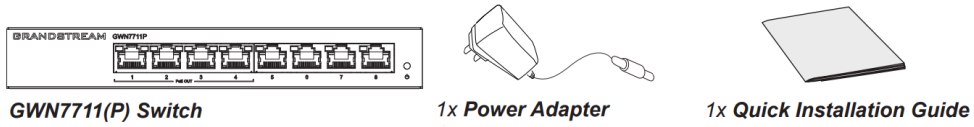
	GWN7711	GWN7711P
Network Protocol	Network Protocol IPv4, IEEE 802.3i, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3x, IEEE 802.1p, IEEE 802.3af, IEEE 802.3at	
Gigabit Ethernet Ports	8	
PoE Out Ports	/	4
Power Supply	External 5VDC/0.6A	External 48-53.5VDC/1.22A
PoE Output	/	<p>Port 1-4 compliance with the 802.3af/at standard:</p> <ul style="list-style-type: none"> Support up to 30W on each PoE port, total 60W Power Budget. <p>Port 1-4 can also switch to 24VDC Passive PoE-Out mode via WebUI:</p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> • 4K VLANs • Port-based VLAN, 802.1Q VLAN 	
LAG	4	
Multicast	IGMP Snooping, Report Message Suppression	
QoS	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Storm control • Port VLAN isolation • Filtering MAC address • Kensington Security Slot (Kensington Lock) support 	
Mounting	Desktop/Wall-mount	
LED Indicators	<ul style="list-style-type: none"> • Per Port: Link/Activity - Green • Port 1-4: PoE power state - Yellow • Per Device: Power - Green 	
Environmental	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • Unit: 164 x 80 x 30mm • Package: 202 x 166 x 54mm 	<ul style="list-style-type: none"> • 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	

INSTALLATION

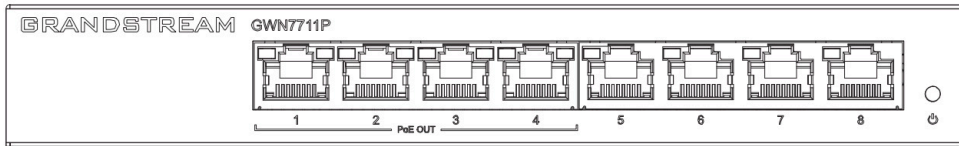
Before deploying and configuring the GWN7711(P) switch, the device needs to be properly powered up and connected to the network. This section describes detailed information on the installation, connection, and warranty policy of the GWN7711(P) switch.

Package Contents



GWN7711(P) package contents

GWN7711 Ports



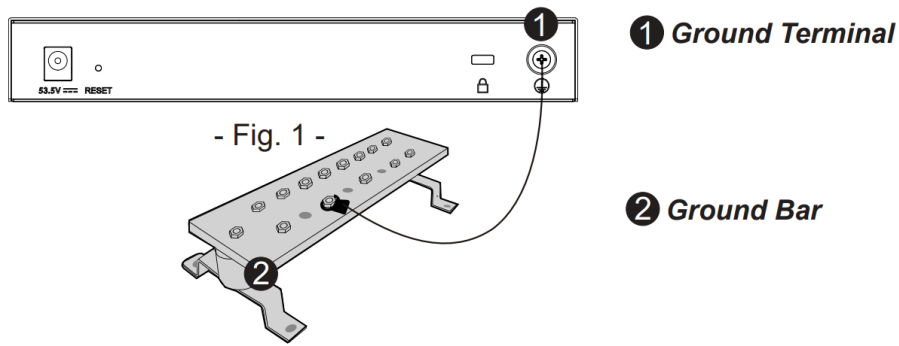
GWN7711(P) Ports

	GWN7711	GWN7711P
Gigabit Ethernet Ports		8
PoE Out Ports	/	4
PoE Output	/	<p>Port 1-4 compliance with the 802.3af/at standard:</p> <ul style="list-style-type: none"> Support up to 30W on each PoE port, total 60W Power Budget. <p>Port 1-4 can also switch to 24VDC Passive PoE-Out mode via WebUI:</p> <ul style="list-style-type: none"> 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 (-).

GWN7711(P) Ports

Grounding and Accessing GWN7711(P)

Grounding the GWN7711P Switch



GWN7711P Grounding the 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.

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.

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

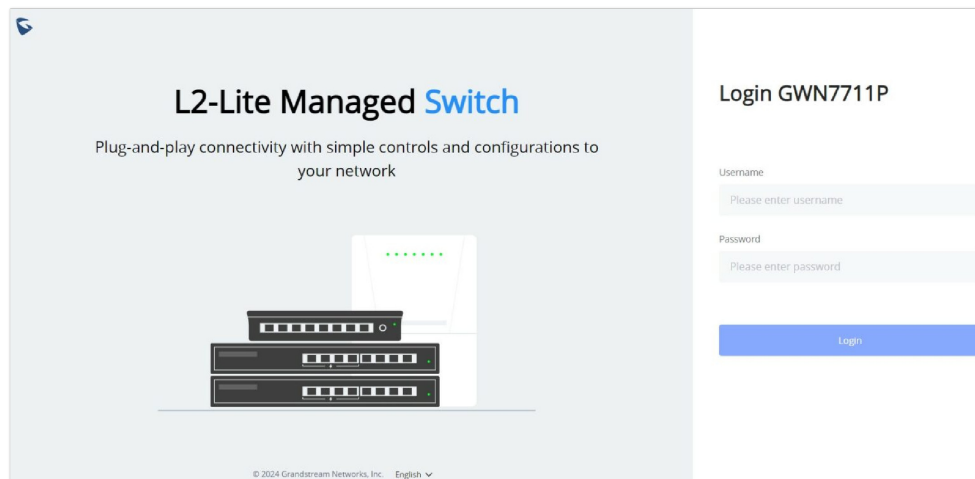
Access and configure

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

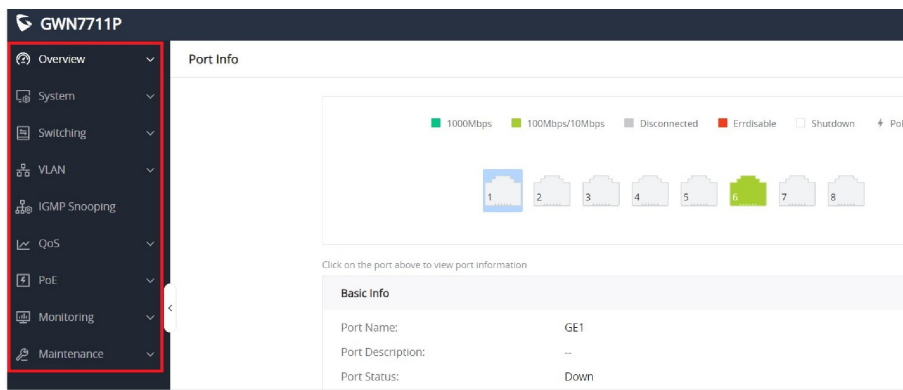
Configure using GWN.Cloud/GWN Manager

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.

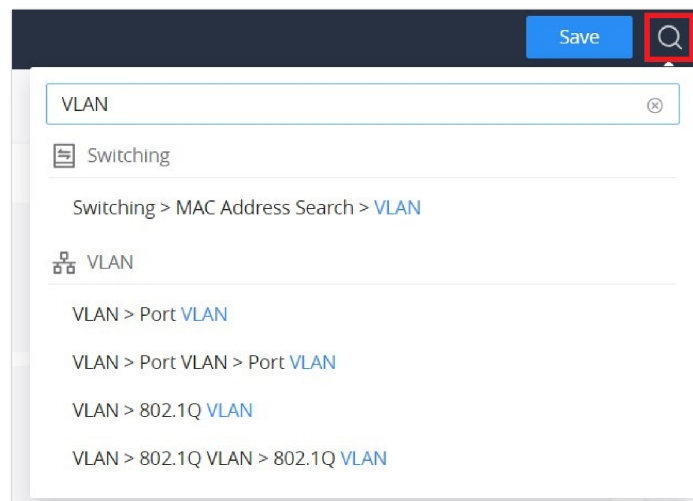


WebUI configuration

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

Basic Info

Device Name: GWN7711P

System Location: --

System Contact: --

MAC Address: C0:74:AD:xxxxxx

Management IPv4 Address: 192.168.125.190

Subnet Mask: 255.255.255.0

Gateway: 192.168.125.1

Part Number: 9xxxxxxx

Serial Number: Txxxxxxx

System Version: 1.xxxxx

Hardware Version: V1xxx

Boot Version: 1.xxxx

System Uptime: 1 day, 7 hours, 45 minutes

PSE Resource Status

Total PSE Power: 60.00 W

PSE Remaining Power: 60.00 W

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

■ 1000Mbps
 ■ 100Mbps/10Mbps
 ■ Disconnected
 ■ ErrDisable
 Shutdown
 ⚡ PoE

1

2

3

4

5

6

7

8

Click on the port above to view port information:

Basic Info

Port Name: GE1

Port Description: --

Port Status: Down

Speed: Auto

Duplex Mode: Auto

Flow Control: Auto

Jumbo Frame: 9k

PoE Power Supply

Power Status: Not powered

Power Supply Standard: 802.3af/at







Max Power Supply: 30.00 W


Current Power: --

Power Supply Priority: Low

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.


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

IPv4 Address mode DHCP Static

Automatically get DNS

*DNS1

DNS2

IP Setting

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

Jumbo Frame: 9K

Cancel Ok

Port

Edit Refresh

Port	Description	Status	Link Status	Speed	Duplex	Flow Control	Operation
<input type="checkbox"/> GE1	--	Enabled	Down	Auto	Auto	Auto	
<input type="checkbox"/> GE2	--	Enabled	Down	Auto	Auto	Auto	
<input type="checkbox"/> GE3	--	Enabled	Down	Auto	Auto	Auto	
<input type="checkbox"/> GE4	--	Enabled	Down	Auto	Auto	Auto	
<input type="checkbox"/> GE5	--	Enabled	Down	Auto	Auto	Auto	
<input type="checkbox"/> GE6	--	Enabled	Up	Auto (100Mbps)	Auto (Full)	Auto (ON)	
<input type="checkbox"/> GE7	--	Enabled	Down	Auto	Auto	Auto	
<input type="checkbox"/> GE8	--	Enabled	Down	Auto	Auto	Auto	

Port Settings

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

Port Settings > Edit Port

Port: GE1

Description:

Port Enable:

Auto:

Speed: 1000Mbps

Duplex Mode: Full Half

Flow Control: Disabled Enabled
Flow control function will not take effect when the duplex mode is set to "Half"

Cancel Ok

Port Settings – Edit port

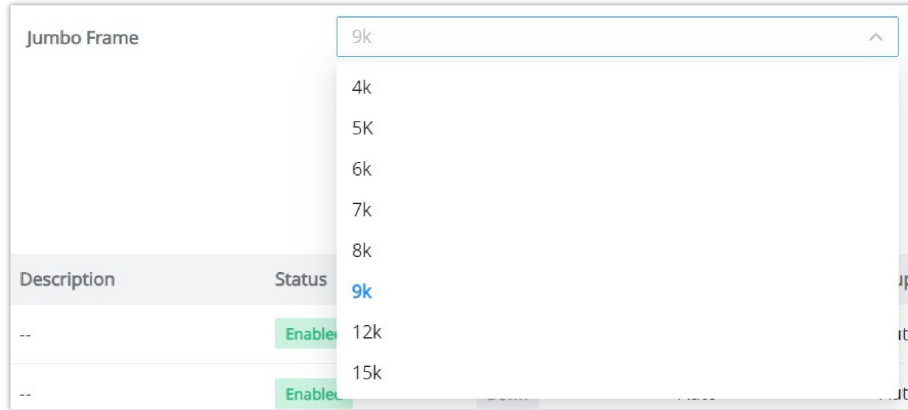
Port	The selected Port to be configured.
Description	It is used to configure the information description of this interface , which can be a description of usage, etc., with a maximum of 32 characters, and the characters limited to input are numbers 0-9 , letters az / AZ and special characters.
Port Enable	Set whether to enable the interface. <i>it is enabled by default.</i>
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: <ul style="list-style-type: none"> ● 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}. <i>The default is Duplex.</i> <ul style="list-style-type: none"> ● 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}. <i>The default is Enabled.</i> 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	Description	Status	Link Status	Speed	Flow Control	Active Member	Inactive Member	Operation
LAG1	--	--	--	--	--	--	--	
LAG2	--	--	--	--	--	--	--	
LAG3	--	--	--	--	--	--	--	
LAG4	--	--	--	--	--	--	--	

LAG groups

LAG > Edit Group

Member Port ⓘ
Click on port to select/unselect

Description: LAG1 0:32 characters

Port Enable:

Speed: 1000Mbps

Flow Control: Disabled Enabled

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. <i>it is enabled by default.</i>
Speed	Set the rate of the interface, the options are {10Mbps, 100Mbps, 1000Mbps}. <i>The default is 1000Mbps.</i>
Flow Control	Set the flow control on the interface, the options are { Disabled, Enabled}. <i>The default is Enabled.</i> 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

*MAC Address

VLAN Range: 1-4094

Search Result

MAC Address	VLAN	Port
 No Data		

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.

VLAN	Port	Operation
1	GE1 - GE8	
2	--	
3	--	
4	--	
5	--	
6	--	
7	--	
8	--	

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

VLAN: 2

Physical port
Click on port to select/unselect

1 2 3 4 5 6 7 8

Cancel Ok

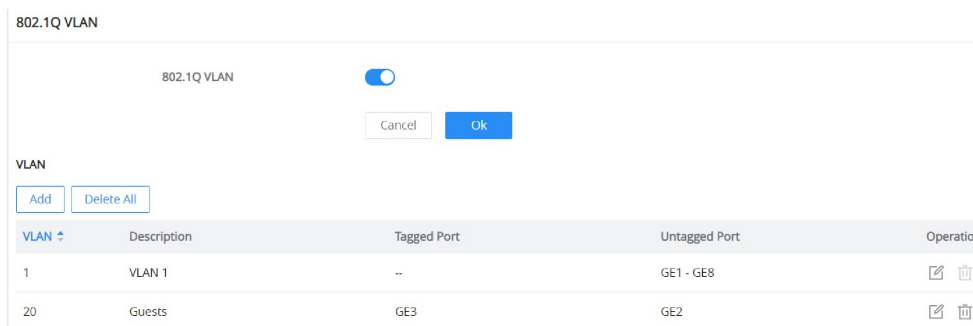
Port VLAN – Edit VLAN

802.1Q VLAN

For more flexibility and control over VLAN configuration, the user can enable 802.1Q VLAN, and in 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:

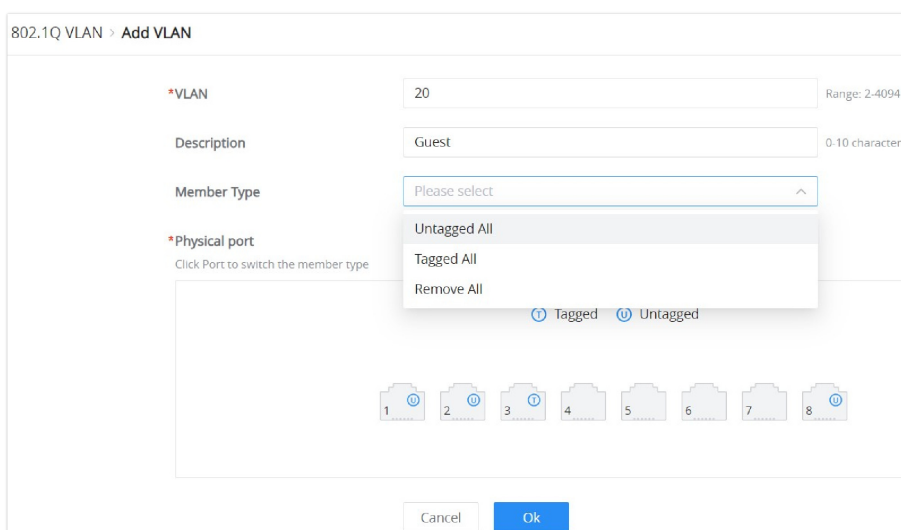
When 802.1Q VLAN is enabled, Port VLAN will be automatically disabled and the configured information will be lost.



802.1Q VLAN

On this screen, the user can configure the VLAN:

- o **VLAN:** specify the VLAN ID (Range 2-4094).
- o **Description:** enter a description for the VLAN.
- o **Member Type:** a shortcut to untag/tag or remove all members.
- o **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			
Edit			
Port	PVID	Operation	
<input checked="" type="checkbox"/> GE1	1	Edit	
<input checked="" type="checkbox"/> GE2	1	Edit	
<input type="checkbox"/> GE3	1	Edit	
<input type="checkbox"/> GE4	1	Edit	
<input type="checkbox"/> GE5	1	Edit	
<input type="checkbox"/> GE6	1	Edit	
<input type="checkbox"/> GE7	1	Edit	
<input type="checkbox"/> GE8	1	Edit	

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

QoS Mode: Port-Based 802.1P-Based DSCP-Based

Buttons: Cancel, Ok

Port Priority

Edit

Port	Priority	Operation
<input checked="" type="checkbox"/> GE1	0	
<input checked="" type="checkbox"/> GE2	0	
<input type="checkbox"/> GE3	0	
<input type="checkbox"/> GE4	0	
<input type="checkbox"/> GE5	0	
<input type="checkbox"/> GE6	0	
<input type="checkbox"/> GE7	0	
<input type="checkbox"/> GE8	0	

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.

Dialog Title: Edit

Port: GE1

* Priority: 0
Range 0-7. A larger value indicates a higher priority

Buttons: Cancel, OK

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.

- o **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).

802.1p	CoS
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7

Priority Mapping – 802.1p Mapping

- o **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)

DSCP	CoS	DSCP	CoS	DSCP	CoS	DSCP	CoS	DSCP	CoS	DSCP	CoS	DSCP	CoS	DSCP	CoS
0[CS0]	0	8[CS1]	1	16[CS2]	2	24[CS3]	3	32[CS4]	4	40[CS5]	5	48[CS6]	6	56[CS7]	7
1	0	9	1	17	2	25	3	33	4	41	5	49	6	57	7
2	0	10[AF11]	1	18[AF21]	2	26[AF31]	3	34[AF41]	4	42	5	50	6	58	7
3	0	11	1	19	2	27	3	35	4	43	5	51	6	59	7
4	0	12[AF12]	1	20[AF22]	2	28[AF32]	3	36[AF42]	4	44	5	52	6	60	7
5	0	13	1	21	2	29	3	37	4	45	5	53	6	61	7
6	0	14[AF13]	1	22[AF23]	2	30[AF33]	3	38[AF43]	4	46[EF]	5	54	6	62	7
7	0	15	1	23	2	31	3	39	4	47	5	55	6	63	7

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										
Edit										
Port	Queuing Algorithm	Weight								Operation
		0	1	2	3	4	5	6	7	
<input checked="" type="checkbox"/> GE1	Strict Priority (SP)	--	--	--	--	--	--	--	--	
<input checked="" type="checkbox"/> GE2	Strict Priority (SP)	--	--	--	--	--	--	--	--	
<input type="checkbox"/> GE3	Strict Priority (SP)	--	--	--	--	--	--	--	--	
<input type="checkbox"/> GE4	Strict Priority (SP)	--	--	--	--	--	--	--	--	
<input type="checkbox"/> GE5	Strict Priority (SP)	--	--	--	--	--	--	--	--	
<input type="checkbox"/> GE6	Strict Priority (SP)	--	--	--	--	--	--	--	--	
<input type="checkbox"/> GE7	Strict Priority (SP)	--	--	--	--	--	--	--	--	
<input type="checkbox"/> GE8	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**

Port: GE1

Queuing Algorithm: Strict Priority (SP)

Queue ID	Weight
0	--
1	--
2	--
3	--
4	--

Cancel Ok

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					
Edit					
Port	Ingress	Ingress CIR (Kbps)	Egress	Egress CIR (Kbps)	Operation
<input checked="" type="checkbox"/> GE1	Disabled	--	Disabled	--	
<input type="checkbox"/> GE2	Disabled	--	Disabled	--	
<input type="checkbox"/> GE3	Disabled	--	Disabled	--	
<input type="checkbox"/> GE4	Disabled	--	Disabled	--	
<input type="checkbox"/> GE5	Disabled	--	Disabled	--	
<input type="checkbox"/> GE6	Disabled	--	Disabled	--	
<input type="checkbox"/> GE7	Disabled	--	Disabled	--	
<input type="checkbox"/> GE8	Disabled	--	Disabled	--	

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: GE1

Ingress:

*Ingress CIR (Kbps) ⓘ: 1000000

Egress:

*Egress CIR (Kbps): 1000000

Cancel Ok

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

Unit: kbps

IFG: Include Exclude

Cancel Ok

Port

Edit

Port	Status	Broadcast	Broadcast Threshold	Unknown Multicast	Unknown Multicast Threshold	Unknown Unicast	Operation
<input checked="" type="checkbox"/> GE1	Disabled	Disabled	--	Disabled	--	Disabled	
<input type="checkbox"/> GE2	Disabled	Disabled	--	Disabled	--	Disabled	
<input type="checkbox"/> GE3	Disabled	Disabled	--	Disabled	--	Disabled	
<input type="checkbox"/> GE4	Disabled	Disabled	--	Disabled	--	Disabled	
<input type="checkbox"/> GE5	Disabled	Disabled	--	Disabled	--	Disabled	
<input type="checkbox"/> GE6	Disabled	Disabled	--	Disabled	--	Disabled	
<input type="checkbox"/> GE7	Disabled	Disabled	--	Disabled	--	Disabled	

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

Port	GE1	
Storm Control	<input checked="" type="checkbox"/>	
Broadcast	<input checked="" type="checkbox"/>	
*Threshold (Kbps)	64	The valid range is 1-1000000, and it is automatically converted to an approximation of the port fit.
Unknown Multicast	<input checked="" type="checkbox"/>	
*Threshold (Kbps)	64	The valid range is 1-1000000, and it is automatically converted to an approximation of the port fit.
Unknown Unicast	<input checked="" type="checkbox"/>	
*Threshold (Kbps)	64	The valid range is 1-1000000, and it is automatically converted to an approximation of the port fit.
	Cancel	Ok

Storm Control – Edit a port

Unit	<p>Select Unit:</p> <ul style="list-style-type: none"> ● kbps: Storm control rate will be calculated by octet-based. ● pps: Storm control rate will be calculated by packet-based.
IFG	<p>Select IFG (Inter Frame Gap):</p> <ul style="list-style-type: none"> ● 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	<p>Set whether to enable the storm threshold setting for broadcast packets. If Enabled Please enter a Treshhold (Kbps).</p> <p><i>Note: The valid range is 1-1000000, and it is automatically converted to an approximation of the port fit.</i></p>
Unknown Multicast	<p>Set whether to enable the storm threshold setting for the Unknown Multicast packets If Enabled Please enter a Treshhold (Kbps).</p> <p><i>Note: The valid range is 1-1000000, and it is automatically converted to an approximation of the port fit.</i></p>
Unknown Unicast	<p>Set whether to enable the storm threshold setting for the Unknown Unicast packets. If Enabled Please enter a Treshhold (Kbps).</p> <p><i>Note: The valid range is 1-1000000, and it is automatically converted to an approximation of the port fit.</i></p>

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

[Refresh](#)

Global

PoE Port Number:	4
Total Power Input:	65.00 W
Total PSE Power:	60.00 W
4Pair Remaining Power:	0.00 W
PSE Power Consumption:	0.00 W
PSE Remaining Power:	60.00 W

Chip 1

Work Status:	On
Supply Voltage:	52.65 V

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.

Power Supply Setting

*Total Power Input Range: 15-115

[Cancel](#) [Save](#)

Port Settings

[Refresh](#) [PSE Reset](#)

Port	Power Status	Power Supply Standard	Power Supply Mode	Power Supply Priority	Max Power Supply(W)	Current (mA)	Current Power(W)	PD Class	Temperature(°C)	Operation
GE1	Not powered	802.3af/at	Auto	Low	30.00	--	--	--	37.00	✎
GE2	Not powered	802.3af/at	Auto	Low	30.00	--	--	--	35.00	✎
GE3	Not powered	802.3af/at	Auto	Low	30.00	--	--	--	36.00	✎
GE4	Not powered	802.3af/at	Auto	Low	30.00	--	--	--	36.00	✎

Power Supply Setting

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: GE1

Power Supply Standard: 802.3af/at

Power Supply Mode: Auto

Power Supply Priority: Low

[Cancel](#) [Save](#)

Power Supply Setting – Edit port

MONITORING

Port Statistics

For monitoring or even sometimes troubleshooting, the Flow Statistics displays in real time the flow of data with different units like Octets, 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	InPackets	InErrPackets	OutPackets	OutErrPackets	Operation
GE1	0	0	0	0	ⓘ 🗑
GE2	0	0	0	0	ⓘ 🗑
GE3	0	0	0	0	ⓘ 🗑
GE4	0	0	0	0	ⓘ 🗑
GE5	0	0	0	0	ⓘ 🗑
GE6	829628	0	5791	0	ⓘ 🗑
GE7	0	0	0	0	ⓘ 🗑
GE8	0	0	0	0	ⓘ 🗑

Port Statistics

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

GE6	
RX Drop Packet	0
RX filtering Packet	737149
RX Unicast Packet	13782
RX Multicast Packet	674894
RX Broadcast Packet	175712
RX Alignment Error Packet	0
RX CRC Packet	0
RX Undersize Packet	0
RX Fragment Error Packet	0
RX Oversize Packet	0
RX Jabber Error Packet	0
RX Pause Packet	0
RX Packet Length Error	100100









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.

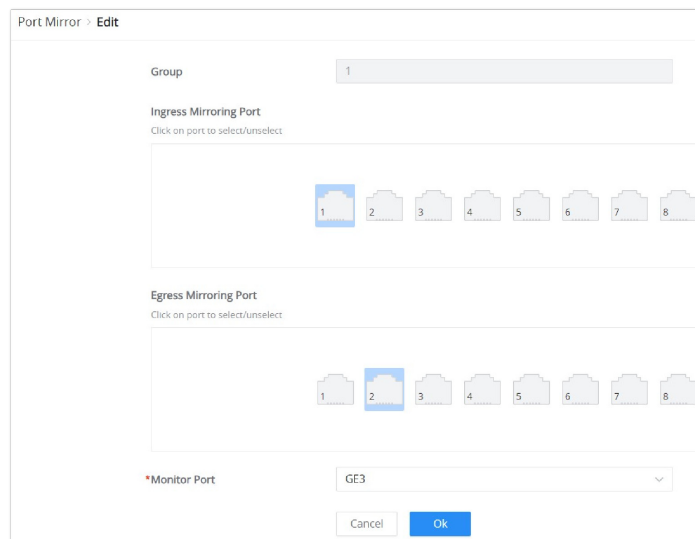
Mirroring can make a copy of the original packet without affecting the normal processing of the original packet by the device, and send it to the monitoring device through the observation port to determine whether the service running on the network is normal.

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

Port Mirror				
Group	Ingress Mirroring Port	Egress Mirroring Port	Monitor Port	Operation
1	--	--	--	 
2	--	--	--	 
3	--	--	--	 
4	--	--	--	 

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

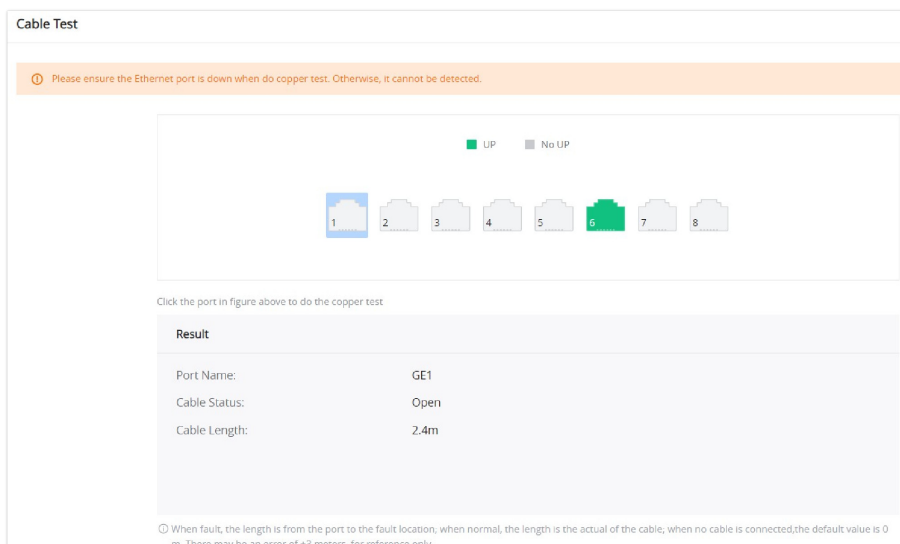
Cable Test

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



Result	
Port Name:	GE1
Cable Status:	Open
Cable Length:	2.4m

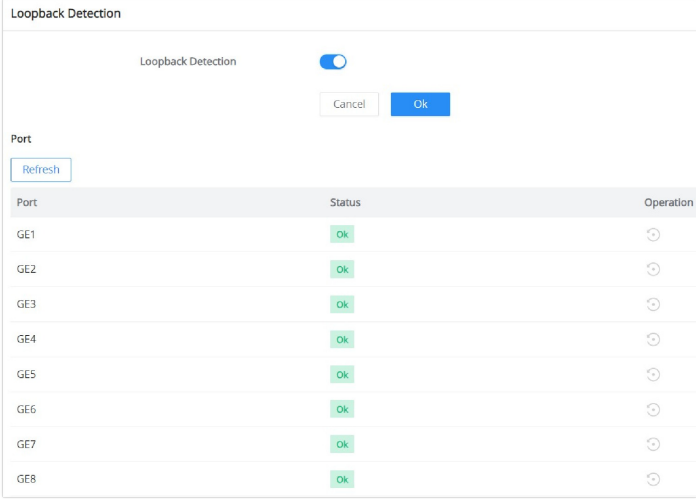
① When fault, the length is from the port to the fault location, when normal, the length is the actual of the cable, when no cable is connected, the default value is 0 m. There may be an error of ±3 meters, for reference only.

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

Loopback Detection

Cancel Ok

Port

Refresh

Port	Status	Operation
GE1	Ok	↻
GE2	Ok	↻
GE3	Ok	↻
GE4	Ok	↻
GE5	Ok	↻
GE6	Ok	↻
GE7	Ok	↻
GE8	Ok	↻

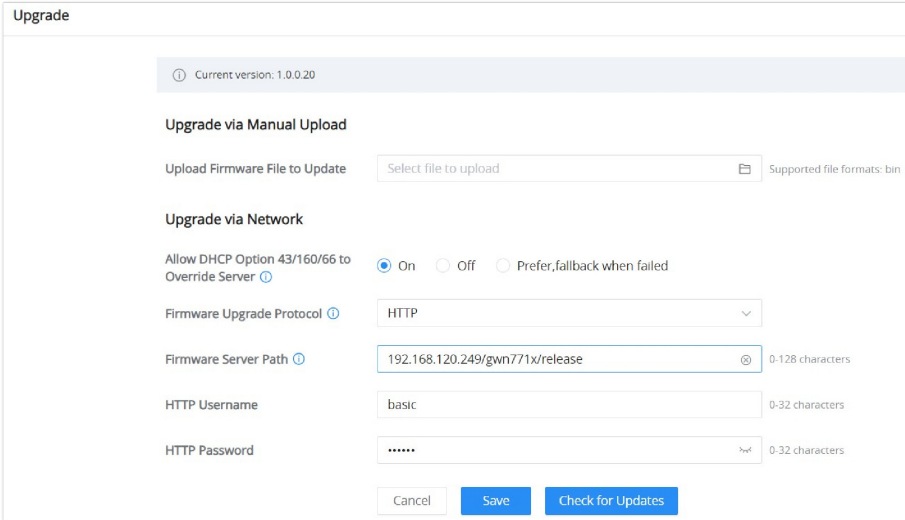
Loopback Detection

MAINTENANCE

Upgrade

GWN7711(P) Switches support manual upload firmware upgrade via a BIN file that can be 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

Current version: 1.0.0.20

Upgrade via Manual Upload

Upload Firmware File to Update Supported file formats: bin

Upgrade via Network

Allow DHCP Option 43/160/66 to Override Server On Off Prefer, fallback when failed

Firmware Upgrade Protocol

Firmware Server Path 0-128 characters

HTTP Username 0-32 characters

HTTP Password 0-32 characters

Cancel Save Check for Updates

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

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 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

*IP Address/Hostname

*Packet Count Range: 1-65535

Results

Host Address:	192.168.125.190
Number of Packets sent:	4
Number of Packets Received:	4
Packet Lost:	0 %
Minimum Round Trip Time:	4 ms
Maximum Round Trip Time:	5 ms
Average Round Trip Time:	4 ms
Status:	Ping succeed

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.

Version 1.0.0.20

- This is the initial release.