

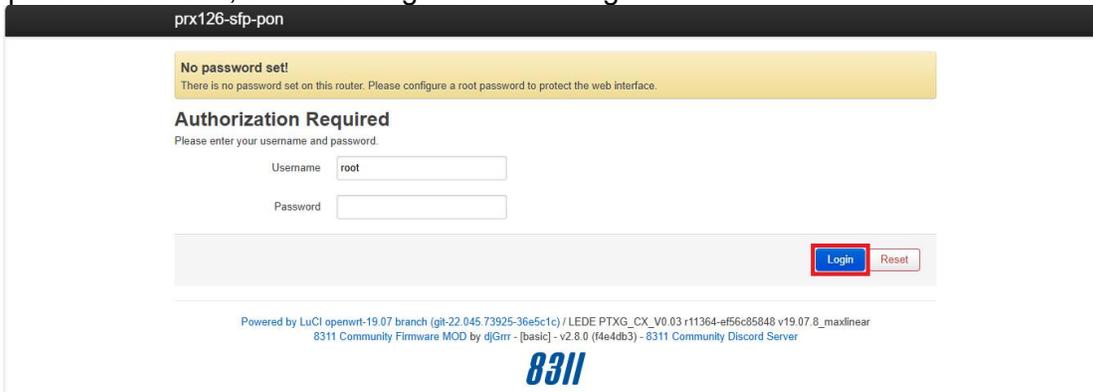
## XGSPON ONU Stick SFP+ 8311 Firmware Version User Guide

### 1. Preparation:

- (1) Computer, network cable;
- (2) A switch or router that supports 10G optical ports.

### 2. Connect XGSPON STICK ONU:

- (1) Connect the computer's network cable and XGSPON ONU Stick SFP+ to the switch, set the computer's IP address to be in the same subnet as XGSPON ONU Stick SFP+: 192.168.11.2.
- (2) Enter 192.168.11.1 in the web browser, follow the prompt to switch to HTTPS. There is no password default; click the "Login" button to log in.



prx126-sfp-pon

**No password set!**  
There is no password set on this router. Please configure a root password to protect the web interface.

**Authorization Required**  
Please enter your username and password.

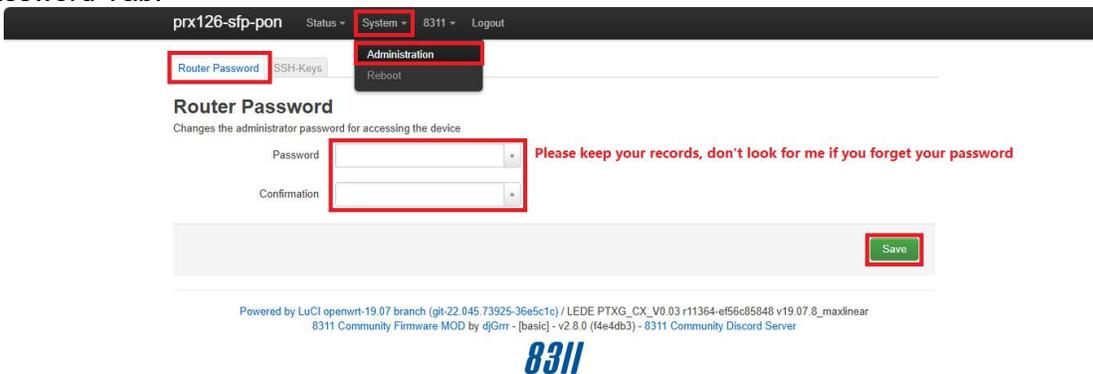
Username

Password

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**8311**

- (3) Set the XGSPON ONU Stick SFP+ password in the menu path: 8311 --> System --> Administration --> Router Password Tab:



prx126-sfp-pon Status System 8311 Logout

**Router Password** SSH-Keys Administration Reboot

**Router Password**  
Changes the administrator password for accessing the device

Password

Confirmation

Please keep your records, don't look for me if you forget your password

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**8311**

### 3. Configuration Instructions:

(1) Set PON mode: Current firmware supports switching between XGS-PON and XG-PON modes.

(2) Set OMCI: Includes Vendor ID, Equipment ID, Hardware Version, Software Version A, Software Version B, OMCC Version, MIB File (the default /etc/mibs/prx300\_1U.ini supports Huawei OLT).

**It is recommended to first enter simple verification information for testing; if it fails, proceed to more detailed settings (Vendor ID, Equipment ID, Hardware Version, etc.)**

(3) Authentication Configuration: LOID, LOID + MAC, SN, Password, SN + Password.

(4) The Password (Ploam Password / Registration ID) value must be converted to hexadecimal format. Online tools such as the following can assist in the conversion:

<https://coding.tools/cn/ascii-to-hex>

ASCII to Hex Online Tool - Coding.Tools

<https://hack-gpon.org/ascii-hex>

ASCII and Hex Converter | Hack GPON

## ASCII and Hex converter

Last Modified: 2023/10/10 • 2 Contributors

Tool for converting between ASCII and Hex

### ASCII To Hex

12345678  
ASCII

Glue

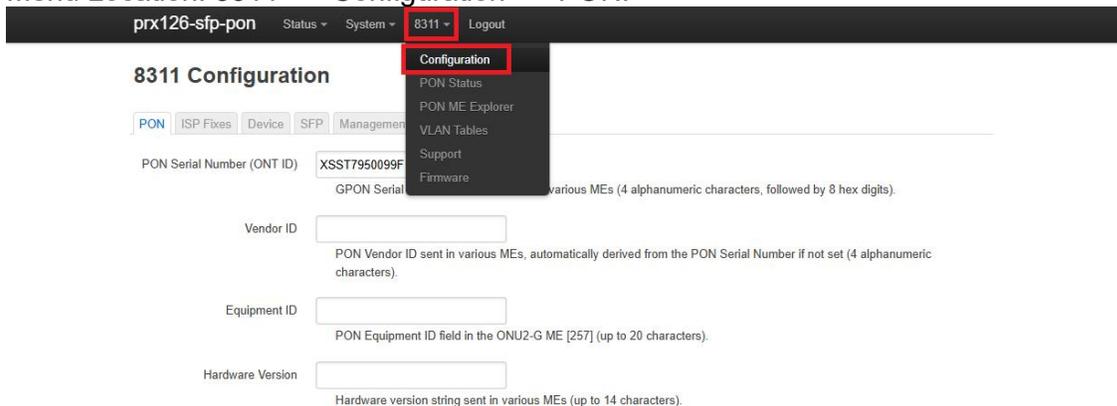
Glue/Separator (empty for the format 0x0123456789ABCDE, `` for the format 0x01 0x23 0x45 0x67 0x89 0xAB 0xCD 0xEF)

**Calculate!**      **3132333435363738 is the converted hexadecimal value (excluding 0x)**

0x3132333435363738  
HEX Result

### 4. Steps to Configure:

Menu Location: 8311 --> Configuration --> PON.



The screenshot shows a web interface for configuration. At the top, there is a navigation bar with 'prx126-sfp-pon', 'Status', 'System', '8311', and 'Logout'. Below this, the '8311 Configuration' page is displayed. A 'Configuration' dropdown menu is open, showing options: 'PON Status', 'PON ME Explorer', 'VLAN Tables', 'Support', and 'Firmware'. The 'PON' sub-menu is selected, showing fields for 'PON Serial Number (ONT ID)' (value: XSST7950099F), 'GPON Serial' (with a note: 'various MEs (4 alphanumeric characters, followed by 8 hex digits)'), 'Vendor ID', 'Equipment ID', and 'Hardware Version'. Each field has a text input box and a descriptive note below it.

It is recommended to verify information first and modify only if it fails.  
 For example, if your ISP only uses SN for authentication, you only need to fill in the SN for verification. Input Vendor ID, Equipment ID, Hardware Version, etc., to communicate with XGSPON OLT. Below is an example; you can refer to the status page info of your previous optical modem for details.  
 Input the SN in the first field; PON SN refers to the device SN.

prx126-sfp-pon    Status ▾    System ▾    8311 ▾    Logout

### 8311 Configuration

PON    ISP Fixes    Device    SFP    Management

PON Serial Number (ONT ID)  **GPON SN**  
GPON Serial Number sent to the OLT in various MEs (4 alphanumeric characters, followed by 8 hex digits).

Vendor ID  **Vendor ID**  
PON Vendor ID sent in various MEs, automatically derived from the PON Serial Number if not set (4 alphanumeric characters).

Equipment ID  **Equipment ID, can be set to mainstream optical modem models**  
PON Equipment ID field in the ONU2-G ME [257] (up to 20 characters).

Hardware Version  **Hardware Version**  
Hardware version string sent in various MEs (up to 14 characters).

Sync Circuit Pack Version  **Tick on**  
Modify the configured MIB file to set the Version field of any Circuit Pack MEs [6] to match the Hardware Version (if set).

Software Version A  **Software version A, you can fill in the software version according to your modem, or V1.0.0**  
Image specific software version sent in the Software image MEs [7] (up to 14 characters).

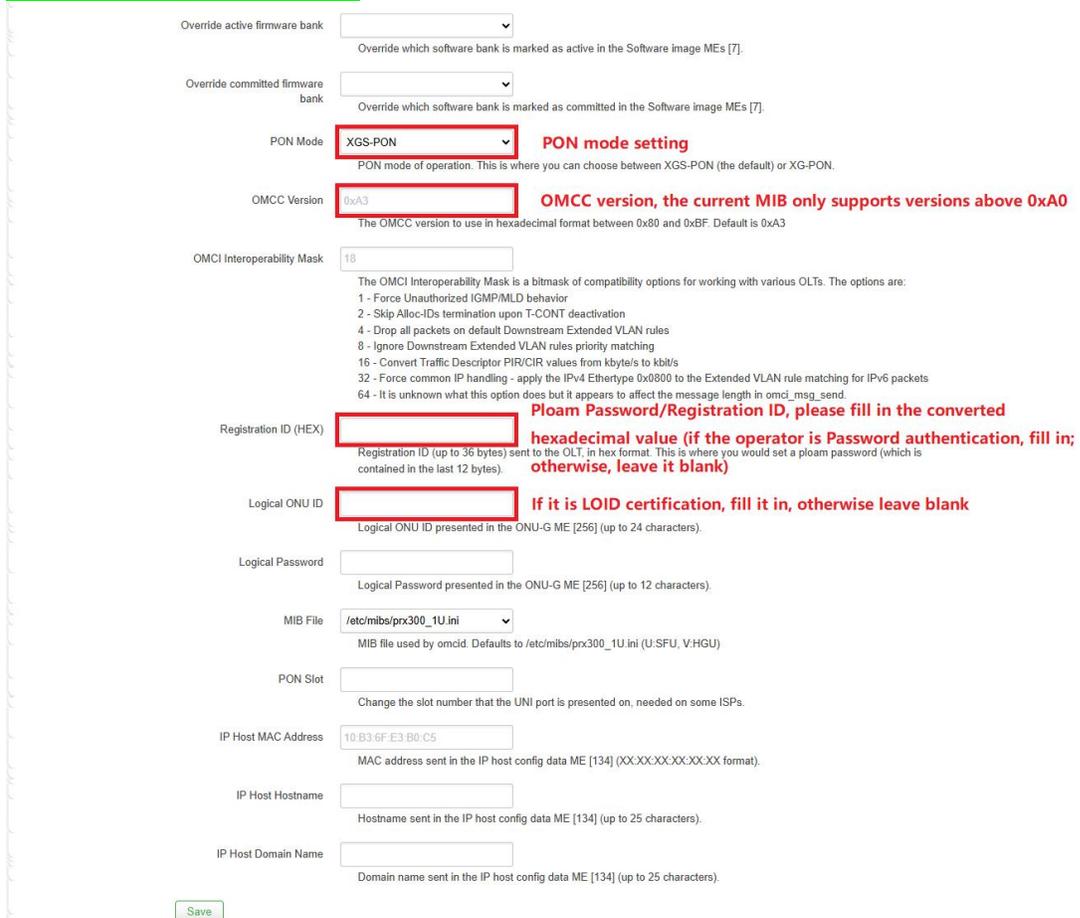
Software Version B  **Software version B, you can fill in the software version according to your modem, or V1.0.0**  
Image specific software version sent in the Software image MEs [7] (up to 14 characters).

Firmware Version Match   
PCRE pattern match for automatic updating of Software Versions when OLT uploads a firmware upgrade. Must contain a single sub-pattern match.

Firmware Match Number   
If there are multiple matches for the Firmware Version Match pattern, use this specific match number.

The default is XGSPON mode; if needed, you can switch to XGPON mode.

**Remember to click "Save."**



Override active firmware bank  Override which software bank is marked as active in the Software image MEs [7].

Override committed firmware bank  Override which software bank is marked as committed in the Software image MEs [7].

PON Mode **XGS-PON** **PON mode setting**  
PON mode of operation. This is where you can choose between XGS-PON (the default) or XG-PON.

OMCC Version **0xA3** **OMCC version, the current MIB only supports versions above 0xA0**  
The OMCC version to use in hexadecimal format between 0x80 and 0xBF. Default is 0xA3.

OMCI Interoperability Mask   
The OMCI Interoperability Mask is a bitmask of compatibility options for working with various OLTs. The options are:  
1 - Force Unauthorized IGMP/MLD behavior  
2 - Skip Alloc-IDs termination upon T-CONT deactivation  
4 - Drop all packets on default Downstream Extended VLAN rules  
8 - Ignore Downstream Extended VLAN rules priority matching  
16 - Convert Traffic Descriptor PIR/CIR values from kbyte/s to kbit/s  
32 - Force common IP handling - apply the IPv4 Ethertype 0x0800 to the Extended VLAN rule matching for IPv6 packets  
64 - It is unknown what this option does but it appears to affect the message length in omci\_msg\_send.

Registration ID (HEX)  **Ploam Password/Registration ID, please fill in the converted hexadecimal value (if the operator is Password authentication, fill in; otherwise, leave it blank)**  
Registration ID (up to 36 bytes) sent to the OLT, in hex format. This is where you would set a ploam password (which is contained in the last 12 bytes).

Logical ONU ID  **If it is LOID certification, fill it in, otherwise leave blank**  
Logical ONU ID presented in the ONU-G ME [256] (up to 24 characters).

Logical Password   
Logical Password presented in the ONU-G ME [256] (up to 12 characters).

MIB File   
MIB file used by omcid. Defaults to /etc/mibs/prx300\_1U.ini (U:SFU, V:HGU).

PON Slot   
Change the slot number that the UNI port is presented on, needed on some ISPs.

IP Host MAC Address   
MAC address sent in the IP host config data ME [134] (XX:XX:XX:XX:XX:XX format).

IP Host Hostname   
Hostname sent in the IP host config data ME [134] (up to 25 characters).

IP Host Domain Name   
Domain name sent in the IP host config data ME [134] (up to 25 characters).

**MIB files cannot establish a dial-up connection by default. Try modifying other fields, then save and reboot the XGSPON ONU Stick SFP+.**

**If modifying the MIB causes a freeze and you cannot access the webui:**

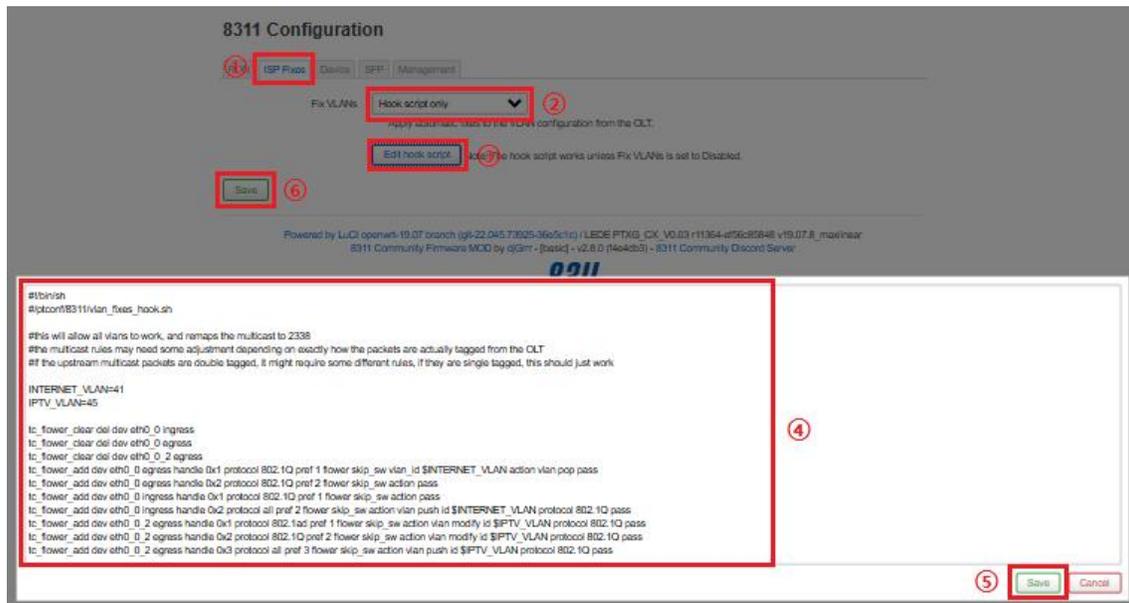
- 1) Some MIB modifications may trigger a freeze (due to a "unbrickable uboot" setup). Follow these steps:
- 2) Ping 192.168.11.1 on your computer. Unplug and replug the XGSPON ONU Stick SFP+. Once the ping succeeds, quickly access the web UI, revert the MIB to default, save, and reboot the device. You have only ~20 seconds to complete this before it freezes again.

## 5. VLAN Configuration

Menu Location: 8311 → Configuration → ISP Repair

(1) Under Fix VLAN, select "Hook Script Only".

(2) Click Step 3 in the image below, open Edit Hook Script, and verify that the script matches the example shown.



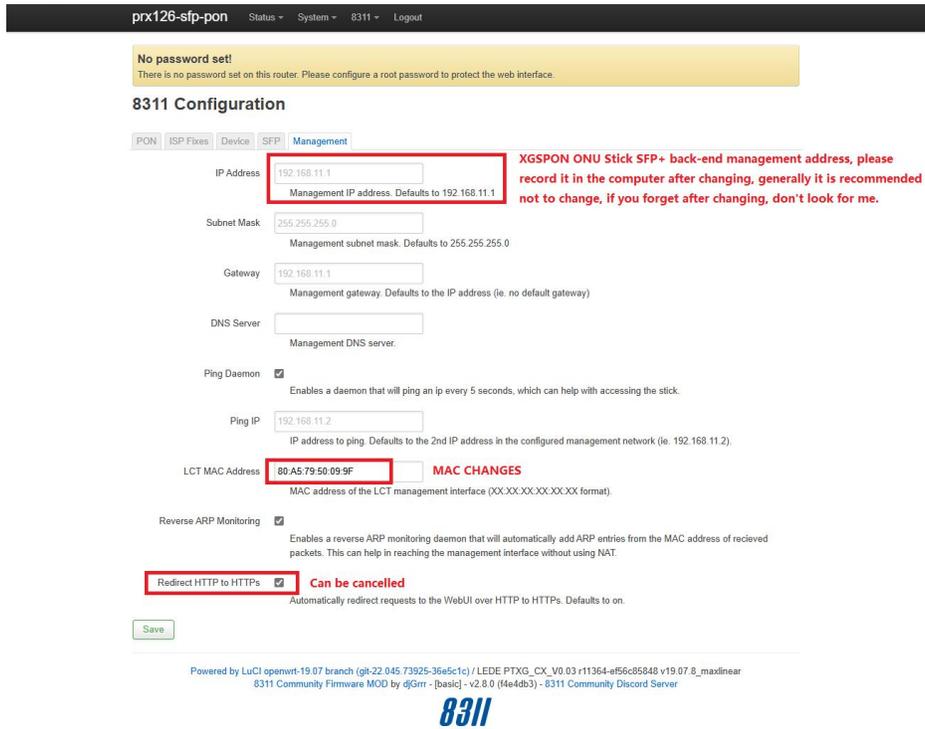
```
1 #!/bin/sh
2 #/ptconf/8311/vlan_fixes hook.sh
3
4 #this will allow all vlans to work, and remaps the multicast to 41
5 #the multicast rules may need some adjustment depending on exactly how the packets are actually tagged from the OLT
6 #if the upstream multicast packets are double tagged, it might require some different rules, if they are single tagged, this should just work
7
8 INTERNET_VLAN=41
9 IPTV_VLAN=45
10
11 tc_flower_clear del dev eth0_0 ingress
12 tc_flower_clear del dev eth0_0 egress
13 tc_flower_clear del dev eth0_0_2 egress
14 tc_flower_add dev eth0_0 egress handle 0x1 protocol 802.1Q pref 1 flower skip_sw vlan_id $INTERNET_VLAN action vlan pop pass
15 tc_flower_add dev eth0_0 egress handle 0x2 protocol 802.1Q pref 2 flower skip_sw action pass
16 tc_flower_add dev eth0_0 ingress handle 0x1 protocol 802.1Q pref 1 flower skip_sw action pass
17 tc_flower_add dev eth0_0 ingress handle 0x2 protocol all pref 2 flower skip_sw action vlan push id $INTERNET_VLAN protocol 802.1Q pass
18 tc_flower_add dev eth0_0_2 egress handle 0x1 protocol 802.1ad pref 1 flower skip_sw action vlan modify id $IPTV_VLAN protocol 802.1Q pass
19 tc_flower_add dev eth0_0_2 egress handle 0x2 protocol 802.1Q pref 2 flower skip_sw action vlan modify id $IPTV_VLAN protocol 802.1Q pass
20 tc_flower_add dev eth0_0_2 egress handle 0x3 protocol all pref 3 flower skip_sw action vlan push id $IPTV_VLAN protocol 802.1Q pass
21
```

**41 is the VLAN for internet access, it needs to be changed to my own**

**45 is the VLAN for IPTV service, it needs to be changed to your own**

**If your broadband has not activated the IPTV service, then delete the 9th, 13th, 18th, 19th, and 20th lines before uploading to the cat stick**

## 6. MAC and IP Modification



**No password set!**  
There is no password set on this router. Please configure a root password to protect the web interface.

### 8311 Configuration

IPON | ISP Fixes | Device | SFP | **Management**

IP Address: 192.168.11.1  
Management IP address. Defaults to 192.168.11.1

Subnet Mask: 255.255.255.0  
Management subnet mask. Defaults to 255.255.255.0

Gateway: 192.168.11.1  
Management gateway. Defaults to the IP address (ie. no default gateway)

DNS Server:   
Management DNS server.

Ping Daemon:   
Enables a daemon that will ping an ip every 5 seconds, which can help with accessing the stick.

Ping IP: 192.168.11.2  
IP address to ping. Defaults to the 2nd IP address in the configured management network (ie. 192.168.11.2).

LCT MAC Address: 80A5:7950:099F **MAC CHANGES**  
MAC address of the LCT management interface (XXXXXXXXXX:XX:XX format).

Reverse ARP Monitoring:   
Enables a reverse ARP monitoring daemon that will automatically add ARP entries from the MAC address of received packets. This can help in reaching the management interface without using NAT.

Redirect HTTP to HTTPS:  **Can be cancelled**  
Automatically redirect requests to the WebUI over HTTP to HTTPS. Defaults to on.

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**8311**

## 7. Post-Setup Verification

Reboot the XGSPON ONU Stick SFP+ and check the Registration/Authentication Status.



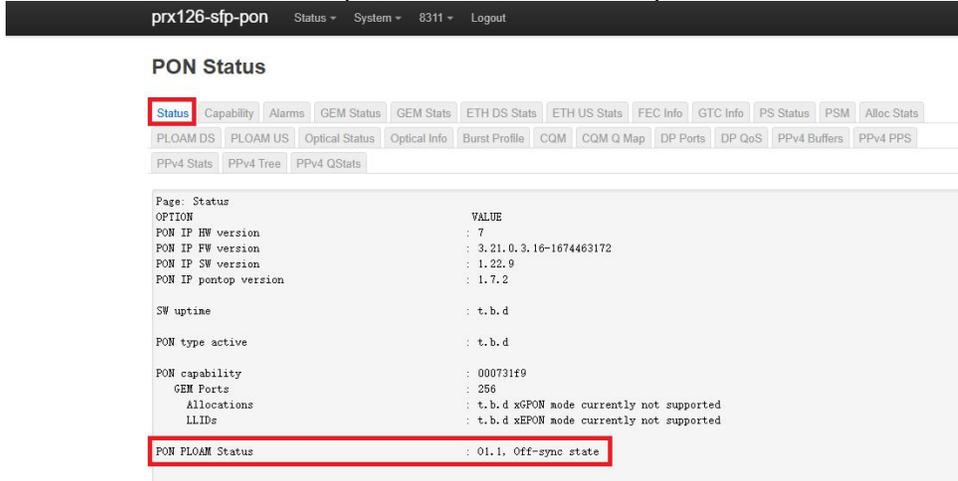
prx126-sfp-pon | Status | **System** | 8311 | Logout

**Reboot**  
Reboots the operating system of your device.

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**8311**

PON Authentication Status / Optical Module Status / Optical Module Information Query:



prx126-sfp-pon | Status | System | 8311 | Logout

### PON Status

**Status** | Capability | Alarms | GEM Status | GEM Stats | ETH DS Stats | ETH US Stats | FEC Info | GTC Info | PS Status | PSM | Alloc Stats | PLOAM DS | PLOAM US | Optical Status | Optical Info | Burst Profile | CQM | CQM Q Map | DP Ports | DP QoS | PPV4 Buffers | PPV4 PPS

PPV4 Stats | PPV4 Tree | PPV4 QStats

```

Page: Status
OPTION                               VALUE
PON IP HW version                     : 7
PON IP FW version                     : 3.21.0.3.16-1674463172
PON IP SW version                     : 1.22.9
PON IP pontop version                 : 1.7.2

SW uptime                             : t.b.d

PON type active                       : t.b.d

PON capability                        : 000731f9
GEM Ports                             : 256
Allocations                           : t.b.d xGPON mode currently not supported
LLIDs                                 : t.b.d xEPON mode currently not supported

PON PLOAM Status                     : 01.1. Off-sync state
    
```

**PON PLOAM Status:**

05 indicates authentication success; router dialing is possible.

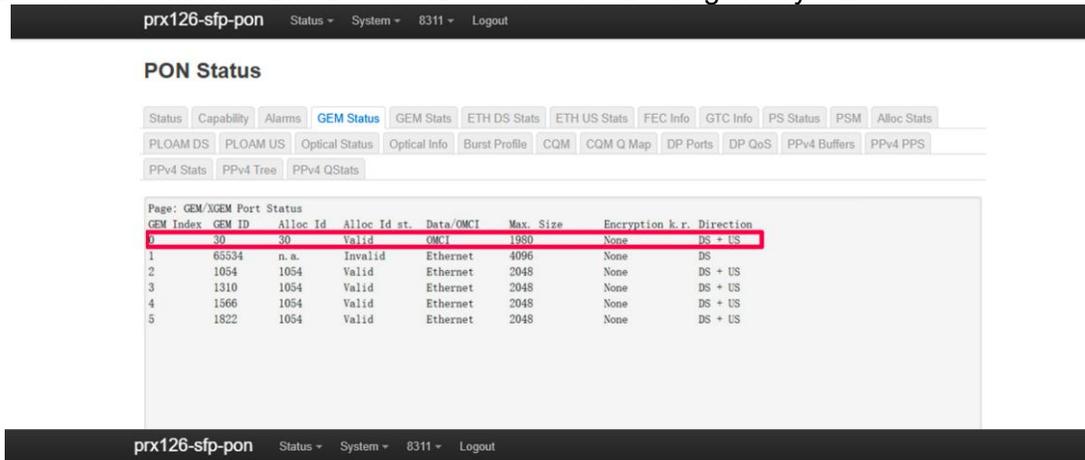
05 but unable to dial—check VLAN settings and ensure the XGSPON ONU Stick SFP+ has been rebooted.

01 indicates fiber disconnection or that the line is EPON.

02-03 indicates failed verification—check for incorrect or incomplete information and configurations.

04 indicates OLT rejection.

**GEM Port Allocation:** GEM ID/Alloc ID is the ONU ID assigned by OLT.



prx126-sfp-pon Status System 8311 Logout

**PON Status**

Status Capability Alarms **GEM Status** GEM Stats ETH DS Stats ETH US Stats FEC Info GTC Info PS Status PSM Alloc Stats

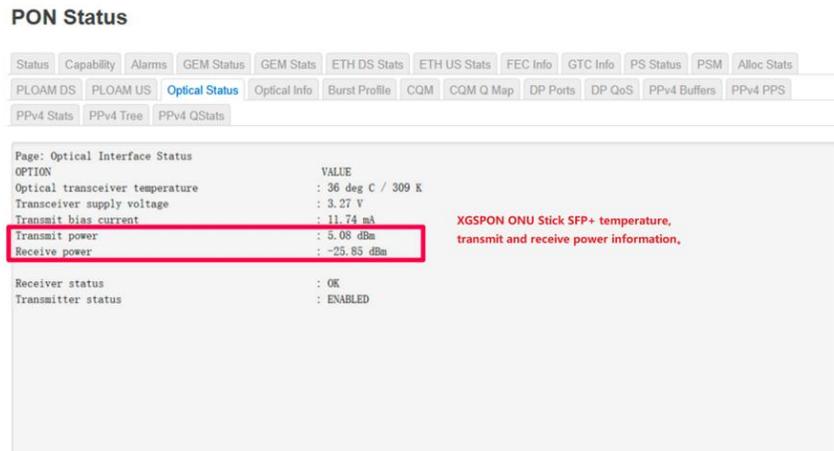
PLOAM DS PLOAM US Optical Status Optical Info Burst Profile CQM CQM Q Map DP Ports DP QoS PPv4 Buffers PPv4 PPS

PPv4 Stats PPv4 Tree PPv4 QStats

Page: GEM/XGEM Port Status

GEM Index	GEM ID	Alloc ID	Alloc Id st.	Data/OMCI	Max. Size	Encryption k.r.	Direction
0	30	30	Valid	OMCI	1980	None	DS + US
1	65534	n.a.	Invalid	Ethernet	4096	None	DS
2	1054	1054	Valid	Ethernet	2048	None	DS + US
3	1310	1054	Valid	Ethernet	2048	None	DS + US
4	1566	1054	Valid	Ethernet	2048	None	DS + US
5	1822	1054	Valid	Ethernet	2048	None	DS + US

prx126-sfp-pon Status System 8311 Logout



prx126-sfp-pon Status System 8311 Logout

**PON Status**

Status Capability Alarms GEM Status GEM Stats ETH DS Stats ETH US Stats FEC Info GTC Info PS Status PSM Alloc Stats

PLOAM DS PLOAM US **Optical Status** Optical Info Burst Profile CQM CQM Q Map DP Ports DP QoS PPv4 Buffers PPv4 PPS

PPv4 Stats PPv4 Tree PPv4 QStats

Page: Optical Interface Status

OPTION	VALUE	
Optical transceiver temperature	: 36 deg C / 309 K	
Transceiver supply voltage	: 3.27 V	
Transmit bias current	: 11.74 mA	
Transmit power	: 5.08 dBm	XGSPON ONU Stick SFP+ temperature, transmit and receive power information,
Receive power	: -25.85 dBm	
Receiver status	: OK	
Transmitter status	: ENABLED	

If the XGSPON ONU Stick SFP+ shows status 05 and VLAN is correctly configured, router dialing is possible. Regarding temperature, aim to keep it below 80°C. Specific temperature details can be viewed in the interface.

If you need router VLAN dialing, modify the content of the UNTAG script "vlan\_fixes\_hook.sh" as follows:

```
#!/bin/sh
tc_flower_clear del dev eth0_0 ingress
tc_flower_clear del dev eth0_0 egress
```

Other operations remain the same as the UNTAG script. Finally, set VLAN dialing in the router.