

PPPoE IPv4 Configuration Guide

ONT 423-41W/AC



For the Optical and Copper Installation best practices, other Technical Notes, Firmwares for this or other equipments, please consult the Technical Support area at Furukawa's web site.

Compatible firmwares from:

ONT	Firmware
423-41W/AC	1.1.3

Important:

Before beginning configuration, it is important to have the logical project in hands. It will be the guide to executing all the configurations as planned and in a fast and efficient manner. A logical project well-executed guarantees an ease network management with greater availability and reliability avoiding future issues when changes or expansions are necessary. The logical project will also serve for reference in the future and will be a powerful tool for troubleshooting network performance issues, instability, or service unavailability.

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1 OBJECTIVE

The configuration used in this document are intended to demonstrate the basic recommended WAN service activation through PPPoE IPv4 authentication on equipment ONT 423-41W/AC.

This documentation can be used with OLT models: FK-OLT-G4S, FK-OLT-G8S, FK-OLT-G2500, LD3008, LD3016 and LD3032.

2 BEST PRACTICES

It is advisable to create the data service separately from other services, that is, different VLANs for different services in order to prevent future inconveniences.

3 OLT CONFIGURATION

The configuration examples shown in this document follows the best practices recommended by Furukawa.

Necessary configuration in OLT:

- dba-profile
- extended-vlan-tagging-operation
- traffic-profile
- onu-profile

3.1 Profiles Configuration

Two VLANs will be used for the proposed configuration. One for data to access Internet services via PPPoE IPv4 (VID 701) and the other to access to the ONT's web settings from the OLT uplink, and for remote administration via IP-Host (VID 699).

Access to GPON mode:

CLI	Commands	Description
SW>	enable	Access to Exec privileged mode.
SW#	configure terminal	Enters global configuration mode.
SW(config)#	gpon	Access to GPON mode. ¹

¹Command not required for OLT LD3032.

DBA profile configuration:

CLI	Commands	Description
SW(gpon)#	dba-profile DATA create	Creates the DBA profile for data service.
SW(config-dba-profile[DATA])#	mode sr	Configures the bandwidth assignment method as Status Reporting, which specifies that the ONT is responsible for sending explicit reports for bandwidth consumption to the OLT.
SW(config-dba-profile[DATA])#	sla fixed 128	Reserves a portion of the uplink capacity allocated by the OLT statically, regardless of traffic demand. ²
SW(config-dba-profile[DATA])#	sla maximum 1031616	Defines the maximum bandwidth allowed to be dynamically assigned to the ONT according to the proportion of traffic usage.
SW(config-dba-profile[DATA])#	apply	Applies the created configuration.
SW(config-dba-profile[DATA])#	exit	Exits the profile configuration mode.

²Recommended value for use by Furukawa. Form OLT models LD3008, LD3016 and LD3032 the value must be 256.

Extended-VLAN for remote MGMT:

CLI	Commands	Description
SW(gpon) #	extended-vlan-tagging-operation MGMT create	Creates an extended-VLAN profile called MGMT.
SW(config-ext-vlan-oper[MGMT]) #	downstream-mode enable	Enables VLAN mapping for downstream transmission.
SW(config-ext-vlan-oper[MGMT]) #	untagged-frame 1	Creates table 1 of rules for untagged VLAN.
SW(config-ext-vlan-oper[MGMT]-untagged-frame[1]) #	treat inner vid 699 cos 0 tpid 0x8100	Creates the rule to be applied in access configuration, in this case, used VLAN 699 for ip-host.
SW(config-ext-vlan-oper[MGMT]-untagged-frame[1]) #	apply	Applies configuration for Extended-VLAN profile.
SW(config-ext-vlan-oper[MGMT]) #	exit	Exits profile configuration mode.

Extended-VLAN for the service:

CLI	Commands	Description
SW(gpon) #	extended-vlan-tagging-operation INTERNET create	Creates an Extended-VLAN profile called INTERNET.
SW(config-ext-vlan-oper[INTERNET]) #	downstream-mode enable	Enables VLAN mapping for downstream transmission.
SW(config-ext-vlan-oper[INTERNET]) #	single-tagged-frame 1	Creates table 1 of rules for tagged VLAN.
SW(config-ext-vlan-oper[INTERNET]-single-tagged-frame[1]) #	filter inner vid 701 cos any tpid 0x8100	Creates a filter for an Ethernet frame with TAG for VLAN 701.
SW(config-ext-vlan-oper[INTERNET]-single-tagged-frame[1]) #	treat remove single	Removes TAG from frame keeping its content in cache.
SW(config-ext-vlan-oper[INTERNET]-single-tagged-frame[1]) #	treat inner vid 701 cos copy-inner tpid 0x8100	Creates rule retrieving CoS values from cache to be applied to a trunk port for VLAN 701.
SW(config-ext-vlan-oper[INTERNET]-single-tagged-frame[1]) #	apply	Applies Extended-VLAN profile configuration.
SW(config-ext-vlan-oper[INTERNET]) #	exit	Returns to GPON mode.

Configuration of traffic profile:

CLI	Commands	Description
SW(gpon) #	traffic-profile 423-41W/AC create	Creates the traffic profile 423-41W/AC.
SW(config-traffic-pf[423-41W/AC]) #	tcont 1	Creates the container tcont 1.
SW(config-traffic-pf[423-41W/AC]-tcont[1]) #	gemport 1/1	Associates mapper 1 to its respective logical service unit.
SW(config-traffic-pf[423-41W/AC]-tcont[1]) #	dba-profile DATA	Associates the dba-profile DATA to container tcont 1.
SW(config-traffic-pf[423-41W/AC]-tcont[1]) #	tcont 2	Creates the container tcont 2.
SW(config-traffic-pf[423-41W/AC]-tcont[2]) #	gemport 2/1	Associates mapper 2 to its respective logical unit.
SW(config-traffic-pf[423-41W/AC]-tcont[2]) #	dba-profile DATA	Associates the dba-profile DATA to container tcont 2.
SW(config-traffic-pf[423-41W/AC]-tcont[2]) #	mapper 1	Creates the forwarding agent mapper 1.
SW(config-traffic-pf[423-41W/AC]-mapper[1]) #	gemport count 1	Defines the number of logical service units handled by the forwarding agent.
SW(config-traffic-pf[423-41W/AC]-mapper[1]) #	mapper 2	Creates the forwarding agent mapper 2.

SW(config-traffic-pf[423-41W/AC]-mapper[2])#	gemport count 1	Defines the number of logical service units handled by the forwarding agent.
SW(config-traffic-pf[423-41W/AC]-mapper[2])#	bridge 1	Creates and accesses mac-bridge 1 configurations.
SW(config-traffic-pf[423-41W/AC]-bridge[1])#	ani mapper 1	Associates mapper 1 to the optical interface.
SW(config-traffic-pf[423-41W/AC]-bridge[1]-ani[mapper:1])#	vlan-filter vid 701 untagged discard	Filters VLAN 701 on downstream and discards other VLANs or untagged packets.
SW(config-traffic-pf[423-41W/AC]-bridge[1]-ani[mapper:1])#	uni virtual-eth 1	Creates and accesses virtual-eth 1 interface.
SW(config-traffic-pf[423-41W/AC]-bridge[1]-uni[vir-eth:1])#	extended-vlan-tagging-operation INTERNET	Links the auxiliary profile extended-vlan INTERNET to the virtual interface.
SW(config-traffic-pf[423-41W/AC]-bridge[1]-uni[vir-eth:1])#	bridge 2	Creates and accesses mac-bridge 2 configurations.
SW(config-traffic-pf[423-41W/AC]-bridge[2])#	ani mapper 2	Associates mapper 2 to the optical interface.
SW(config-traffic-pf[423-41W/AC]-bridge[2]-ani[mapper:2])#	vlan-filter vid 699 untagged discard	Filters VLAN 699 on downstream and discards other VLANs or untagged packets.
SW(config-traffic-pf[423-41W/AC]-bridge[2]-ani[mapper:2])#	link ip-host-config 1	Links mac-bridge 2 to ip-host 1 service.
SW(config-traffic-pf[423-41W/AC]-bridge[2])#	ip-host-config 1	Creates and accesses ip-host 1 configuration.
SW(config-traffic-pf[423-41W/AC]-iphost[1])#	ip address dhcp	Sets ip-host 1 to receive IP dynamically.
SW(config-traffic-pf[423-41W/AC]-iphost[1])#	extended-vlan-tagging-operation MGMT	Links the auxiliary profile extended-vlan MGMT to ip-host 1.
SW(config-traffic-pf[423-41W/AC]-iphost[1])#	apply	Applies configurations.
SW(config-traffic-pf[423-41W/AC])#	exit	Returns to GPON mode.

Onu-profile configuration:

CLI	Commands	Description
SW(gpon)#	onu-profile 423-41W/AC create	Creates the profile 423-41W/AC.
SW(config-onu-profile[423-41W/AC])#	traffic-profile 423-41W/AC	Associates traffic-profile 423-41W/AC to ONU profile.
SW(config-onu-profile[423-41W/AC])#	apply	Applies profile configuration.
SW(config-onu-profile[423-41W/AC])#	exit	Returns to GPON mode.

To apply the created profile to the ONT, use the commands below (OLTs FK-OLT-G4S, FK-OLT-G8S, FK-OLT-G2500, LD3008 and LD3016).

CLI	Commands	Description
SW(gpon)#	gpon-olt 1	Access the GPON interface that contains the ONT.
SW(config-gpon-olt[1])#	show onu info	Auxiliary command to consult information about ONTs connected to the OLT port.
SW(config-gpon-olt[1])#	onu-profile 1 423-41W/AC	Applies profile 423-41W/AC to ONU ID 1.

To apply the created profile to the ONT, use the commands below (OLT LD3032).

CLI	Commands	Description
SW(gpon)#	interface gpon 1/1	Accesses the GPON interface that contains the ONT.
SW(config-gpon-olt[1/1])#	show onu info	Auxiliary command to consult information about ONTs connected to the OLT port.

SW(config-gpon-olt[1/1])#	onu-profile 1 423-41W/AC	Applies profile 423-41W/AC to ONU ID 1.
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Note: If your OLT model is LD2500, see the configuration guide (by clicking [here](#)) for the ONT on our website.

4 WEB CONFIGURATION

The web interface configuration should follow the next steps:

- Access to the Web interface via IP configured to IP-Host.
- WAN configuration for Internet service using PPPoE protocol.

4.1 Access to the WEB interface

The web interface can be accessed via LAN, through IP address IPv4 **192.168.1.1:8080** or IPv6 **[fe80::1]:8080**, via IP-Host interface or through WAN interfaces when these are already configured.

For this document, the IP-Host address will be used.

With the command **show onu ip-host [ONU_ID]** it is possible to verify the IPv4 address assigned to the IP-Host servicel. In this example the address that will be used to access the ONT via web interface is **10.80.46.233**. By default, the TCP port for configuration access **8080**.

```
G8S-STI(config-gpon-olt[1])# show onu model-name 1
-----
  OLT | ONU |   Model Name
-----
    1 |   1 | 423-41W/AC
G8S-STI(config-gpon-olt[1])# show onu info 1
-----
  OLT | ONU | STATUS | Serial No. | Distance | Rx Power | Profile
-----
    1 |   1 | Active | FRKW213de380 |      0m | - 13.9 dBm | 423-41W/AC
G8S-STI(config-gpon-olt[1])# show onu ip-host 1
-----
  OLT : 1, ONU : 1, Host : 1(0x0000)
-----
IP Option           : DHCP
MAC Address         : b8:26:d4:3d:e3:80
Current IP          : 10.80.46.233
Current Mask        : 255.255.255.192
Current Gateway     : 10.80.46.193
Current Primary DNS : 10.41.112.20
Current Secondary DNS : 10.41.112.15
Domain name         :
Host name           :
```

Figure 1. IP-Host query at OLT.

There are two different types of users to access the ONT web interface, each with specific profiles according to their privilege.

Restricted access for end users:

- Username: **admin**
- Password: **fkW123**

Full access for network/service providers:

- Username: **support**
- Password: **fkW@123**

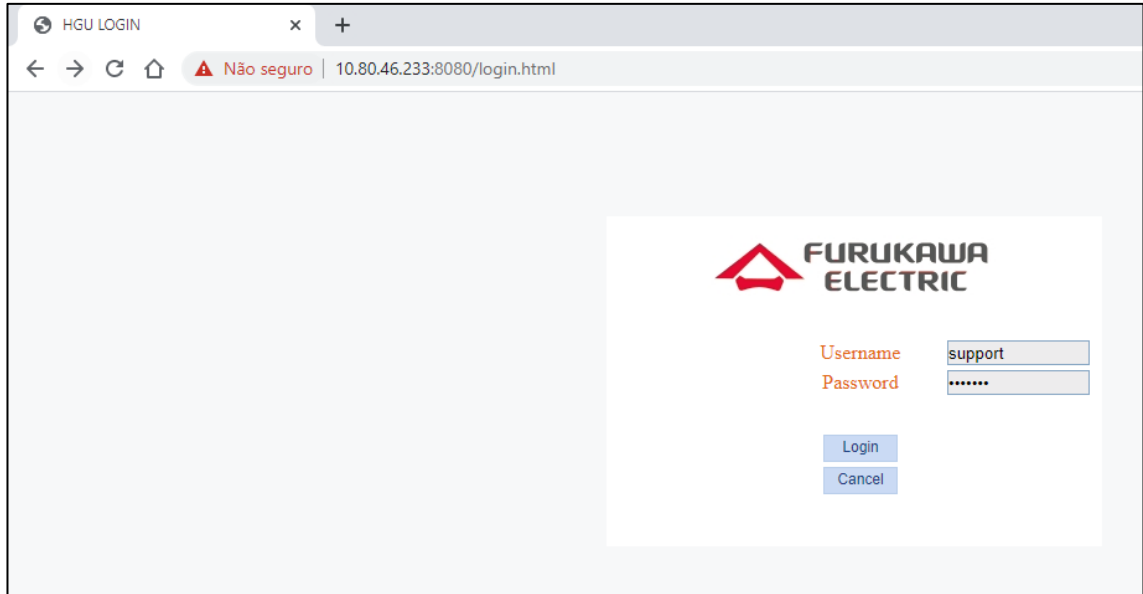


Figure 2. Home screen to access the ONT web settings.

It is possible to see on the image below that the user *support* has access to all menus and settings for the ONT. This is the user that will be used in this guide.

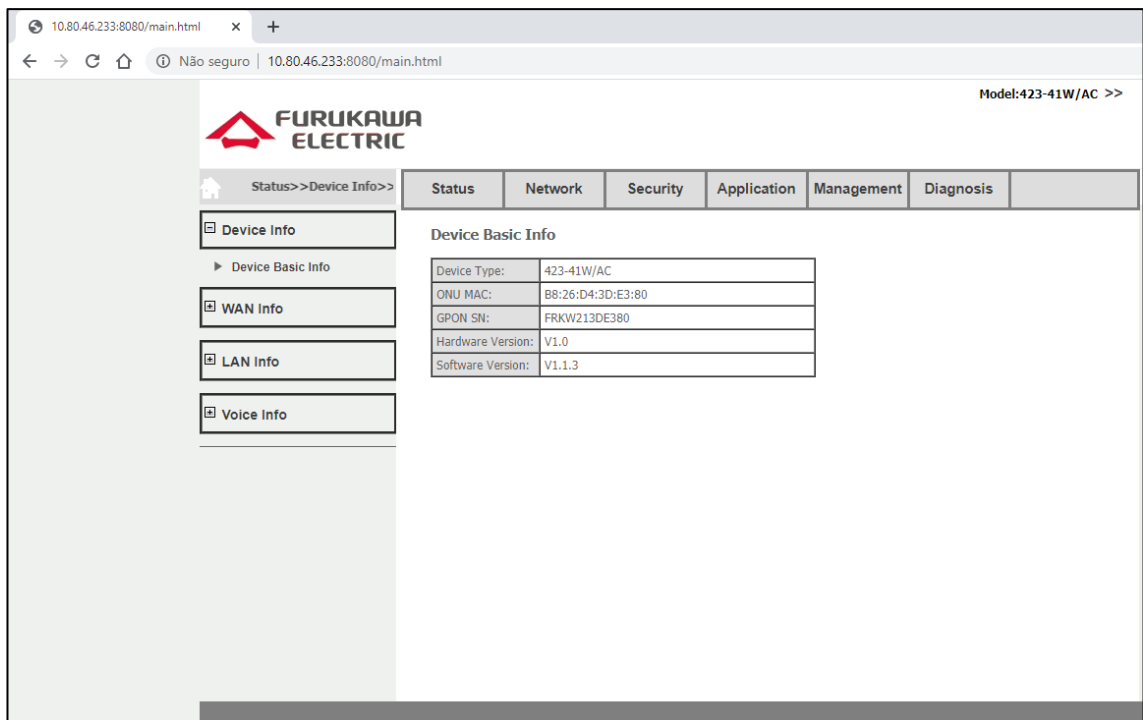


Figure 3. Access with *support* user.

The following image shows the access limitations when using the *admin* user. It is possible to see on the main screen differences in menus and access permissions.

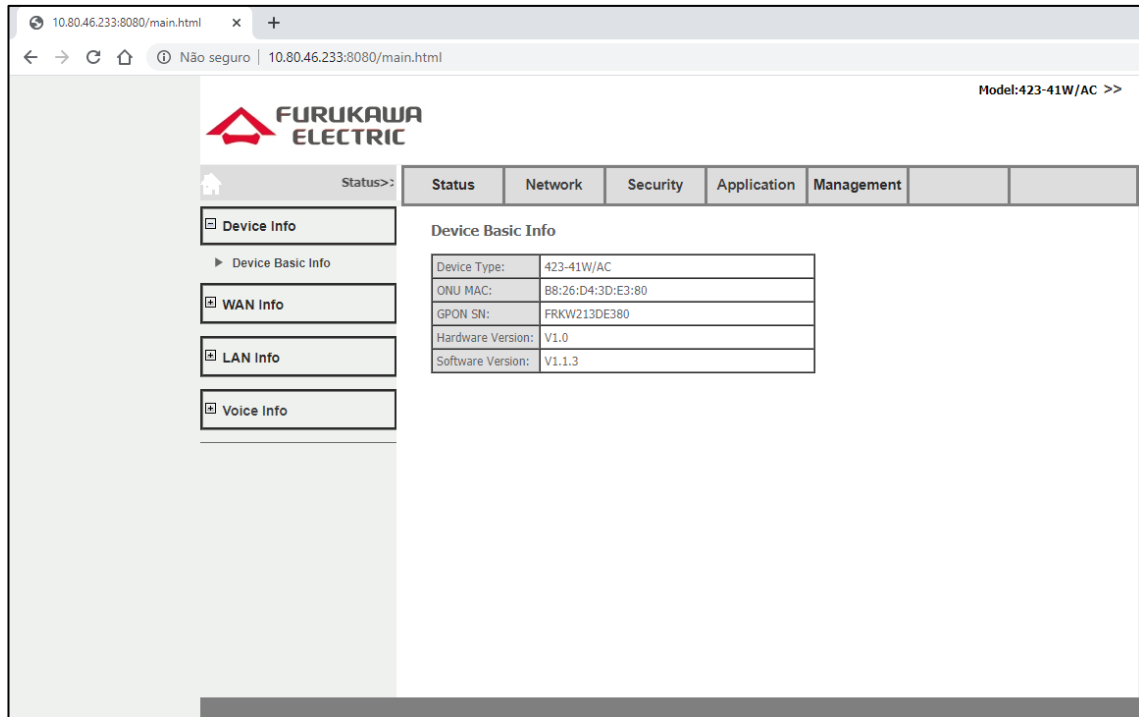


Figure 4. Access with **admin** user.

5 PPPOE CONFIGURATION

5.1 Creating a PPPoE WAN for *Dual Stack*

To configure the WAN, access the menu **Network** ⇒ **WAN**.

- Connected Name: **Add new WAN**
- Mode: **Route**
- IP Mode: **IPv4**
- **PPPoE** ⇒ *Disable PPPoE Agent or PPPoE Hybrid Model of Router and Bridge.*
- *Check* ⇒ **NAT** and **Enable VLAN**
- Vlan ID: **701**
- 802.1p: **0**
- Username ⇒ **PPPoE user**
- Password ⇒ **PPPoE session password**
- Service Mode: **INTERNET**
- Bind Port ⇒ **Port_1 / Port_2 / Wireless(SSID1)**
- **Save/Apply**

The next two images highlight the options used the previous options to configure PPPoE service for IPv4.

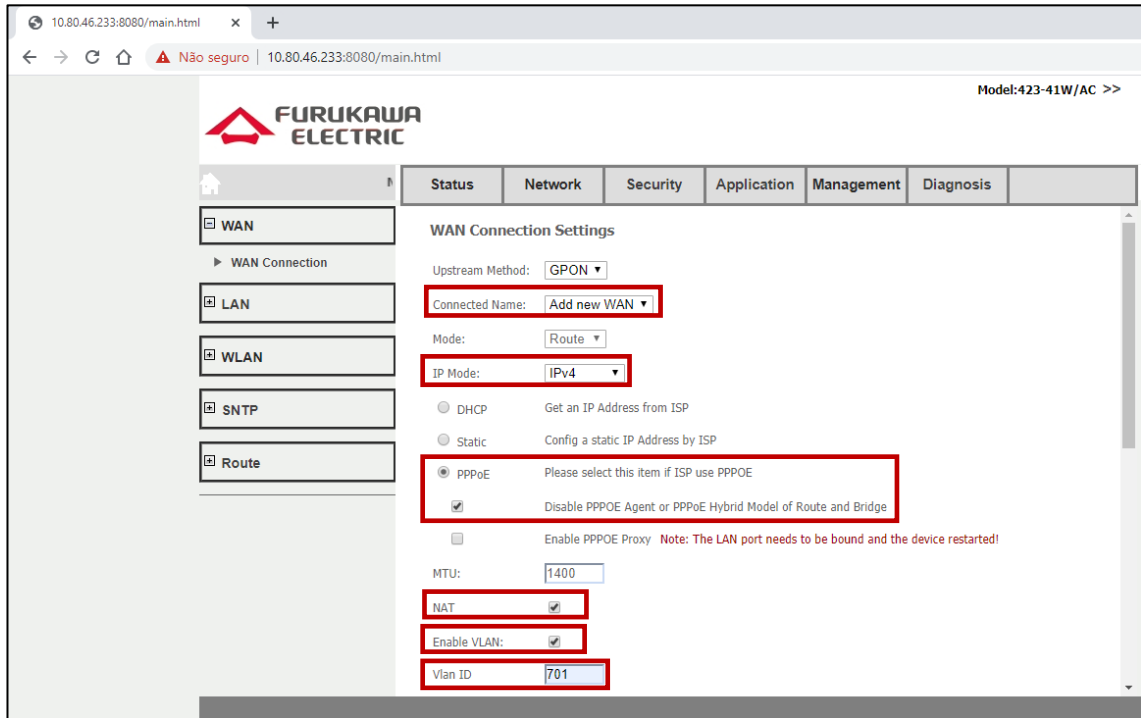
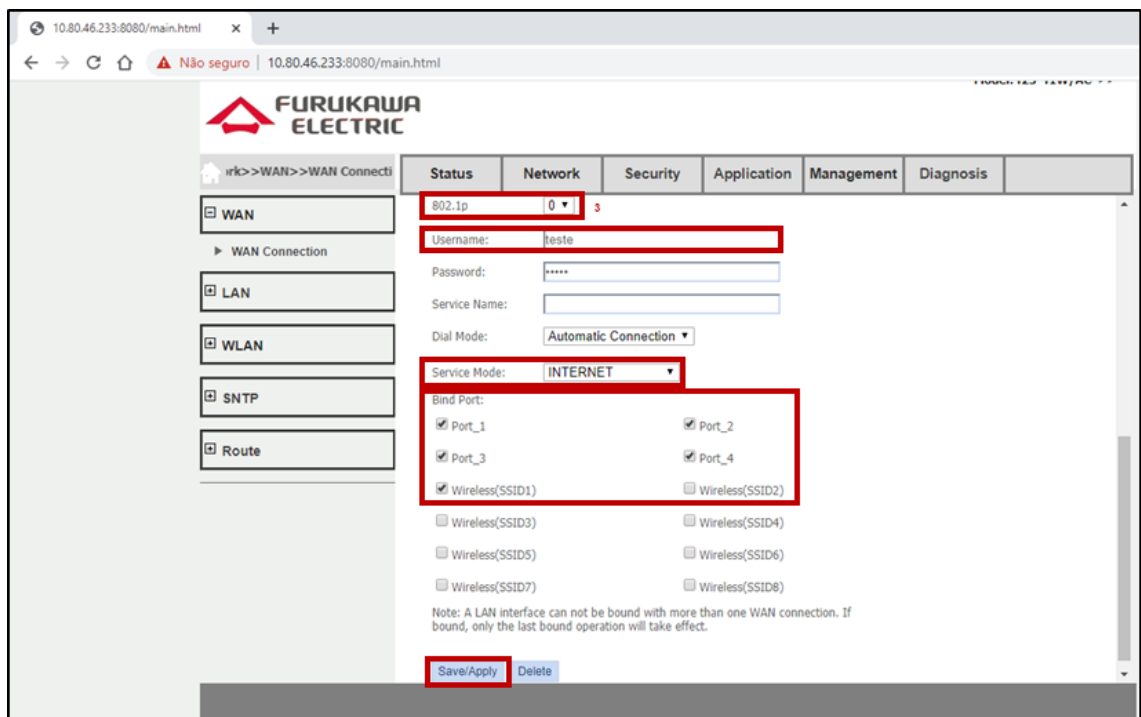


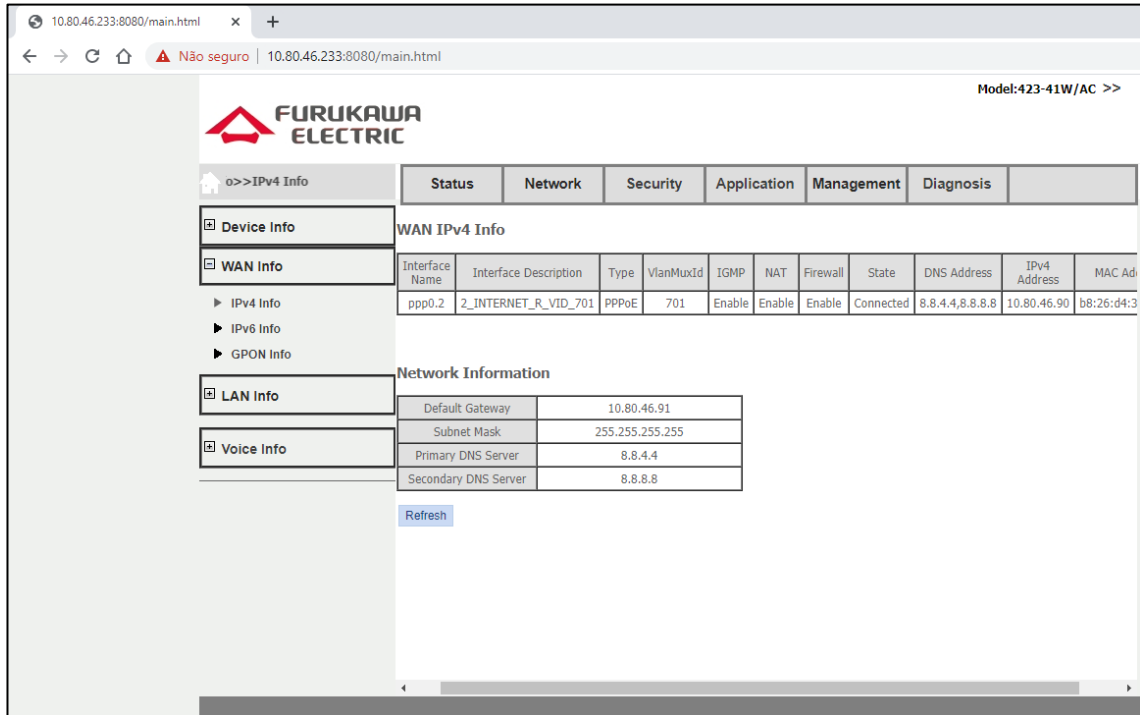
Figure 5. Options used to configure the PPPoE service for IPv4.



³ The 802.1p must be the same as the one configured for the VLAN in the Extended-VLAN profile.

Figure 6. Continuation of the options used to configure the PPPoE service for IPv4.

The image below shows the connection status (connected) for IPv4 established for PPPoE.



Interface Name	Interface Description	Type	VlanMuxId	IGMP	NAT	Firewall	State	DNS Address	IPv4 Address	MAC Ad
ppp0.2	2_INTERNET_R_VID_701	PPPoE	701	Enable	Enable	Enable	Connected	8.8.4.4,8.8.8.8	10.80.46.90	b8:26:d4:3

Network Information	
Default Gateway	10.80.46.91
Subnet Mask	255.255.255.255
Primary DNS Server	8.8.4.4
Secondary DNS Server	8.8.8.8

Figure 7. IPv4 connection status.

6 SCRIPT FOR THE COMMANDS USED ON THIS TECH NOTE

Running configuration for the profiles used in this document.

```

dba-profile DATA create
mode sr
sla fixed 128
sla maximum 1031616
apply
exit
extended-vlan-tagging-operation MGMT create
downstream-mode enable
untagged-frame 1
  treat inner vid 699 cos 0 tpid 0x8100
  apply
exit
extended-vlan-tagging-operation INTERNET create
downstream-mode enable
single-tagged-frame 1
  filter inner vid 701 cos any tpid 0x8100
  treat remove single
  treat inner vid 701 cos copy-inner tpid 0x8100
  apply
exit
traffic-profile 423-41W/AC create
tcont 1
  gempport 1/1
    
```

```
dba-profile DATA
tcont 2
  gempport 2/1
  dba-profile DATA
mapper 1
  gempport count 1
mapper 2
  gempport count 1
bridge 1
  ani mapper 1
  vlan-filter vid 701 untagged discard
  uni virtual-eth 1
  extended-vlan-tagging-operation INTERNET
bridge 2
  ani mapper 2
  vlan-filter vid 699 untagged discard
  link ip-host-config 1
ip-host-config 1
  ip address dhcp
  extended-vlan-tagging-operation MGMT
  apply
exit
onu-profile 423-41W/AC create
traffic-profile 423-41W/AC
  apply
exit
```