USER MANUAL

SWH-TR
310026

Automatic configuration and provisioning server for Hospitality

V01

TABLE OF CONTENTS

Introduction.

It is a configuration system for GPON networks in hospitality environments. This system enables the unified configuration of both the OLT (Optical Line Terminal) and ONUs (Optical Network Units), which includes the setup of WiFi and VoIP services.

Main features.

- Dedicated server.
- Management web interface.
- Import and export of complete system configuration.
- Guaranteed compatibility with the Chrome browser.

Contents.

V1:

1. 1 x SWH-TR.
2. 1 x 1 x Power cord.

V2:

1. 1 x SWH-TR.
2. 1 x Power cord.

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Interfaces, connection, and access to the equipment.
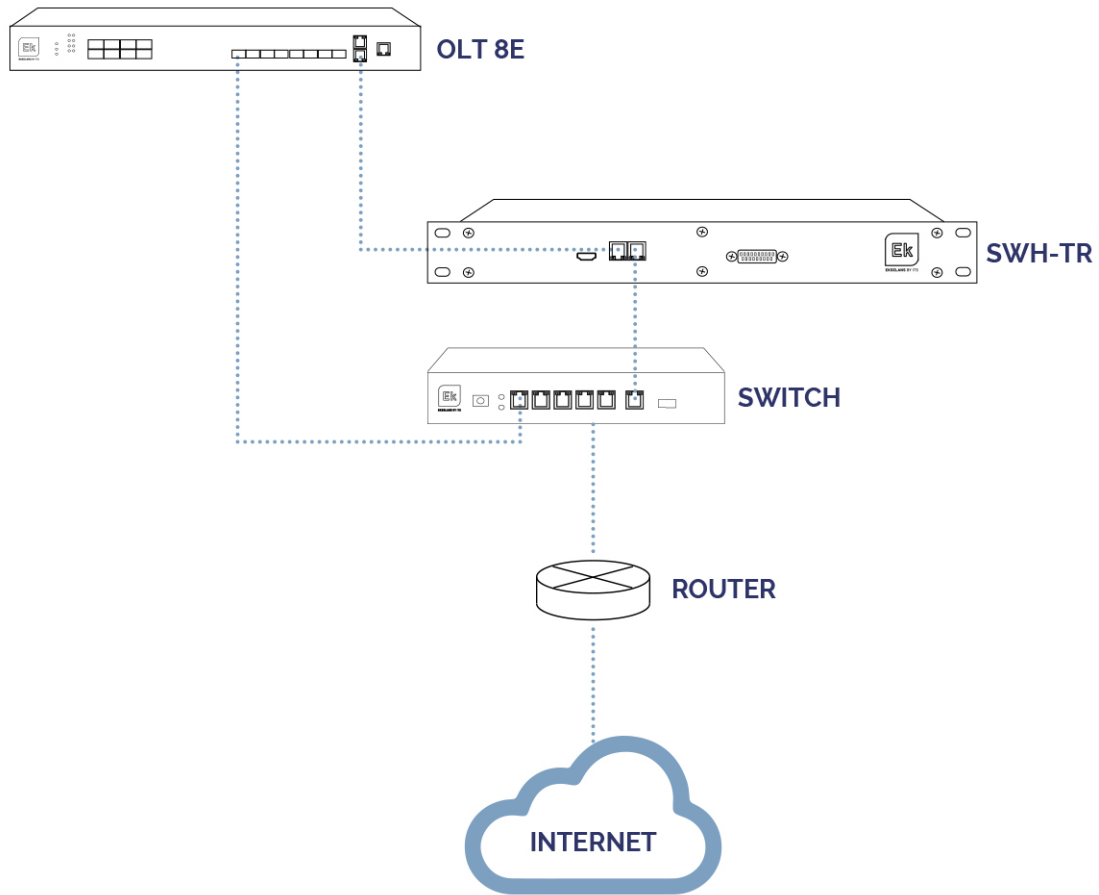
Interfaces.

V1:

1. HDMI Port: Not user-accessible; exclusively for SAT use.
2. LAN Port 1: Connects to the OLT MGMT1 PORT
3. LAN Port 2: WAN port for connection to our network, providing internet access. It comes pre-configured with an access IP, indicated on the metal sticker. Access instructions will be provided separately.
4. Serial Port: Not for client use; exclusively for SAT.
5. Power: The power supply is situated at the rear of the device.

V2:

1. HDMI Port: User has no access; for SAT use only.
2. LAN Port 1: Connects to OLT port MGMT1 (lower port).
3. LAN Port 2: This WAN port connects to our network and provides internet access. It comes pre-configured with an access IP, indicated on the metal sticker. Instructions for access will be provided separately.
4. Serial/USB Port: Not for client use; exclusively for SAT.
5. Power: The power supply is located at the back of the device.

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Connection.

OLT 8E

SWH-TR
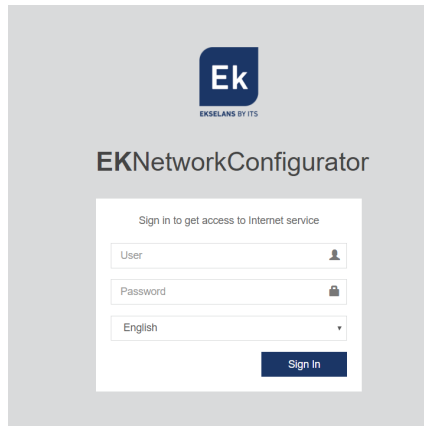
SWITCH

ROUTER

INTERNET

Configure SWH-TR.

Access to the equipment.

1. Connect the PC's Ethernet port to the WAN port of the SWH-TR. On the SWH-TR, you'll find a sticker with its IP address, typically 172.16.5.209. Configure the PC's network adapter with a static IP within the same subnet as the SWH-TR, for example, 172.16.5.10. Alternatively, you can connect the PC to the same switch as the SWH-TR, ensuring both the PC and the SWH-TR are connected to ports within the same VLAN.
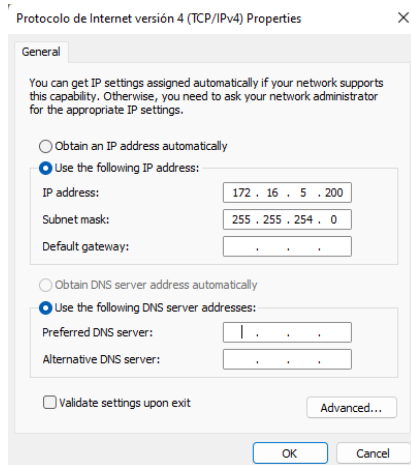
2. Open a web browser and enter the SWH-TR's assigned IP address with the port number 9090. For instance, if the SWH-TR's address is 172.16.5.209, the URL to enter in the browser should be http://172.16.5.209:9090.

3. The default user and password: **admin / password.**

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Equipment configuration.

The IP address on the WAN interface of the SWH-TR must be configured within the main network. This configuration enables access to the server from the main network and allows remote equipment updates. SWH-TR must have an internet connection to function properly. After logging into the equipment, you will be presented with the following screen:
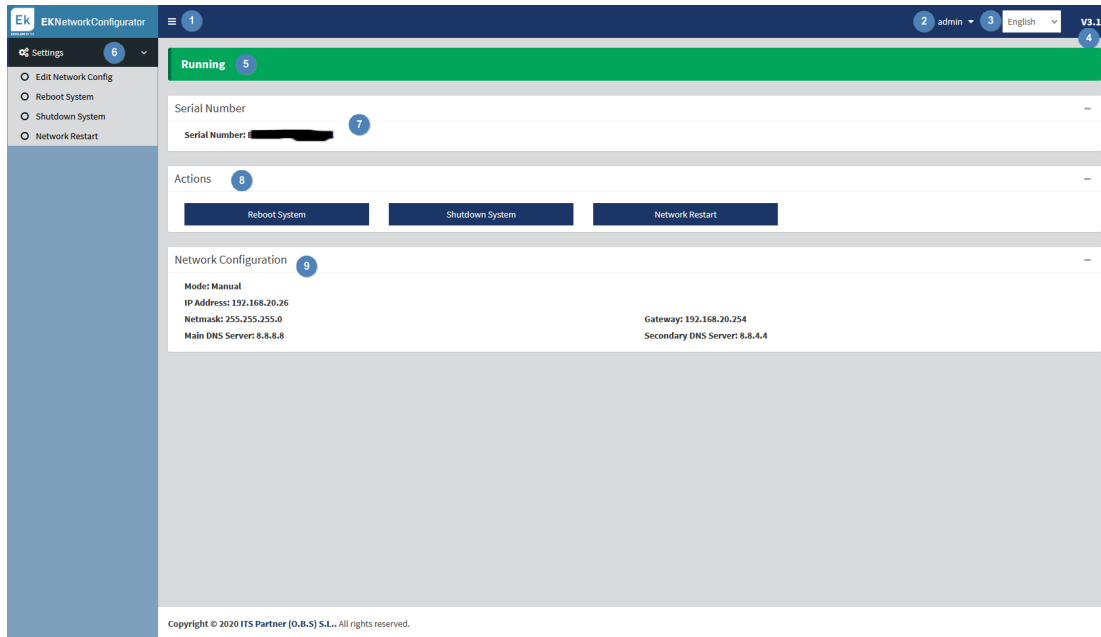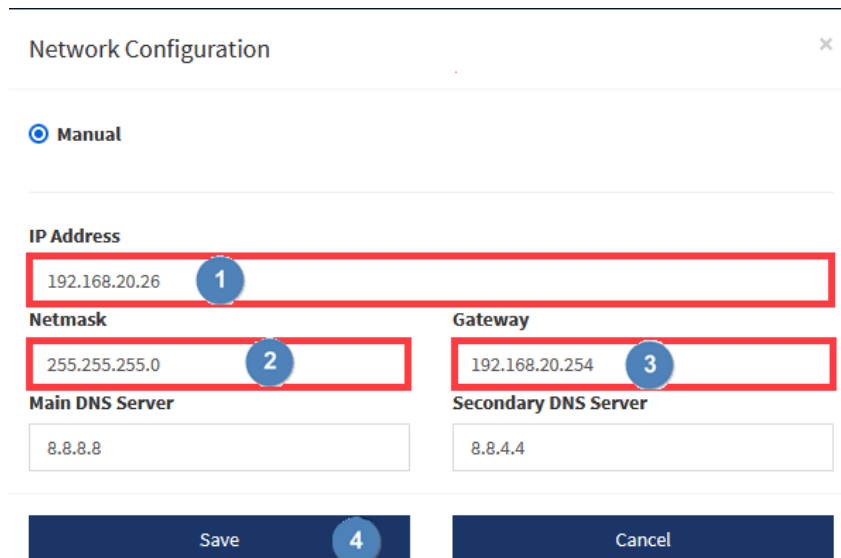

1. **Dropdown Button:** This button allows you to show or hide the settings in the left menu.
2. **User:** This refers to the user used to log in during the current session. It's crucial not to forget the password because only the "admin" user has the authority to change the passwords of all users.
3. **Language:** This indicates the current language selected for the Network Configurator user interface.
4. **Version:** This displays the current version of the Network Configurator tool.
5. **Status:** This reflects the SWH-TR status. When the status is "Running," it means the SWH-TR is operating correctly. If any other status is displayed, it's advisable to review the connection and network configuration.
6. **Settings:**
    *   **Edit Network Config:** This option allows you to configure network parameters.
    *   **Reboot System:** This option restarts the equipment.
    *   **Shutdown System:** This option gracefully powers down the SWH-TR. It is the recommended method for turning off the equipment.
    *   **Network Restart:** This option restarts the network ports.
7. **Serial number**: The serial number or license number assigned to the equipment.
8. **Actions**: This provides direct access to the operations available in the Settings menu.

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9. **Network Configuration**: This section displays the current network configuration. To configure the equipment to function within a network, follow the steps outlined below:

   a. Select "Edit Network Config" in the left menu.
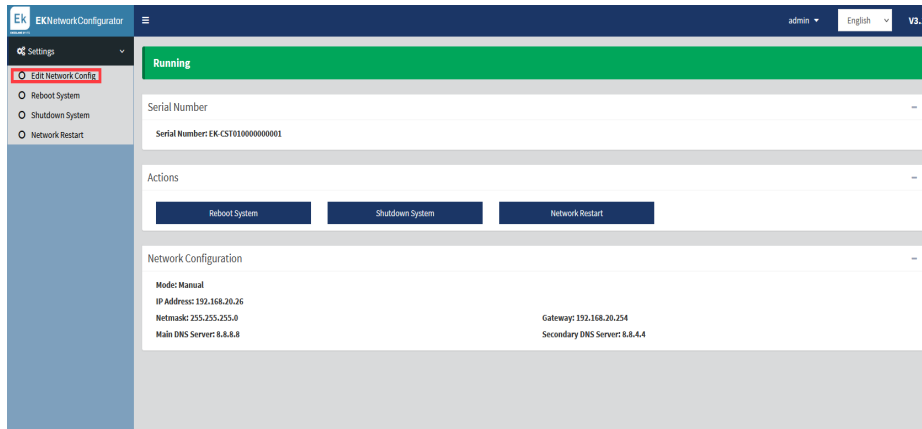
   b. Configure an IP address within the local network, using the correct subnet mask and gateway settings to provide internet connectivity to the equipment. Once all these parameters are configured, click the "Save" button to save the configuration. The following image is just an example; ensure that the parameter values are adapted to your specific local network configuration.
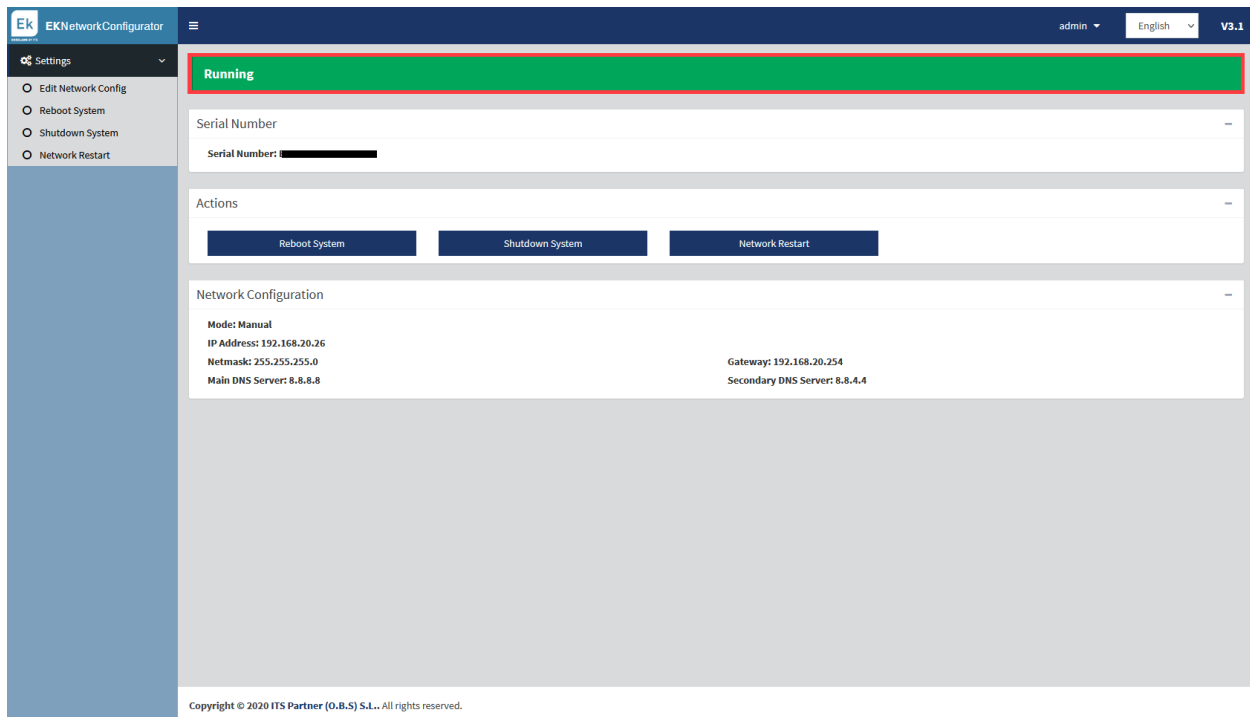

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c. After pressing save:

🌐 192.168.10.26:9090

A wrong network configuration can cause the system to be
unnacesible. Do you want to proceed with the changes?

OK   Cancel

d. After configuring the network parameters of SWH-TR, reconnect the PC to the main network by either enabling DHCP or manually setting the previous IP address, netmask, and gateway. Next, connect the SWH-TR's WAN port to the main network. The SWH-TR will now be accessible through the IP address configured previously.
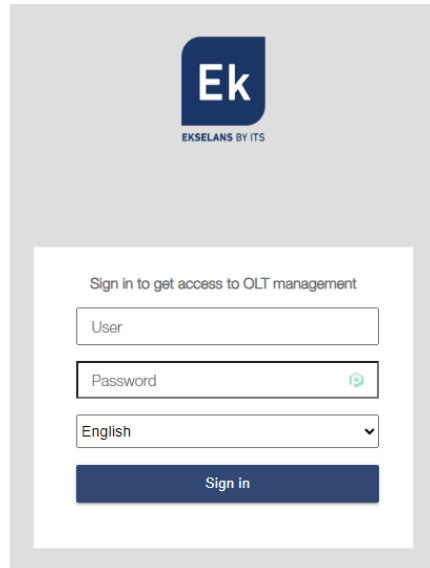
If the configuration is done correctly, after a few minutes, you will see the word "Running" and a green color displayed in the Status area on the main window.

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Access to the configuration interface and general view.
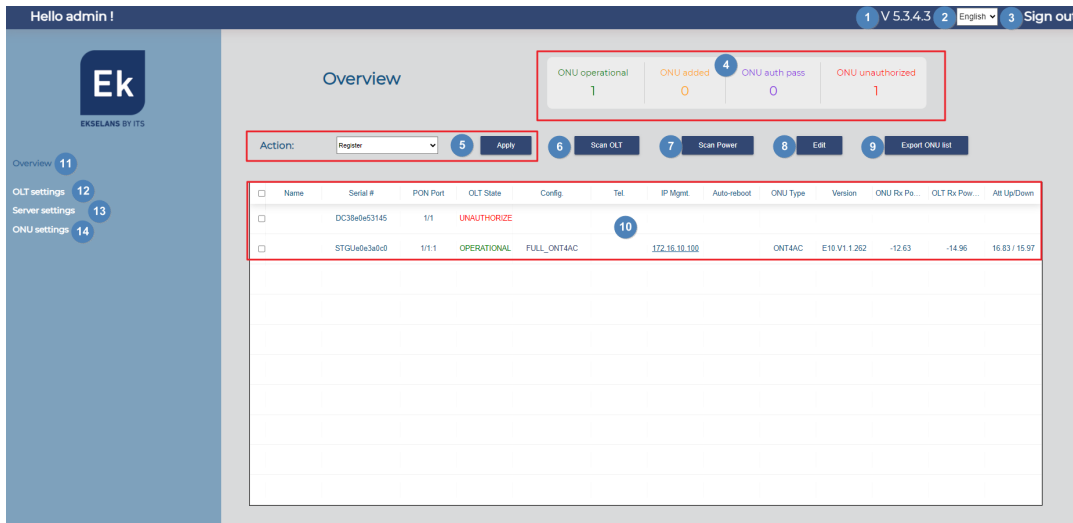
Access to the configuration interface.

Once the system is properly configured and running, you can access the equipment using the IP you configured, this time through port 8080. For example, 172.16.5.209:8080
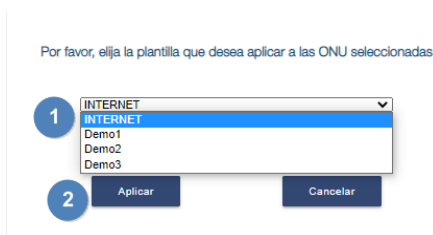

User: **admin** Password: **adminadmin**.

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Overview.

1. **Version**: Server version.
2. **Language**: Current language.
3. **Sign off**: Allows you to log out.
4. **ONU list**:
   - **Operational ONU:** This represents the number of currently provisioned and operational ONUs.
   - **ONU Added:** This indicates the number of ONUs that have been provisioned but are not currently operational. These ONUs were provisioned but have lost connection at some point (possibly due to power outages or fiber problems).
   - **ONU Not Added:** These are ONUs that have not been added or provisioned yet.
5. **Action:** This option enables you to execute actions from the drop-down menu by using the "Apply" button:
   - **Register:** We register the ONU in the OLT. After a brief period, it will become operational. No template or port configuration is applied, which means LAN service will not be available. This option can be used, for example, to install the ONU more quickly and perform a power scan, but please note that it will not be functional during this phase.
   - **Apply template:** Choose this option to apply a template to ONUs that have been registered and for which a template configuration has been created.
   - **Authorize**: This option combines the steps of "REGISTER" and "APPLY TEMPLATE." It authorizes the selected ONU in the list. During authorization, you will be prompted to apply a previously created template. To authorize an ONU, you must first create the OLT profiles and the ONU Configuration templates where WiFi profiles and configurations are defined. Instructions for creating these profiles and templates are explained in their respective sections. Select the template and apply it during authorization.

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- **Erase:** Use this option to delete the selected ONU in the list. It doesn't delete the cache where we store the ONU type. The ONU is removed from the list, and after an "OLT SCAN," it will move to the "ONU UNAUTHORIZED " status.
- **Deauthorize:** This option leaves the ONUs unregistered as "UNAUTHORIZED," but retains the configured name.
- **Reauthorize**: Reauthorizes the selected ONU in the list.
- **Reauthorize to another template**: Reauthorizes the selected ONU in the list using another template.
- **Refresh template**: Reapplies the template to the selected ONUs in the list. This option is only effective for ONU4AC and ONU 2W. It is useful if you've configured ONUs of these types and notice that some configurations (WIFI, DHCP, LAN ports, VOIP) haven't worked correctly. This option allows you to reapply the template more quickly than deleting and then clicking "Authorize" again.
- **Edit configuration**: This option allows you to edit the selected ONU configuration from the list.

This option allows you to edit specific configurations of the selected ONU. While it doesn't permit changes to the VLAN, as it becomes unmodifiable once provisioned, it does enable you to select the ports used by the VLAN, adjust the WiFi settings, and modify configurations related to VOIP.

- **Reboot**: This option restarts the selected ONU in the list.
- **Factory reset**: This performs a factory reset on the selected ONU in the list.
- **Apply telephone number**: This allows you to apply a telephone number to the selected ONU in the list. It is necessary to apply this after configuring or modifying the phone number and password from option 8 "Edit".
- **Firmware Upgrade**: This updates the firmware of the selected ONU in the list.
- **Apply scheduled reboot**: This applies a scheduled restart to the selected ONU in the list. It is necessary to apply this after activating the "Auto-restart" checkbox in option 8 "Edit."
- **Optical reset:** This restarts the optical interface of the ONU.

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- **Erase from cache:** When we add an ONU for the first time, we select its type, which is recorded in the system. Even if we delete the ONU, that information remains in the system. If you want to select the type of the ONU again, you must perform a "Delete Cache" operation on that ONU.

6. **Scan OLT**: Initiates a scan of the ONUs connected to the PON ports of the OLT. It will display them in the list of ONUs. The list must be updated manually, as it doesn't refresh automatically. Therefore, if we add new ONUs or make any changes to our GPON network, we must manually update the list to reflect these changes.

7. **Scan Powers:** This option allows us to scan the optical power values of the connected ONUs.

8. **Edit**: Enables us to modify the following parameters in the selected ONU:

Name	Serial #	Tel.	Password	Auto-rebo...	PON Port
	STGUe0e3a0c0			☐	1/1:1

- **Name:** This field allows us to configure the name of the ONU.
- **Serial:** This field is not modifiable.
- **Tel:** Here, we configure the analog phone number that will be assigned to the phone. The management of this number will be handled by the telephone switchboard. The VLAN associated with the telephone switchboard must have a DHCP server to manage the required IPs. To fully apply this configuration, it's mandatory to execute "Apply Phone Number," as explained in section 5, "Action.".
- **Password:** This is the password that our phone extension will use.
- **"Auto-reboot":** This option allows us to enable the scheduled reboot setting for the ONU. The scheduled time for reboot is configured in the "ONU Reset" section. To fully apply this setting, it's mandatory to execute "Apply Scheduled Restart," as explained in section 5, "Action."
- **Pon Port:** This is the PON port where the ONU is installed.

9. **Export ONU list:** This option allows you to export a file in ".csv" format with the selected parameters.

10. **ONU list**: This feature displays the ONUs connected to the OLT. You need to perform an "OLT Scan" to update the list. Within the list, you will also find various values.

- **Name:** Name we assign to the ONU.
- **Serial:** ONU Identifier: This is given by the acronym XXXX followed by the last 8 digits of the ONU MAC address.
- **PON port:** Port and position in which the ONU is located.
  - o 1/1 port where the ONU is located. The second value tells us that it is on port 1.
  - o :1 is a position value between 1-64.
- **OLT status:**
  - o UNAUTHORIZED: The ONU has not been provisioned. The link is correct, as the PON synchronizes.
  - o ADDED: The ONU has been provisioned but is not operational. They were provisioned, but at some point, they lost their connection, possibly due to power outages or fiber issues.
  - o OPERATION: The ONU has been registered but may lack the configuration required to make it fully operational. In this state, a power scan can be performed.

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- o AUTH: The ONU is being set up.
- **Config:**
  - o **"TEMPLATE NAME"**: This represents the name of the applied template. In our example, it acquires this name because it's the name of the template that will be applied.
  - o **ERROR**: This indicates that the template has not been successfully applied. It is recommended to "Refresh the template." If it still doesn't apply, verify that the ONU has the latest version, perform a factory reset on the ONU, delete the ONU, reauthorize it, and then apply the template again.
- **Tel**: This field displays the telephone number configured in the ONU.
- **IP Mgmt:** It shows the management IP, allowing direct access to the ONU. You can access it by clicking on the IP, but you must be on the same network.
- **Auto-reboot:** If "Apply scheduled restart" has been programmed, a warning symbol will appear. ✓
- **ONU Type:** This field indicates the type of ONU that is connected.
- **Version:** It displays the firmware version installed in the ONU.
- **ONU Rx Power (dBm):** This provides an approximate power value representing what the ONU is receiving. A correct value usually falls within the range of -8 to -28 dBm.
- **OLT Rx Power (dBm):** This displays an approximate power value representing what the ONU is receiving. A correct value typically falls within the range of -8 to -28 dBm.
- **Att Up/Down:** It indicates the signal losses we experience between the OLT and the ONU.

11. **Overview**: This option allows us to return to the general view if we are in another menu.
12. **OLT Settings**: It enables us to configure different sections of the OLT. Details are provided in the "OLT Configuration" section.
13. **Server settings**: This option allows us to configure our SWH-TR. You can find more information in the "Server Configuration" section.
14. **ONU settings**: This option enables us to configure various parameters for the ONU. Detailed explanations can be found in the "ONU Configuration" section.

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OLT settings.

OLT profiles.

These profiles are configured before validating the ONU. The system generates a default Management profile. After provisioning an ONU, the system will not permit modifications or deletions of existing profiles. However, it will still allow you to create new profiles.

1. **ONU types**: These represent different ONU models with predefined characteristics for Ekselans. A brief description is provided, including the number of physical connections and wireless capabilities.
2. **Profile settings**: Allows us to create profiles. As we indicated at the beginning of the section, the Management profile is created by default VLAN 100. To be able to modify or see what is configured we only have to press the pencil in the red box.
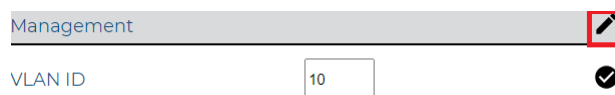
To create a new profile, simply click the + symbol as shown in the image.

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When you click '+' to the profile list, a window opens with the following parameters for creating a profile:

- **Name:** The name to be assigned to the profile.
- **Minimum assured (kbps):** The minimum guaranteed traffic (up/down) for the profile. It is recommended not to modify. Default is 1000 kbps (1 Mbps).
- **Maximum (kbps):** The maximum guaranteed traffic (up/down) for the profile. It is recommended not to modify. Default is 100000 kbps (100 Mbps).
- **VLAN ID:** The VLAN configured in the profile.
- **802.1p:** The QoS priority assigned to the profile. It is recommended not to modify. Default is 0.
- **Wan type:**
  - o **INTERNET**: This profile is for data. It is also used for VOIP if digital phones are installed. It affects the configured LAN ports, not the POT phone ports.
  - o **VOICE**: This profile is used for analog phones. It affects the ONU's POT telephone ports, not its LAN ports.
  - o **MULTICAST**: This profile is for multicast services, such as IP television.
- **Service mode**: This setting will vary depending on the selected WAN type:
  - o When "INTERNET" is selected in WAN mode:
    - ▪ Bridge: The ONU does not assign an IP; it operates transparently, and DHCP is provided by the main router of our network.
    - ▪ Route: The ONU will assign an IP range depending on the equipment.
  - o When "VOICE" is selected in WAN mode:

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- IP Routed: This is the default mode in which the POT ports will operate. It cannot be modified.
  o When "MULTICAST" is selected in WAN mode, it will be set to "IP Bridged" mode, and it cannot be changed. Selecting multicast mode allows us to configure the following parameters:

Service mode	IP_Bridged
Multicast IP ranges :	➕
From 239.255.254.0 to 239.255.254.254	🗑

- Multicast IP Range: Here, you can add ➕ or delete a range of multicast IP addresses 🗑
- From … To….: Use this option to configure the range of multicast IP addresses for your network.

At the end we must click on apply changes so that the profile is created.

Settings of new profile:

Name	
Minimum assured (kbps)	1000
Maximum (kbps)	100000
VLAN ID	2
802.1p	0
Type of WAN	INTERNET
Service mode	Bridge

Apply changes   **Cancel**

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Please note that if you create a profile without having any ONU authorized to that profile, you can modify it by clicking on the pencil icon (1) or delete it by clicking on the trash can icon (2). However, if the profile is generated after ONUs have been provisioned, it will not be possible to perform these actions.

3. ONU's management IP setting.
   - DHCP start IP Address: This is the first IP address that will be assigned to the ONU.
   - Management network mask: It represents the network mask for the configuration. Ensure that it is sufficiently large to accommodate the IPs for the ONUs connecting to the OLT.
   - Management network gateway: This is the IP address of the gateway for your network, which is the router used to access services.

   When configuring this section, it's crucial to consider the network's size and the client's requirements. The mask and the network itself must be large enough to accommodate all the IPs assigned to the ONUs. The management VLAN should have internet access, and the network's capacity should be considered as previously indicated.

   After completing all the configurations, be sure to click the "Apply Configuration to OLT" button. None of the ONU management IP settings or profile configurations will take effect until you click "Apply Configuration to OLT."

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Uplink Settings.

We should enable the ports that we are going to use.
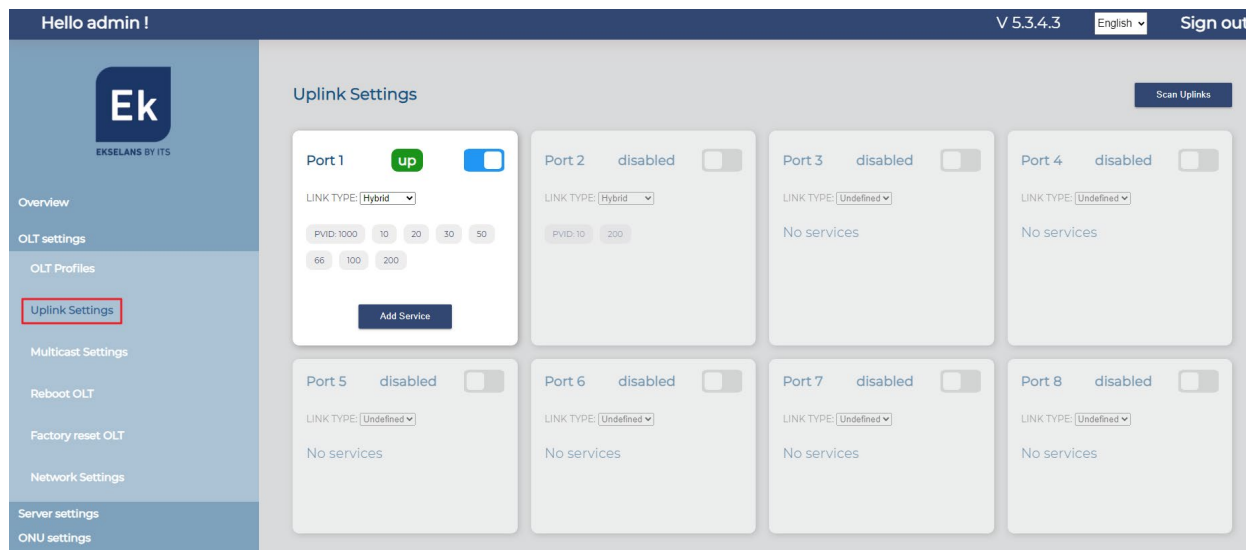
- **Scan Uplink:** This option allows you to scan and synchronize OLT configuration with the SWH server.
- **Link Type:** Depending on this option, you can add services such as:
  - **Trunk:** This mode works with VLAN tagged traffic only.
  - **Access:** This mode works as an untagged service.
  - **Hybrid:** This mode works with both tagged and untagged VLAN traffic.
  - **Undefined:** This mode does not provide any services.
- **Add Service:** Use this option to select the VLAN that you want to use.

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Multicast Settings.
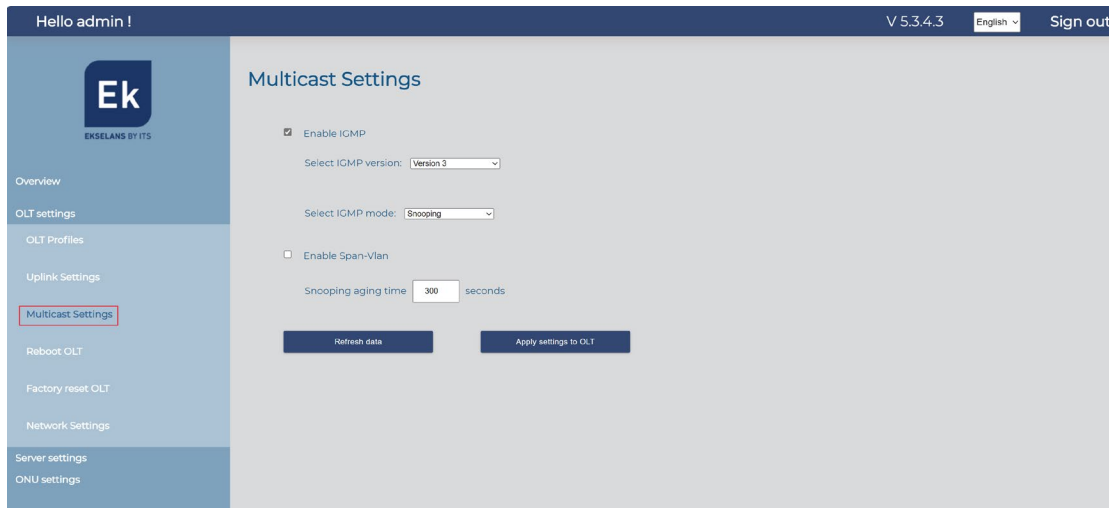
Enable multicast: This option enables multicast traffic in the OLT and its ONUs. It should be activated if multicast is being used in the network.

- o Select IGMP version: Choose from versions 2, 3, or auto.
- o Select IGMP mode:
  - Snooping: In this mode, the OLT does not actively participate in the IGMP protocol. Default snooping aging time is 60 seconds.
  - Proxy: In this mode, the OLT acts as a proxy and manages the IGMP protocol. Default settings include:
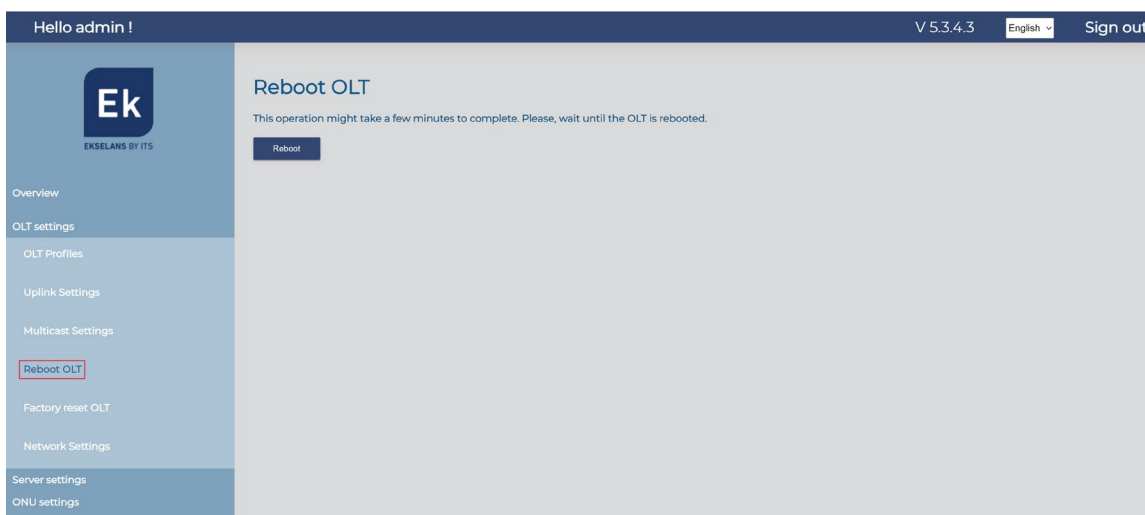   - General Query Interval: 60 seconds.
    - Proxy IP Address:
    - Proxy Aging Time: 300 seconds.
    - Robustness: 2.
    - Query Max Resp Time: 100 seconds.
  - Enable Span-VLAN
    - General query interval: 60 seconds.
    - Proxy IP address:
    - Proxy aging time: 300 seconds.
    - Robustness: 2.
    - Query Max Resp Time: 100.
  - Enable CDR
    - Last Member Query Interval: 10 seconds.
    - Last Member Query Number: 2.
    - Startup Query Interval: By 30 seconds.
    - Startup Query Number: By 3.
    - Unsolicited Report Interval 10 seconds.
  - Query Gem Mode:
    - Multicast:
    - Unicast:

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Reboot OLT.

This option allows you to restart the OLT. It can be useful if you encounter issues with configuration, provisioning errors, or ONU connectivity problems.

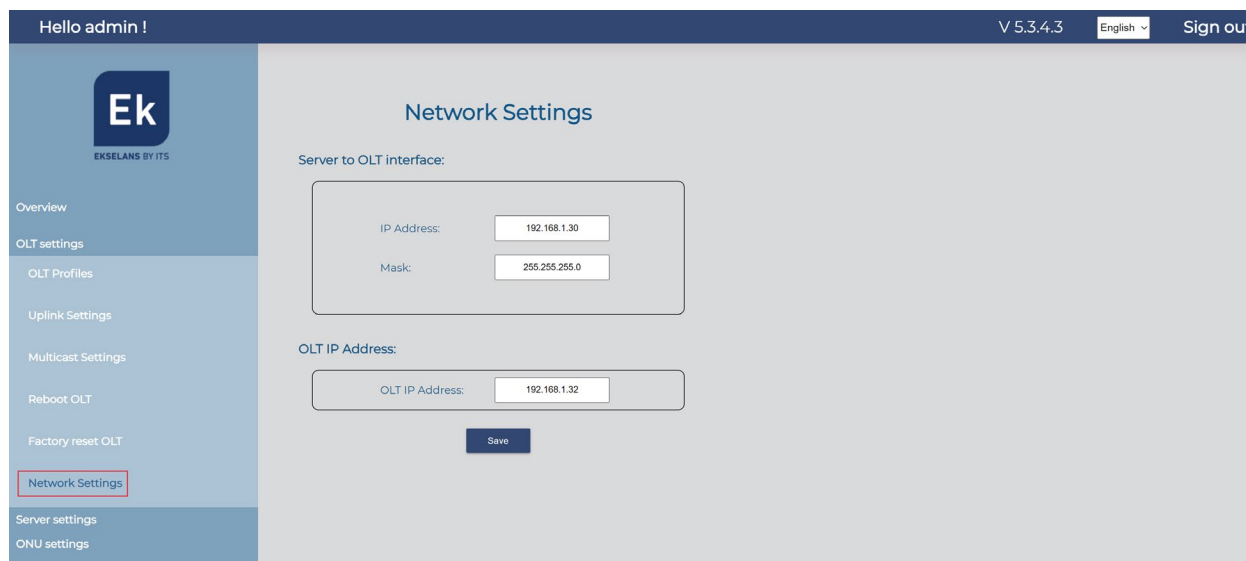## Factory reset OLT.
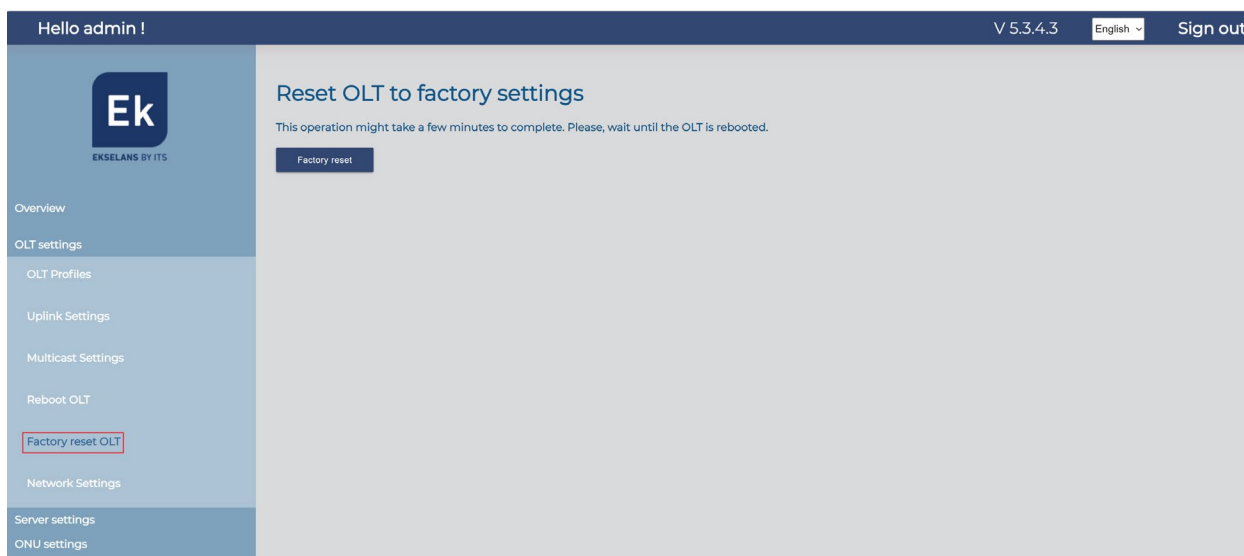
This option allows you to restore the OLT to its default values.

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Network Settings.

1. **Server-OLT Interface:**
    - **IP Address:** This is the IP address of the LAN port of the SWH-TR. It connects either directly to the MGMT1/2 of our OLT or to the network where the MGMT1/2 port of the OLT is also connected. The default is 192.168.1.30.
    - **Subnet Mask:** This is the IP mask of the LAN port of the SWH-TR. It connects either directly to the MGMT1/2 of our OLT or to the network where the MGMT1/2 port of the OLT is also connected. The default is 255.255.255.0.
2. **OLT IP Address:**
    - **OLT IP Address:** This is the address against which our SW-TR connects from its LAN port. By default, it is the IP on port MGMT1 of the ONU, which is 192.168.1.32.

It's important to note that if your network uses the same IP range, it may lead to conflicts with IPs 192.168.1.30 and 192.168.1.31. In such cases, it's advisable to change the IP range on the client router. You can also choose to use MGMT2 as connection with the IP 192.168.100.2. If you encounter difficulties, you can refer to the actions specified in the FAQ section.

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Server settings

We can configure and create backup copies of our SWH-TR server.

Network Settings.
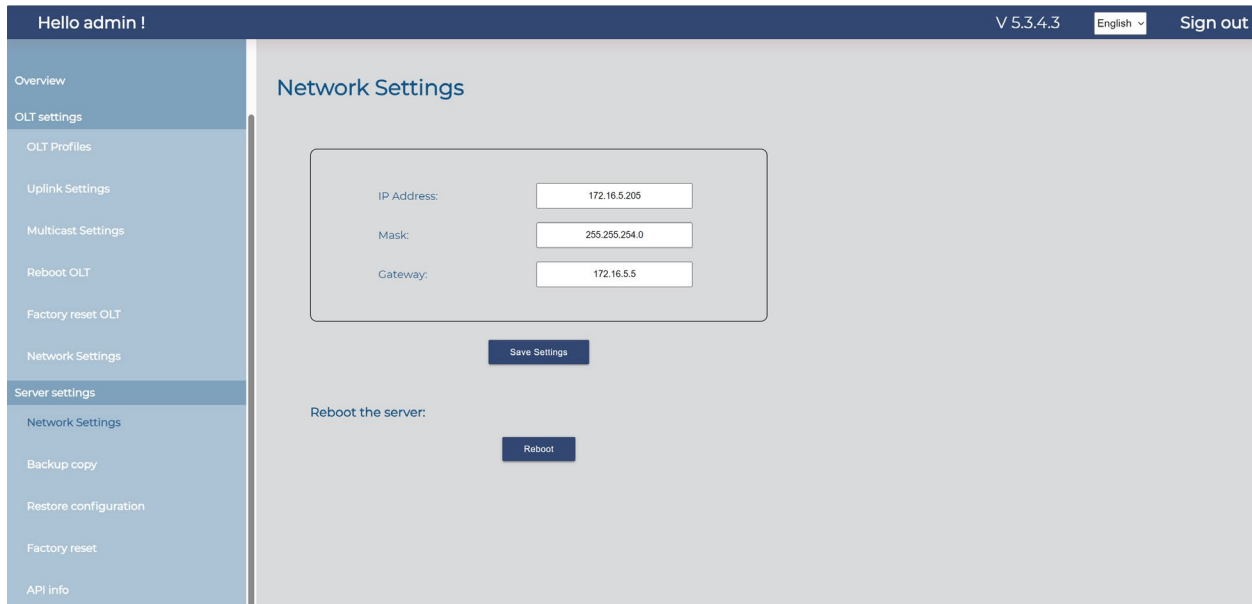
1. **Network Settings:**
   - **IP Address:** This is the IP address of the WAN port, which is the same as what is configured when entering through port 9090.
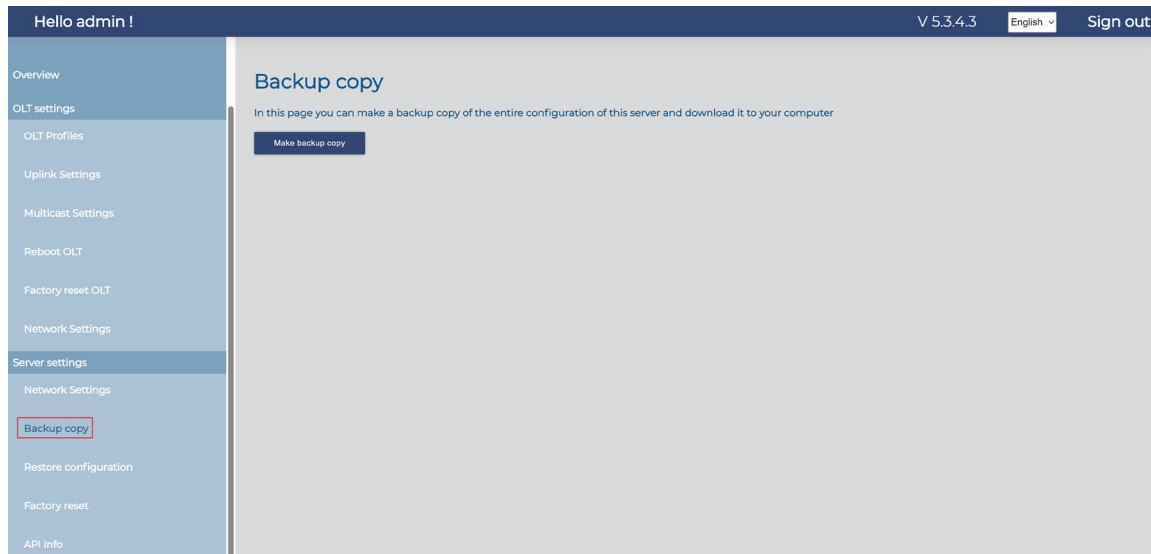   - **Subnet Mask:** This is the subnet mask used on the WAN port, which is the same as what is configured when entering through port 9090.
   - **Gateway:** This is the gateway used on the WAN port, and it is the same as what is configured when entering through port 9090.

   We do not recommend making IP changes using this method. We recommend that you enter port 9090 as indicated at the beginning of the manual to make changes. Once the configuration is done, press the "Save Configuration" button.

2. **Restart the Server:**
   - This option allows you to restart the server. If you suspect that the configuration is not downloaded correctly or if you encounter issues when scanning the OLT or performing actions, we recommend restarting the server.

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Backup copy.

This option allows you to create a backup copy of the templates and configurations of the server's ONU. It will generate a ZIP file.
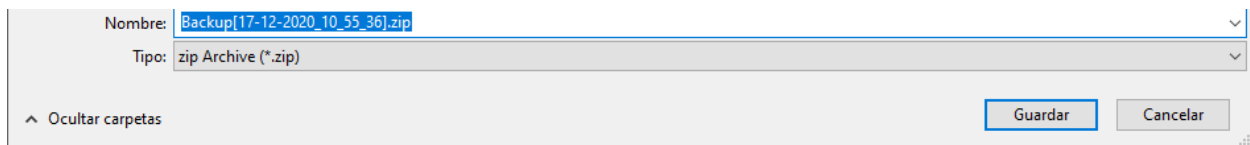
ATTENTION, the ONU name will not be saved.

Restore configuration.
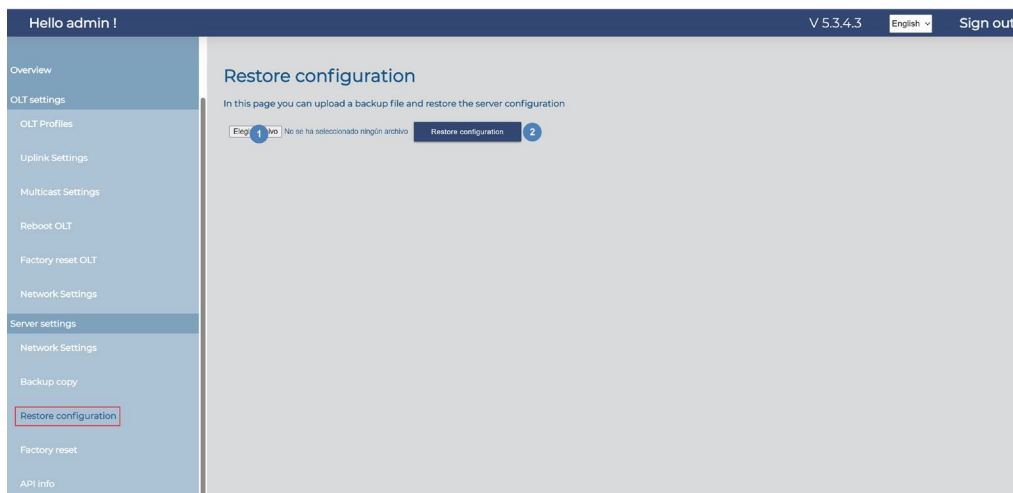
This option allows you to restore the configuration that you have generated in the previous step. Select the file and click on 'Restore Settings'.

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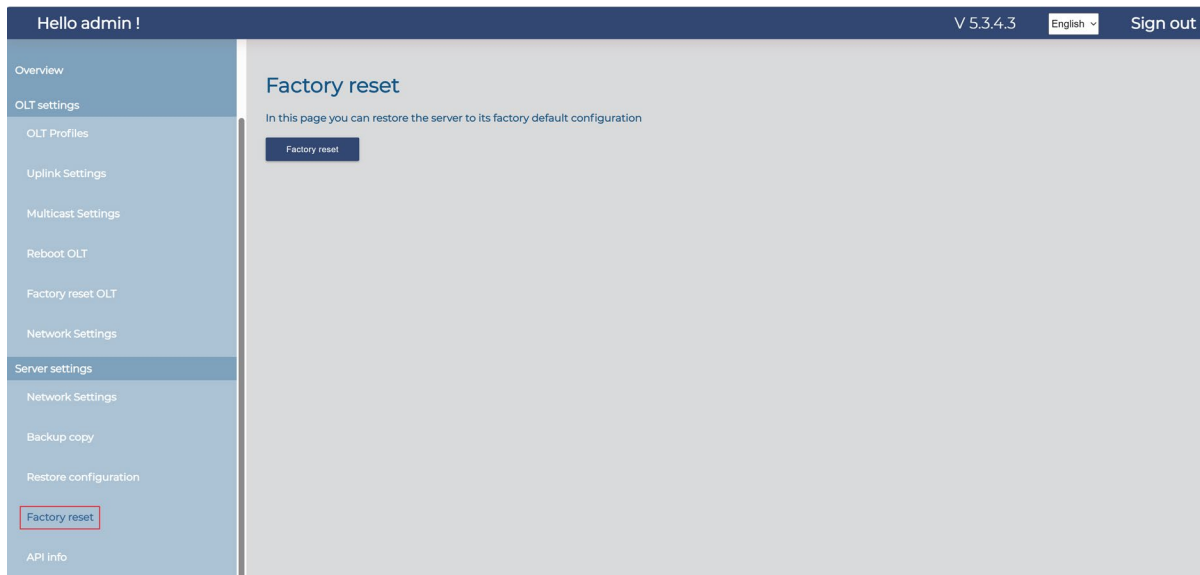
Factory reset.

This option allows you to restore the SWH-TR to its factory default values. After performing a factory reset, you will need to go through the configuration steps again to set up SWH-TR.

API info.

We have the capability to manage API configurations on the OLT.

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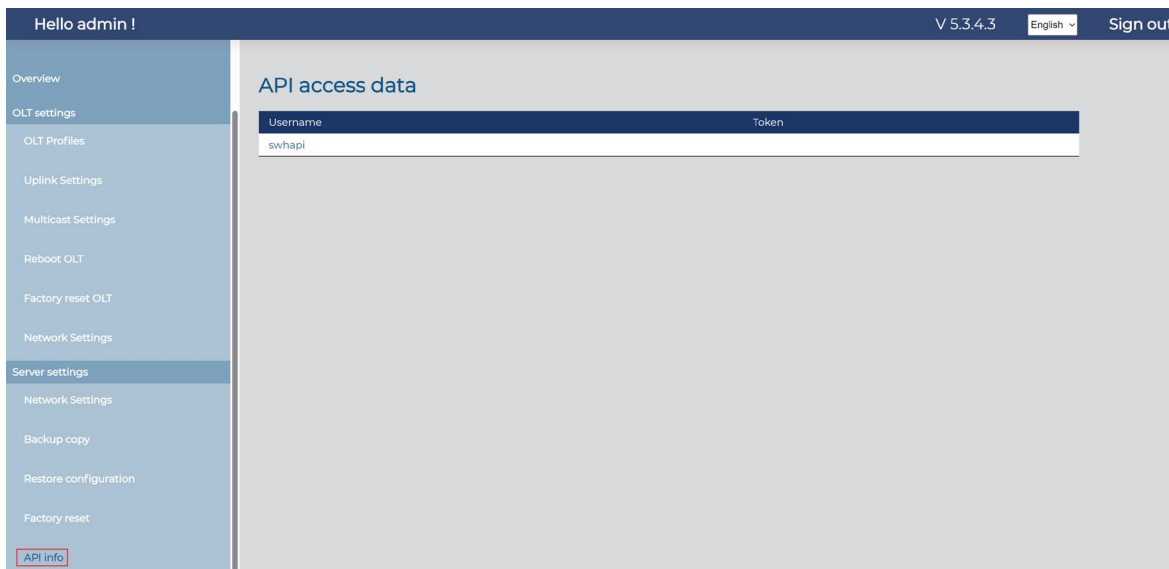
ONU Configuration.

In this section, we can configure the settings that will be used on the ONU.

ONU templates.
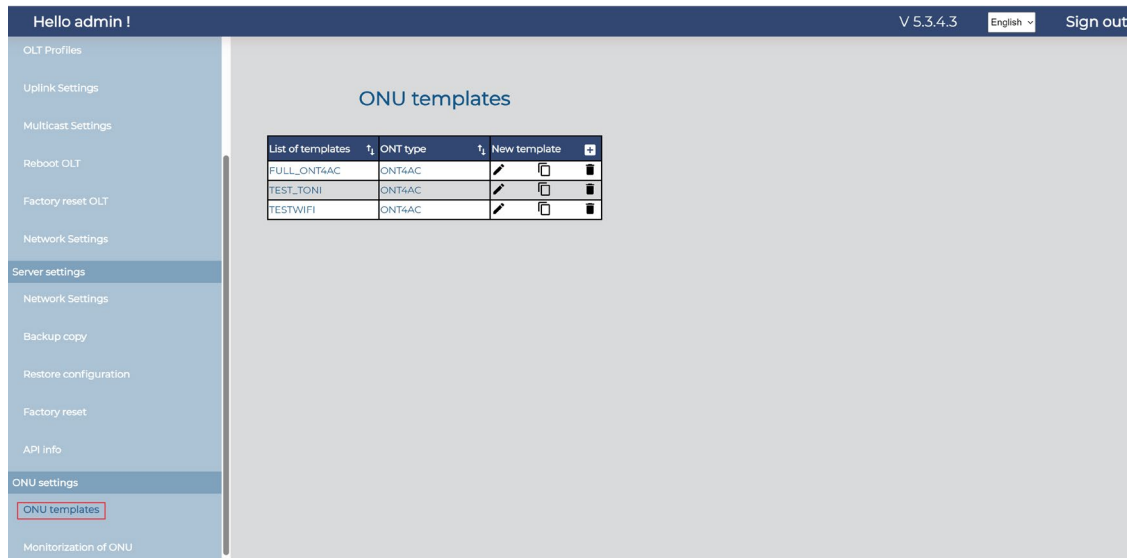
By clicking on the + symbol we will be able to create a template.

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Once clicked we will access the options to add ONU template:

- Add templates:

1. **Name:** The name of the template that we've created.
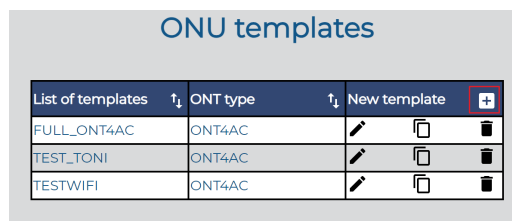2. **Type of ONU:** Specifies the type of ONU to which this template will be applied.
3. **Profiles:** When enabled, associates a profile with the template. This is used in HYBRID and TRUNK modes to select the profile with the VLAN that will be applied to the WAN connection.
4. **Various "ONU1E only" Fields:** These fields allow you to configure how the WAN behaves on this ONU, as explained in the "Template according to ONU" section.
5. **WLAN VOIP:** Configures WLAN and VOIP parameters, which are explained in the "Template according to ONU" section.
6. **Enable Ethernet Port (only on 4POE ONU):** This option enables PoE (Power over Ethernet) on this port.
7. **Save Template**

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Template according to ONU

- ONU1E:

1. **Name:** The name of the template you are creating.
2. **ONU Type:** Specifies the type of ONU you have selected.
3. **Checks:** When enabled, associate the profile with the template. This is used in HYBRID and TRUNK modes to select the profile with the VLAN that will be applied to the WAN connection.
4. **Modes:**
   a. **HYBRID:** The ONU works with the VLANs that are activated with the marked profiles, and it allows you to pass the native VLAN while labeling it as selected in the "Label incoming traffic without labeling with the VLAN" option.
   b. **TRUNK:** The ONU works with the VLANs that are activated with the profiles by clicking the check.
   c. **ACCESS:** The WAN link is configured with the Management VLAN of the SWH.
5. Tag ONU tagged incoming traffic with VLANs of:
   a. Management: Tags traffic that goes untagged with the Management VLAN. This is done to provide a connection with devices that work without VLAN. For example, it allows access to APs since their WAN management can only be managed with untagged traffic.

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6. **Pencil:** We can configure in the template how we want the selected profile to work. Depending on the type of profile (INTERNET/VOICE/MULTICAST) we will find different options.
   a. INTERNET profile: There is nothing to configure here.
   b. VOICE profile: There is nothing to configure here.
   c. MULTICAST profile:

   ii. **Enable fast leave:** By default, this feature is disabled. With fast leave processing enabled, the router immediately stops forwarding multicast traffic when it receives an IGMP leave message. This reduces the delay associated with the leave process. Note that it's not recommended for installations with more than one STB IP.

   iii. **Maximum multicast groups:** The maximum multicast group is set to 4 by default. If the number of multicast groups on a port exceeds this limit, the system removes all forwarding entries related to that port from the IGMP snooping forwarding table. Receiver hosts attached to that port can join multicast groups again before reaching the group limit on that port.

7. **Save Template:** After creating and configuring the template, be sure to save your changes.

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- ONU2W:

1. **Name:** The name of the template you are creating.
2. **ONU Type:** Specifies the type of ONU you have selected.
3. **Checks:** When enabled, associate the profile with the template.
4. **Pencil:** The pencil icon allows us to configure how we want the selected profile to work within the template. Depending on the type of profile (INTERNET/VOICE/MULTICAST), you will find different options.
    - INTERNET profile:

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1. These parameters were created when OLT Profiles were created and cannot be modified.
2. Service Mode: This option allows us to select the mode in which the WAN link will operate.
   o Route: The ONU WAN acquires an IP. This is determined by the "Link Mode".
   o Bridge: The WAN port of the ONU is transparent and the clients' DHCP will be assigned to us by the main router.
3. Enable NAT "for Route service mode only": This option is enabled to allow NAT functionality in Route mode.
4. Link mode, "Route service mode only"
   o DCHP: Automatically acquires an IP on the WAN link.
   o Static: Allows manual management of a static IP on the WAN link.
5. Port binding: Select the port where you want the internet profile to be applied.

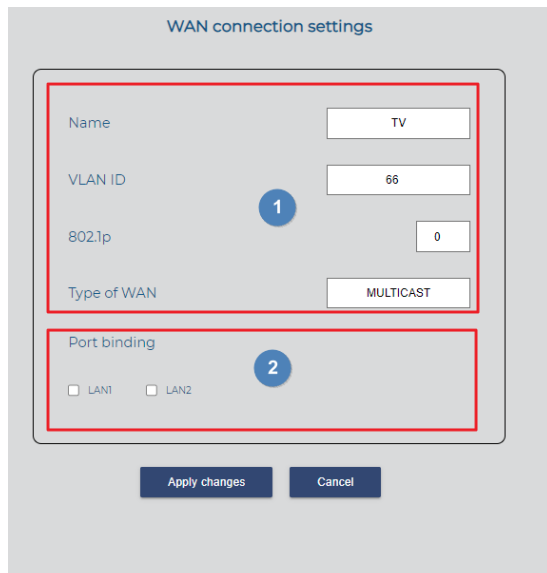Remember to apply the changes for them to take effect.

- VOICE profile:

1. These parameters were created when OLT Profiles were created and cannot be modified.
2. Service Mode: This option allows us to select the mode in which the WAN link will operate.
   o Route: The ONU WAN acquires an IP. This is determined by the "Link Mode".
   o Bridge: The WAN port of the ONU is transparent and the clients' DHCP will be assigned to us by the main router.
3. Enable NAT "for Route service mode only": This option is enabled to allow NAT functionality in Route mode.
4. Link mode, "Route service mode only"
   o DCHP: Automatically acquires an IP on the WAN link.
   o Static: Allows manual management of a static IP on the WAN link.
5. Enabling dual functionality for the VOICE profile allows you to configure two interfaces on the POTS port, allowing you to connect one phone via the POTS port.

Remember to apply the changes for them to take effect.

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- MULTICAST profile:

1. These parameters were created when OLT Profiles were created and cannot be modified.
2. Port binding allows us to enable the port that will have multicast.

   Remember to apply the changes for them to take effect.

5. **Enable DHCP of LAN interface**: This option enables DHCP for LAN PORTS.
6. **Enable fast leave**: By default, this option is disabled. When fast leave processing is enabled, the router immediately stops forwarding multicast traffic upon receiving an IGMP leave message, reducing the delay associated with the leave process. Note that it's not recommended for installations with more than one STB IP.
7. **WLAN:** This allows you to configure various parameters for the 2GHz WiFi.
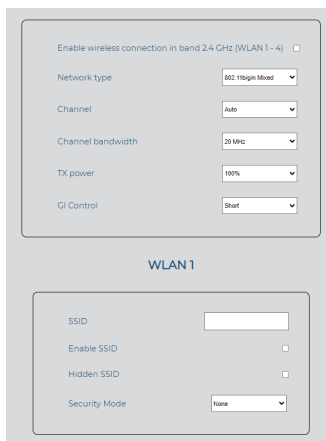
- **Enable wireless connection in 2.4 GHz band (WLAN 1 - 4)**: This option allows you to enable WiFi in the 2.4GHz band.

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- **Network type:** Choose the protocol for WiFi.
  - 802.11b/g/n Mixed: Works with devices using 802.11b, 802.11g, or 802.11n, depending on the connected device's capabilities.
  - 802.11b/g Mixed: Works with devices using 802.11b or 802.11g, depending on the connected device's capabilities.
  - 802.11n: Works with devices using 802.11n.
  - 802.11g: Works with devices using 802.11g.
  - 802.11b: Works with devices using 802.11b.
- **Channel:** Select the channel for broadcasting. Automatic channel selection is recommended.
- **Channel bandwidth:** Choose the channel width:
  - 20Mhz: Operates on a 20MHz channel.
  - 40Mhz: Operates on a 40MHz channel.
  - 20/40Mhz: Adjusts the channel width dynamically based on connected devices and network congestion. This is the recommended mode.
- **TX Power:** Adjust the transmission power of the equipment.
- **GI Control:** Configure the guard interval as either 400ns (short) or 800ns (long). Short is typically better for higher data rates.
- **SSID:** Set the name for the WiFi network.
  - **Enable SSID:** We enable or disable this SSID.
  - **Hidden SSID:** Toggle the SSID on or off.
  - **Security type:** Decide whether to hide the enabled SSID:
    - None: No password.
    - WEP: Older and less secure security.
    - WPA-PSK: Newer security with medium security level.
    - WPA2-PSK: Newer security with better security. Note that some devices may not support it.
    - WPA-PSK/WPA2-PSK: Use both security levels for devices that are not compatible with WPA2-PSK.

  Remember to apply the changes for them to take effect.

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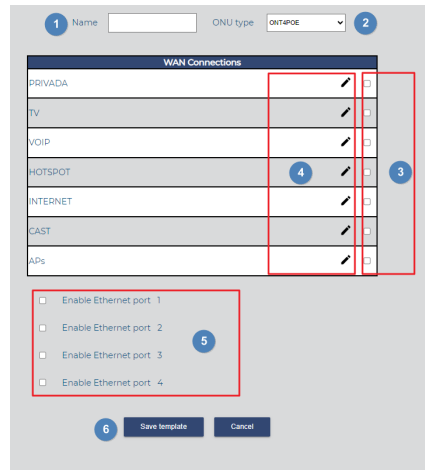Tel.: +34935839543 · info@ek.plus · www.ek.plus

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8. **VOIP:** We will configure the different IP Voice parameters.

- Protocol: Select the protocol used:
    1. SIP: SIP (Session Initiation Protocol) is a signaling protocol used to establish, modify, and terminate communication sessions between two or more participants.
    2. IMSSIP: IP Multimedia Subsystem (IMS) is an architectural framework for delivering multimedia services over IP networks, designed for next-generation networks (NGN).
- Primary Register Server: This is the primary phone central service.
- Secondary Register Server: This is the secondary phone central service.
- Primary Proxy Server: This is the primary phone central service.
- Secondary Proxy Server: This is the secondary phone central service.
- Primary Outbound Proxy Server: This is the primary phone central service.
- Secondary Outbound Proxy Server: This is the secondary phone central service.

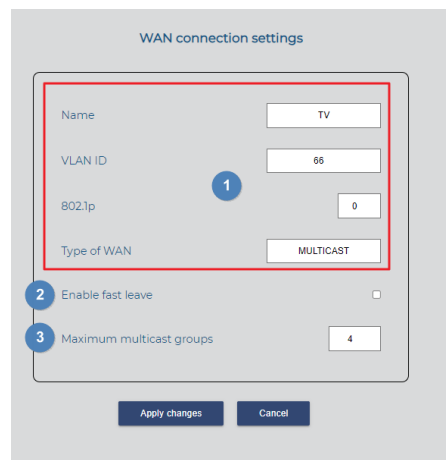Remember to apply the changes for them to take effect.

9. **Save template:** To save the template.

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- ONU4POE:

1. **Name:** Name of the template that we are going to create.
2. **ONU Type:** Type of ONU that we have selected.
3. **Checks:** By enabling check, the profile is associated with the template. It is used in HYBRID and TRUNK mode to select the profile with the VLAN that will be applied to the WAN connection.
4. **Pencil:** We can configure in the template how we want the selected profile to work. Depending on the type of profile (INTERNET/VOICE/MULTICAST) we will find different options.
   a. INTERNET profile: There is nothing to configure here.
   b. VOICE profile: There is nothing to configure here.
   c. MULTICAST profile:

   i. **Enable fast leave:** By default, this feature is disabled. With fast leave processing enabled, the router immediately stops forwarding multicast traffic when it receives an IGMP leave message. This reduces the delay associated with the

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leave process. Note that it's not recommended for installations with more than one STB IP.

ii. **Maximum multicast groups:** The maximum multicast group is set to 4 by default. If the number of multicast groups on a port exceeds this limit, the system removes all forwarding entries related to that port from the IGMP snooping forwarding table. Receiver hosts attached to that port can join multicast groups again before reaching the group limit on that port.

6. **Enable Ethernet port:** We can enable the POE in any of its Ethernet ports.
7. **Save template:** Once the template is created and configured, we must save.

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- ONU4W:

1. **Name:** Name of the template that we are going to create.
2. **ONU Type:** Type of ONU that we have selected.
4. Enable fast leave: By default, this feature is disabled. With fast leave processing enabled, the router immediately stops forwarding multicast traffic when it receives an IGMP leave message. This reduces the delay associated with the leave process. Note that it's not recommended for installations with more than one STB IP.
5. Maximum multicast groups: The maximum multicast group is set to 4 by default. If the number of multicast groups on a port exceeds this limit, the system removes all forwarding entries related to that port from the IGMP snooping forwarding table. Receiver hosts attached to that port can join multicast groups again before reaching the group limit on that port.
6. **Save Template:** Once the template has been created and configured, we must save.

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- ONU4AC:

1. **Name:** Name of the template that we are going to create.
2. **ONU Type:** Type of ONU that we have selected.
3. **Checks:** When enabled, associate the profile with the template.
4. **Pencil:** You can configure in the template how you want the selected profile to work. Depending on the type of profile (INTERNET/VOICE/MULTICAST), you will find different options.

   - INTERNET profile:

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1. This parameter is not configurable. It was created when OLT Profiles were created.
2. Service Mode: You can select the mode in which the WAN link will work.
   - Route: The ONU WAN acquires an IP. This is determined by the "Link Mode."
   - Bridge: The WAN port of the ONU is transparent, and clients' DHCP will be assigned by the main router.
3. Enable NAT "for Route service mode only": This option enables NAT to work in Route mode.
4. Link mode, "Route service mode only"
   - DHCP: The ONU automatically acquires an IP on your WAN link.
   - Static: You can manually manage a static IP on your WAN.
5. Port binding: You can select the port where you want the internet profile to be applied.

- VOICE profile:
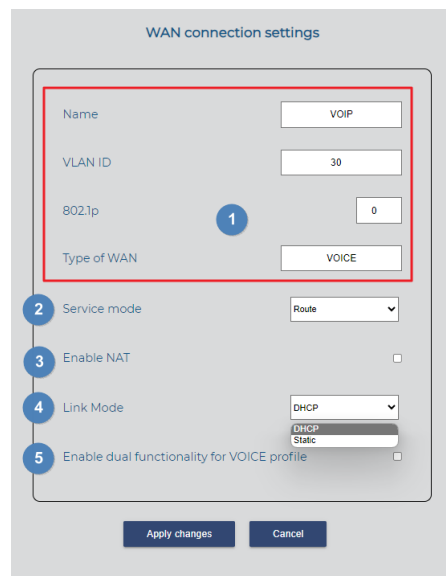
1. This parameter is not configurable. It was created when OLT Profiles were created.
2. Service Mode: Select the mode in which the WAN link will work:
   - Route: The ONU WAN acquires an IP, determined by the "Link Mode."
   - Bridge: The WAN port of the ONU is transparent, and clients' DHCP will be assigned by the main router.
3. Enable NAT (for Route service mode only): This option enables NAT to work in Route mode.
4. Link mode (for Route service mode only):
   - DHCP: The ONU automatically acquires an IP on your WAN link.
   - Static: You can manually manage a static IP on your WAN.
5. Enable dual functionality for VOICE profile: This allows you to configure two interfaces on the POTS port. You can connect one phone to the POTS ports.

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- MULTICAST profile:

1. This parameter is not configurable. It was created when OLT Profiles were created.
2. Port binding: This option allows you to enable the port that will have multicast.

7. **Enable DHCP of LAN interface:** This option enables DHCP on LAN PORTS.
8. **Enable fast leave:** By default, this option is disabled. Enabling fast leave processing allows the router not to initiate the group-specific query process when it receives an IGMP leave message. Instead, it immediately stops forwarding the multicast traffic for that group, reducing the delay associated with the leave process. Please note that this is not recommended for installations with more than one STB IP.
9. **Maximum multicast groups:** The maximum multicast group limit is set to 4 by default. If the number of multicast groups on a port exceeds this limit, the system removes all the forwarding entries related to that port from the IGMP snooping forwarding table. The receiver hosts attached to that port can join multicast groups again before the number of multicast groups on the port reaches the limit.

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10. **WLAN:** This section allows us to configure various parameters for the 2GHz and 5GHz WiFi networks, depending on the ONU model.

- **Enable wireless connection in 2.4 GHz band (WLAN 1 - 4):** This option allows you to enable WiFi in the 2.4GHz band.
- **Enable wireless connection in 5 GHz band (WLAN 5 - 8):** This option allows you to enable WiFi in the 5GHz band (applicable only to 5GHz capable devices.
- **Network type:** You can choose the WiFi protocol used for your network, which depends on the devices being connected. The options include.
  - 802.11b/g/n Mixed: Works with devices that support 802.11b, 802.11g, and 802.11n.
  - 802.11b/g Mixed: Works with devices that support 802.11b and 802.11g.
  - 802.11n: Only works with devices supporting 802.11n.
  - 802.11g: Only works with devices supporting 802.11g.
  - 802.11b: Only works with devices supporting 802.11b.
  - 802.11ac/n/a Mixed (5GHz only): Works with devices that support 802.11ac, 802.11n, and 802.11a (applicable only to 5GHz band).
  - 802.11n/a Mixed (5GHz only): Works with devices that support 802.11n and 802.11a (applicable only to 5GHz band).
  - 802.11a (5GHz only): Only works with devices supporting 802.11a (applicable only to 5GHz band).
- **Channel:** You can select the specific channel on which your WiFi network will operate. The "Automatic" option is recommended.
- **Channel bandwidth:** This option allows you to choose the channel width for your WiFi network, such as:
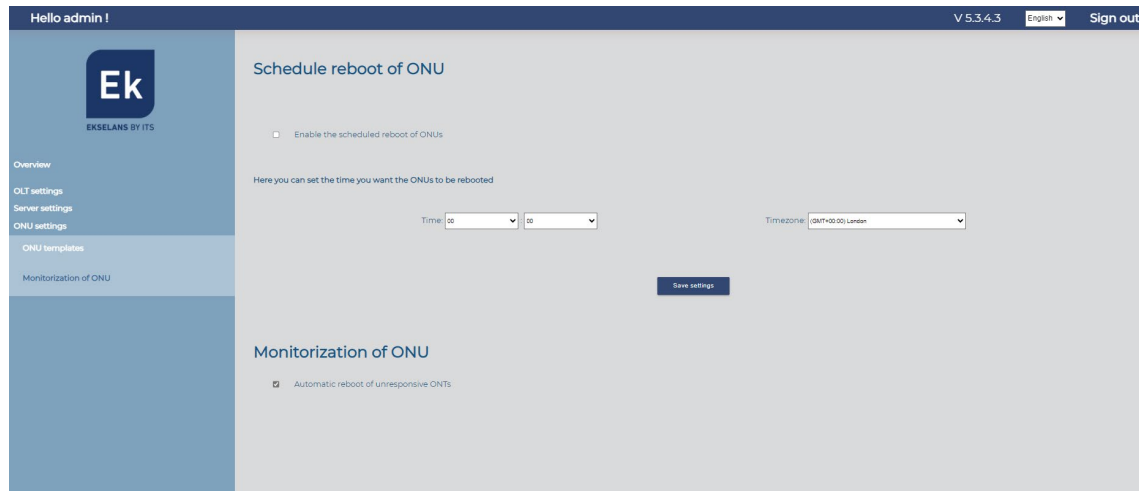
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- o 20Mhz: Operates on a 20MHz channel width.
- o 40Mhz: Operates on a 40MHz channel width.
- o 20/40Mhz: Operates at 20MHz or 40MHz depending on connected devices and network congestion. This mode is recommended.
- o 20/40/80MHz: Operates at 20MHz, 40MHz, or 80MHz depending on connected devices and network congestion. This mode is recommended for 5GHz networks.

- **TX Power:** This option allows you to adjust the power at which your equipment emits WiFi signals.
- **GI Control:** This option lets you configure the guard interval for your WiFi network. The guard interval can be set to 400ns (short) or 800ns (long). By default, the short guard interval is suitable for higher data rates.
- **SSID:** You can enter the name that will be broadcast for your WiFi network.
- **Enable SSID:** This setting allows you to enable or disable the visibility of the SSID (WiFi network name.
- **Hidden SSID:** This option controls whether the SSID is hidden (not visible to devices trying to connect.
- **Security type:** You can select the type of security for your WiFi network, including:
  - o None: No password.
  - o WEP: Older and less secure.
  - o WPA-PSK: A newer security protocol with a moderate security level.
  - o WPA2-PSK: A more recent and secure security protocol. Some older devices may not support this.
  - o WPA-PSK/WPA2-PSK: Uses both WPA and WPA2 for compatibility with a wider range of devices.

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11. **VOIP:** We will configure the different IP Voice parameters.

- Protocol: Select the protocol used:
    1. SIP: SIP (Session Initiation Protocol) is a signaling protocol used to establish, modify, and terminate communication sessions between two or more participants.
    2. IMSSIP: IP Multimedia Subsystem (IMS) is an architectural framework for delivering multimedia services over IP networks, designed for next-generation networks (NGN).
- Primary Register Server: This is the primary phone central service.
- Secondary Register Server: This is the secondary phone central service.
- Primary Proxy Server: This is the primary phone central service.
- Secondary Proxy Server: This is the secondary phone central service.
- Primary Outbound Proxy Server: This is the primary phone central service.
- Secondary Outbound Proxy Server: This is the secondary phone central service.
- Remember to apply the changes for them to take effect.

12. **Save template:** Once the template has been created and configured, we must save.

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Monitorization of ONU.

In this menu, you can perform two actions related to the automatic restart of ONUs:

1. **Scheduled Restart**: You can configure the time at which the ONUs will be scheduled for an automatic restart. This setting allows you to set a specific time for ONUs to reset. The automatic restart schedule will be applied in the "General view" section using the "Apply scheduled restart" option.
2. **Automatic Restart of Responsive ONUs**: This feature allows you to configure the system to automatically restart the ONUs that are unresponsive or have stopped being managed. It ensures that non-responsive ONUs are periodically rebooted to re-establish proper communication and management. This feature helps maintain the stability and performance of the ONU devices.

Both of these actions are valuable for maintaining and managing the ONU devices in your network.

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FAQ

1. Cannot Access SWH:
    - If you cannot access SWH, try connecting directly to the ETH2 port.
    - Check if your IP address falls within the SWH device's IP range. The default is 172.16.5.209 with a subnet mask of 255.255.255.0.
    - Ping the SWH's IP (172.16.5.209). If it responds, you should be able to access it through http://172.16.5.209:9090.
2. Cannot Perform Actions from the Server:
    - If you are unable to perform actions from the server, check your network configuration.
    - Ensure that your network is not using the IP range 192.168.1.0/24, as the server uses two IPs within that range, "Server Interface-OLT" and "OLT IP Address."
    - If necessary, change the IP range of the main router to avoid conflicts.
3. ONUs Not Visible in SWH:
    - To troubleshoot when ONUs are not visible in SWH:
    - Verify the physical connection by checking the ONU LED.
    - Confirm that the ONUs are operating within the acceptable optical power range of -8dBm to -28dBm.
    - Click on "Scan OLT" to refresh the ONU list.
4. Changes Are Not Applied or Cannot Delete ONU:
    - If changes are not applied or you can't delete ONUs, consider restarting the OLT.
    - Go to the "OLT Configuration" section and perform a "Restart OLT."
    - Additionally, you can go to "Server Configuration" > "Network Configuration" and execute "Restart the server."
5. Devices Cannot Browse After Configuration:
    - When devices can't browse after configuration, ensure you are delivering the correct VLANs configured in the profiles.
    - Check for any intermediate devices like switches or layer 3 devices that might be affecting VLAN tagging.
6. Finding the Server's IP:
    - To discover the server's IP when unknown, use a network diagnostic tool like Wireshark.
    - Connect to the ETH2 port (or the appropriate network interface) and analyze the network traffic to identify the IP address assigned to the server.
    - These steps should help you diagnose and resolve various issues related to SWH and OLT configurations.

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