PLANET
Networking & Communication

# User's Manual

## GEPON Wi-Fi ONU

- EPN-402NV

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## Copyright



## Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio technician for help.

## FCC Caution:

To assure continued compliance, for example, use only shielded interface cables when connecting to computer or peripheral devices. Any changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that may cause undesired operation.

## Federal Communication Commission (FCC) Radiation Exposure Statement

This equipment complies with FCC radiation exposure set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20 cm (8 inches) during normal operation.

## R&TTE Compliance Statement

This equipment complies with all the requirements of DIRECTIVE 1999/5/CE OF THE EUROPEAN PARLIAMENT AND THE COUNCIL OF 9 March 1999 on radio equipment and telecommunication terminal equipment and the mutual recognition of their conformity (R&TTE).

The R&TTE Directive repeals and replaces in the directive 98/13/EEC (Telecommunications Terminal Equipment and Satellite Earth Station Equipment) as of April 8, 2000.

## Safety

This equipment is designed with the utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity when working with electrical equipment. All guidelines of this and of the computer manufacture must therefore be allowed at all times to ensure the safe use of the equipment.

## National Restrictions

This device is intended for home and office use in all EU countries (and other countries following the EU directive 1999/5/EC) without any limitation except for the countries mentioned below:

| Country | Restriction | Reason/remarks |
|---|---|---|
| Bulgaria | None | General authorization required for outdoor use and public service |
| France | Outdoor use limited to 10 mW e.i.r.p. within the 2454-2483.5 MHz band | Military radio location use. Refarming of the 2.4 GHz band has been ongoing in recent years to allow the current relaxed regulation. Full implementation planned in 2012 |
| Italy | None | If used outside of own premises, general authorization is required |
| Luxembourg | None | General authorization required for network and service supply (not for spectrum) |
| Norway | Implemented | This subsection does not apply for the geographical area within a radius of 20 km from the centre of Ny-Ålesund |
| Russian Federation | None | Only for indoor applications |

Note: Please don't use the product outdoors in France.

## WEEE Regulations

To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.

## Revision

User Manual of PLANET GEPON Wi-Fi ONU

Model: EPN-402NV

Rev: 1.0 (Oct., 2014)

Part No. EM-EPN-402NV_v1.0 (**2081-BA0110-000**)

# CONTENTS

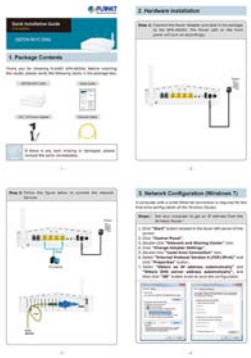
# Chapter 1. Product Introduction

## 1.1 Package Contents

Thank you for choosing PLANET EPN-402NV. Before installing the ONU, please verify the contents inside the package box.

**EPN-402NV**

**Quick Installation Guide**



**Power Adapter**

12V DC, 1A
100~240V AC

**Ethernet Cable**

RJ45 Cable

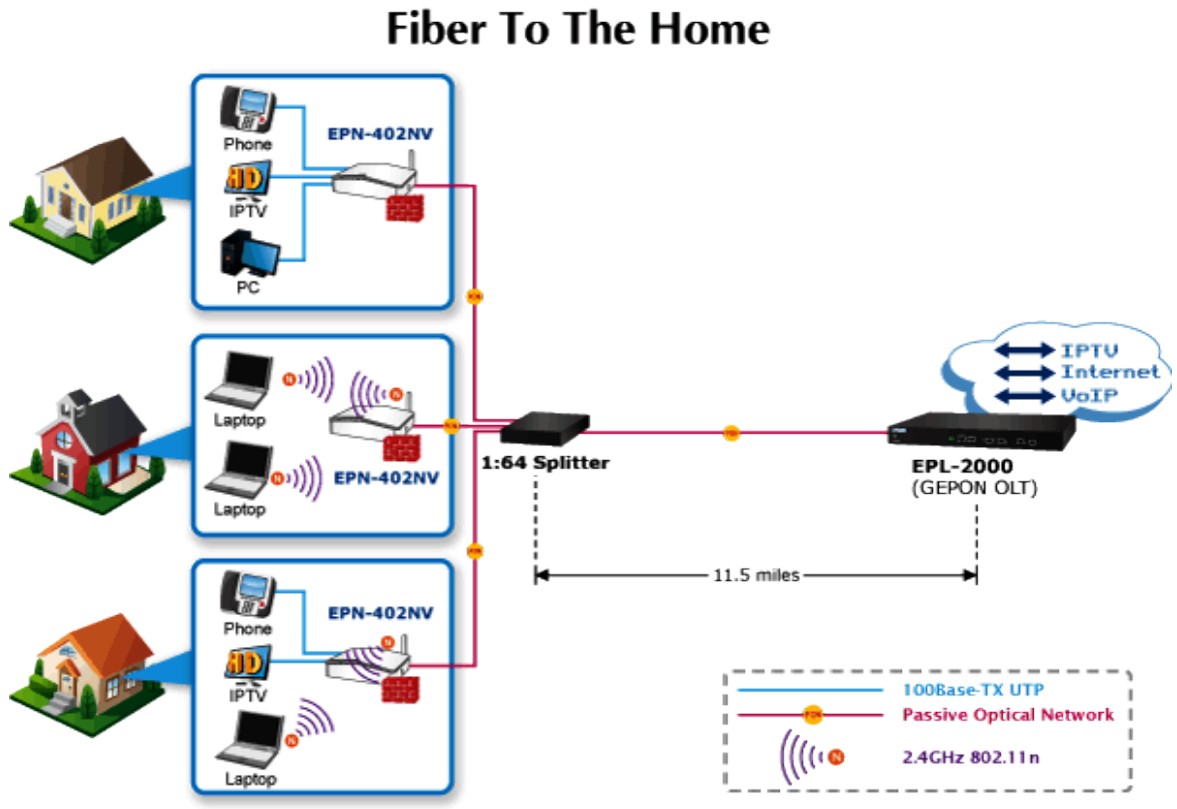
Note

If there is any item missing or damaged, please contact the seller immediately.

## 1.2 Product Description

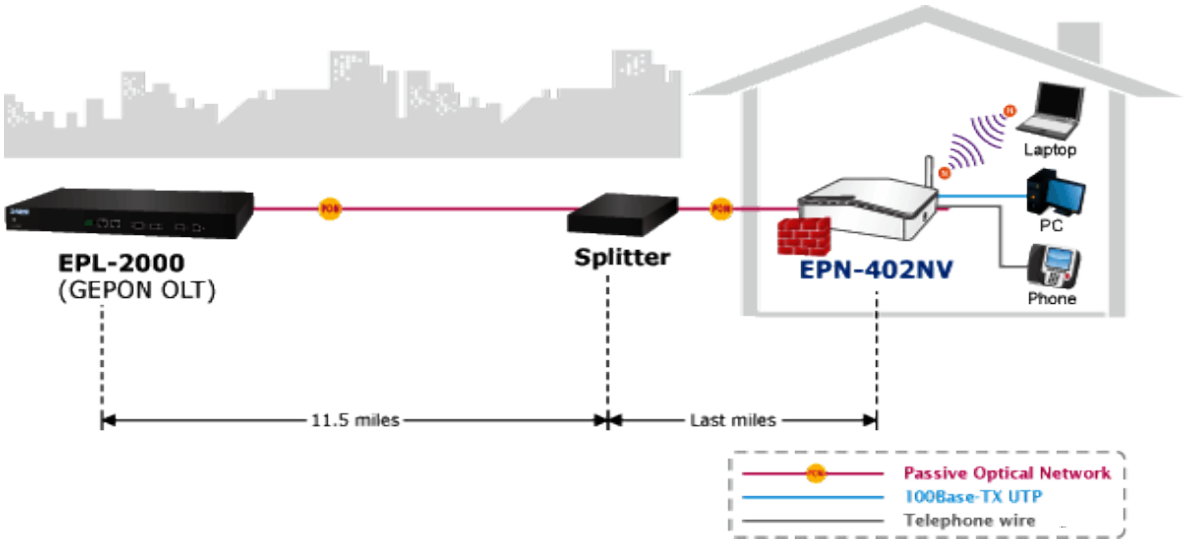
### Perfectly Designed for Fiber to the Home Applications

PLANET EPN-402NV is a fiber to the home (FTTH) broadband access equipment type. With built-in 1.25Gbps GEPON fiber interface, the EPN-402NV supports different optic types for WAN and the distance can be up to 20km through the fiber connection. It can handle multiple high-throughput services such as IPTV, on-line gaming, VoIP and Internet access, and keep the bandwidth usage smoothly via its QoS features. Thus, with the advantages of high reliability and scalability, the EPN-402NV can further be applied in the network of SOHO (small office or home office) or small businesses that provide high-performance access services.




### Cost-effective Network Connection Solution

With the growing network services such as HDTV, IPTV, voice over IP (VoIP) and multimedia broadband applications, the demand for broadband use has increased tremendously. The Passive Optical Network (PON) is the most promising NGN (Next Generation Networking) technology. As compared to other broadband access technologies such as xDSL and cable modem, the Passive Optical Network (PON) technology offers some competitive advantages, including a long-term life expectancy of the fiber infrastructure, lower operating costs through the reduction of “active” components, support up to 20km distance between equipment nodes, and most importantly, provide much greater bandwidth.

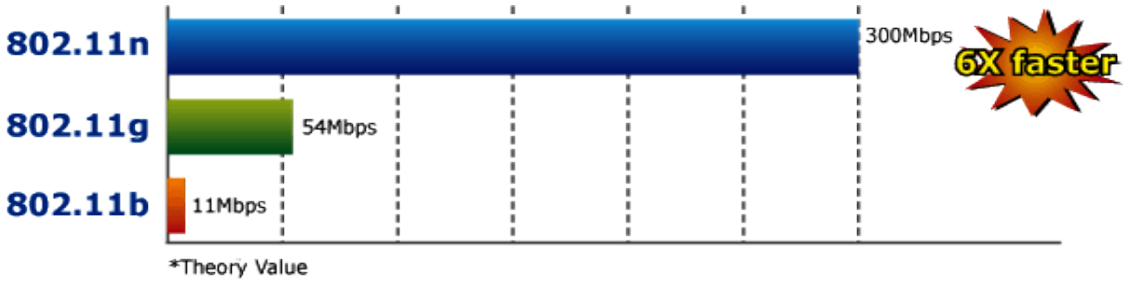



## Flexibility and Extension solution

PLANET EPN-402NV provides ultra high-speed Internet connection with PLANET OLT (EPL-2000) via the new GEPON technology. The upstream and downstream transmission speed provided is up to 1.25Gbps and its maximum distance can be 20km. Through the PON technology, the EPN-402NV can receive and deliver high-speed voice, data and video services. It offers competitive advantages including a long-term life expectancy of the fiber infrastructure, lower operating costs from the reduction of “active” components, easy Installation and maintenance, and most importantly, offering a much greater and more stable bandwidth. The EPN-402NV is the perfect solution working with PLANET OLT EPL-2000 to offer benefits of cost-effectiveness, scalability and flexibility to network deployment.

## High-speed 802.11n Wireless Type

With built-in IEEE 802.11b/g and 802.11n wireless network capabilities, the EPN-402NV allows any computer and wireless-enabled network device to connect to it without additional cabling. 802.11n wireless capability brings users the speed of wireless data transmission rate to as high as **300Mbps.** The radio coverage is also doubled to offer strong wireless connection even in widely spacious offices or houses.



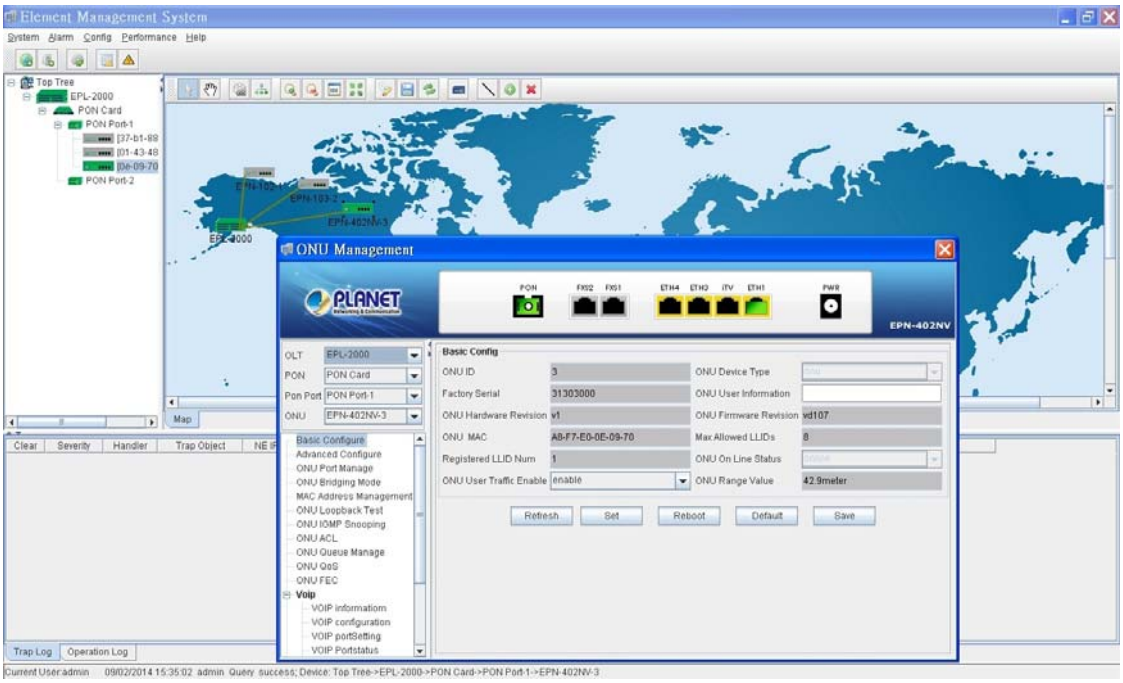

## Standard Compliance with FXS Port

The EPN-402NV provides two FXS ports that can easily integrate with general voice over IP system. The EPN-402NV makes it simple for the enterprise featuring voice and data system or expanding voice system to new locations. It helps you to save money on long-distance calls; for example, the remote users can dial in

through a Unified VoIP Communication System just like an extension call but no long-distance call charge would occur.

## Robust ONU Management

The EPN-402NV is designed to work with PLANET OLT EPL-2000 to provide robust FTTx applications. With the **Element Management System (EMS**) **built** in the EPL-2000, the administrators can manage and configure the facilities such as adding or removing PLANET OLTs and ONUs to or from the network architecture easily and economically. The EMS also supports many operating and monitoring functions for efficient ONU management including ONU auto-detection, auto-registration, testing link connection, binding MAC address, loopback test and filtration, bandwidth control, flow control, and multicast stream control.



## 1.3 Product Features

- **GEPON**
  - Supports 802.3ah CTC external OAM
  - 1 x SC type GEPON port
  - Up to 1.25Gbps upstream and downstream
  - Up to 20km
  - Supports 128-bit triple churning algorithm
  - Supports dying gasp
- **Ethernet**
  - Supports 802.1Q VLAN, QoS
  - Supports broadcast storm protection
  - Supports bandwidth control
  - Supports IGMP snooping/proxy
  - Supports IPv4/IPv6
- **VoIP**
  - Supports G.711 a/u law, G.712, G.729a code/decode
  - Supports VAD, CNG
  - Supports G.711/T.38 fax
  - Supports SIP/H.248/MGCP
- **Wireless**
  - Up to 300Mbps bandwidth
  - Compatible with 802.11b/g/n
  - Compatible with equipment working on 2.4G Hz
  - Supports WPS
- **Physical Hardware**
  - 4 x 10/100Mbps Fast Ethernet port
  - 2 x FXS port
  - 1 x Reset Button
  - 1 x Power Connector
- **Features**
  - Dynamic Bandwidth Allocation (DBA) support
  - IEEE 802.3ah compliant Forward Error Correction (FEC)
  - Enhanced IGMP feature
  - 1.5MB of integrated packet buffering
  - Supports Layer-2/3/4 classification rules
  - Supports IEEE 802.3x flow control
  - Internal Management Information Base (MIB) counters for network statistics

## 1.4 Product Specifications

| | | |
|---|---|---|
| **Product** | | **EPN-402NV**<br>GEPON Wi-Fi ONU |
| **Hardware Specifications** | | |
| **Transmission Speed** | | Downstream: 1.25 Gbps<br>Upstream: 1.25 Gbps |
| **Port** | **PON Port** | 1 x PON Port |
| | **Ethernet Port** | 4 x RJ45 (10/100Base-TX) |
| | **FXS Port** | 2 x RJ11 Port |
| | **USB Port** | 1 x USB 2.0 Port Type A, 5V 500mA |
| **Optic Wavelength** | | TX:1310mm<br>RX:1480mm |
| **Optical Receive Sensitivity** | | -25 dBm |
| **Dimensions (W x D x H)** | | 190 x 137 x 48 mm |
| **Weight** | | 350g |
| **Power Input** | | 12V DC, 1A |
| **Power Consumption** | | 12W |
| **EMS Utility Specifications** | | |
| **ONU Feature** | | Supports IGMP Snooping<br>Supports MLD Snooping<br>Supports 802.3ah CTC external OAM<br>Supports DBA algorithm<br>Supports 128-bit triple churning algorithm<br>Supports dying gasp IEEE 802.3ah compliant forward error Correction (FEC)<br>Supports TR-069 |
| **Wireless Interface Specifications** | | |
| **Standard** | | Compliant with IEEE 802.11b/g/n |
| **Frequency Band** | | 2.4~2.4835GHz |
| **Antenna** | | Gain: 3 dBi internal antennas |
| **Extended Frequency** | | DSSS |
| **Modulation Type** | | DBPSK, DQPSK, QPSK, CCK and OFDM (BPSK/QPSK/16-QAM/ 64-QAM) |
| **Data Transmission Rates** | | 802.11n (40MHz):270/243/216/162/108/81/54/27Mbps<br>135/121.5/108/81/54/40.5/27/13.5Mbps (Dynamic)<br>802.11n (20MHz):130/117/104/78/52/39/26/13Mbps<br>65/58.5/52/39/26/19.5/13/6.5Mbps (Dynamic)<br>802.11g:54/48/36/24/18/12/9/6Mbps (Dynamic)<br>802.11b:11/5.5/2/1Mbps (Dynamic) |
| **Channel** | | Europe/ ETSI: 2.412~2.472GHz (13 Channels) |
| **Max. RF Power** | | 16 dBm max. (EIRP) |
| **Encryption Security** | | ■ WEP (64/128-bit) encryption security<br>■ WPA-Personal / WPA2-Personal (TKIP/AES)<br>■ Mixed WPA / WPA2-PSK |

| | |
|---|---|
| **Wireless Security** | Provides wireless LAN ACL (Access Control List) filtering |
| | Wireless URL filtering |
| | Supports WPS (Wi-Fi Protected Setup) |
| | Enables/Disables SSID broadcast |
| **Wireless Advanced** | WMM (Wi-Fi multimedia): 802.11e wireless QoS |
| | Provides wireless statistics |
| **Max. Supported Clients** | 128 |
| **Firewall** | NAT firewall with SPI (Stateful Packet Inspection) |
| | Built-in NAT server supporting DMZ |
| | Built-in firewall with IMAC address/ port/ URL filtering |
| | Supports DoS protection |
| **VoIP Protocols and Standard** | |
| **Standard** | SIP/H.248/MGCP<br>T.38 (G.711 fax pass-through) |
| **Voice Codec** | G.711 a/u law, G.712, G.729a code/decode |
| **Voice Standard** | VAD (Voice Activity Detection)<br>CNG (Comfort Noise Generation) |
| **Environment Specifications** | |
| **Temperature** | Operating temperature: -5 ~ 55 degrees C<br>Storage temperature: -30 ~ 60 degrees C |
| **Humidity** | Operating Humidity: 10 ~ 90% non-condensing<br>Storage Humidity: 5 ~ 95% non-condensing |
| **Standards Conformance** | |
| **Standards Compliance** | IEEE 802.3 10BASE-T<br>IEEE 802.3u 100BASE-TX<br>IEEE 802.3x flow control and back pressure<br>IEEE 802.11n |

# Chapter 2. Hardware Installation

Please follow the instructions below to connect the EPN-402NV to the existing network devices and your computers.

## 2.1 Hardware Description

- **Dimensions**: 190x 137 x 48mm (L x W x H)
- **Diagram :**

**Figure 2-1**

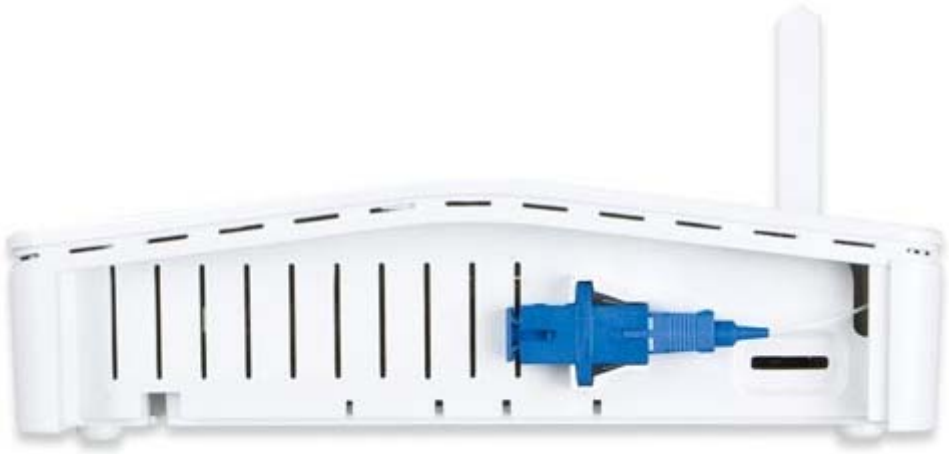


**Figure 2-2**


**Figure 2-3**


**Figure 2-4**

### 2.1.1 Front Panel

The front panel provides a simple interface monitoring the ONU. Figure 2-5, 2-6 shows the front panel of the EPN-402NV.

**Front Panel**

**Figure 2-5** SC Type GEPON

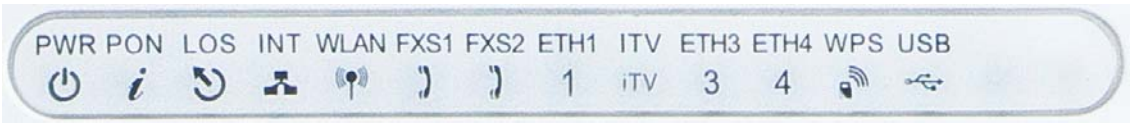



**Figure 2-6** EPN-402NV Front Panel

| LED (Left to Right) | COLOR | STATE | FUNCTION |
|---|---|---|---|
| **PWR** | **Green** | On | Device power on |
| | | Off | Device power off |
| **PON** | **Green** | On | MPCP and OAM be active |
| | | Flash | Registering |
| | | Off | MPCP and OAM not founded |
| **LOS** | **Red** | Flash | Optical Power too Low |
| | | Off | Optical Power normal |
| **INT** | **Green** | On | In ONU mode, Internet is connected, no data transmission |
| | | Flash | Connected, no data transmission |
| | | Off | Data is transmitting |
| **WLAN** | **Green** | On | WLAN is active |
| | | Flash | Data is transmitting |
| | | Off | System power off or WLAN is forbidden |
| **FXS1 / FXS2** | **Green** | On | Registered successfully to server |
| | | Flash | Data is transmitting |
| | | Off | Registered unsuccessfully |
| **ETH1/iTV** | **Green** | On | Linked |

| | | | |
|---|---|---|---|
| **ETH3 / ETH4** | | Flash | Data is transmitting |
| | | Off | No link |
| **WPS** | **Green** | On | Linked successfully |
| | | Flash | Negotiating |
| | | Off | Linked unsuccessfully |
| **USB** | **Green** | On | Linked and in master mode |
| | | Flash | Data is transmitting |
| | | Off | No link |

### 2.1.2 Rear Panel

**Rear Panel**

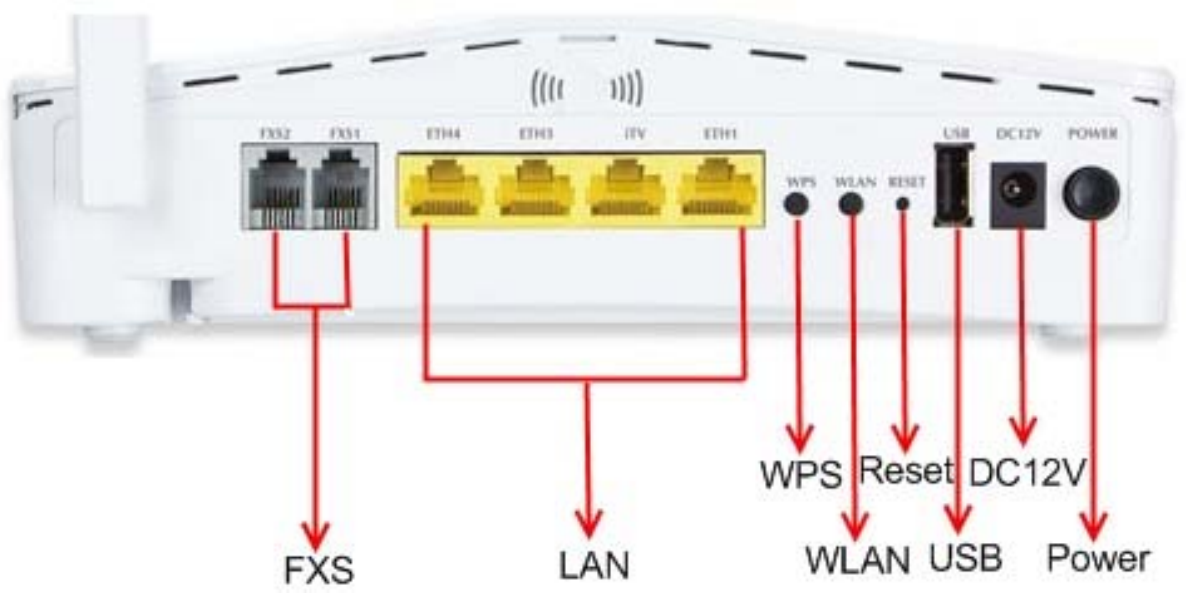



**Figure 2-7** EPN-402NV Rear Panel

| Object | Description |
|---|---|
| **FXS1 FXS2** | RJ11 FXS Connecter, connected to telephone or fax.<br>Supply Voice Service |
| **ETH1**<br>**ETH3**<br>**ETH4** | Connected to Local Area Network. |
| **iTV** | iTV Port can be connected to IPTV BOX |
| **WPS** | Press WPS Button, start to negotiate for WPS. |
| **WLAN** | Switch to open or close WLAN function. |
| **Reset Button** | Press this button and hold for 1 second for the equipment to be defaulted. |
| **USB** | USB 2.0 host port. |

| | |
|---|---|
| **12V DC** | Power input port. |
| **Power** | Power switch. |

### 2.1.3 Side Panel


**Figure 2-8** EPN-402NV Side Panel

| **Port Type** | Function |
|---|---|
| **Indicator LED turn on/off** | Press down to turn LED on; pop up to turn LED off. |

### 2.1.4 Bottom Side

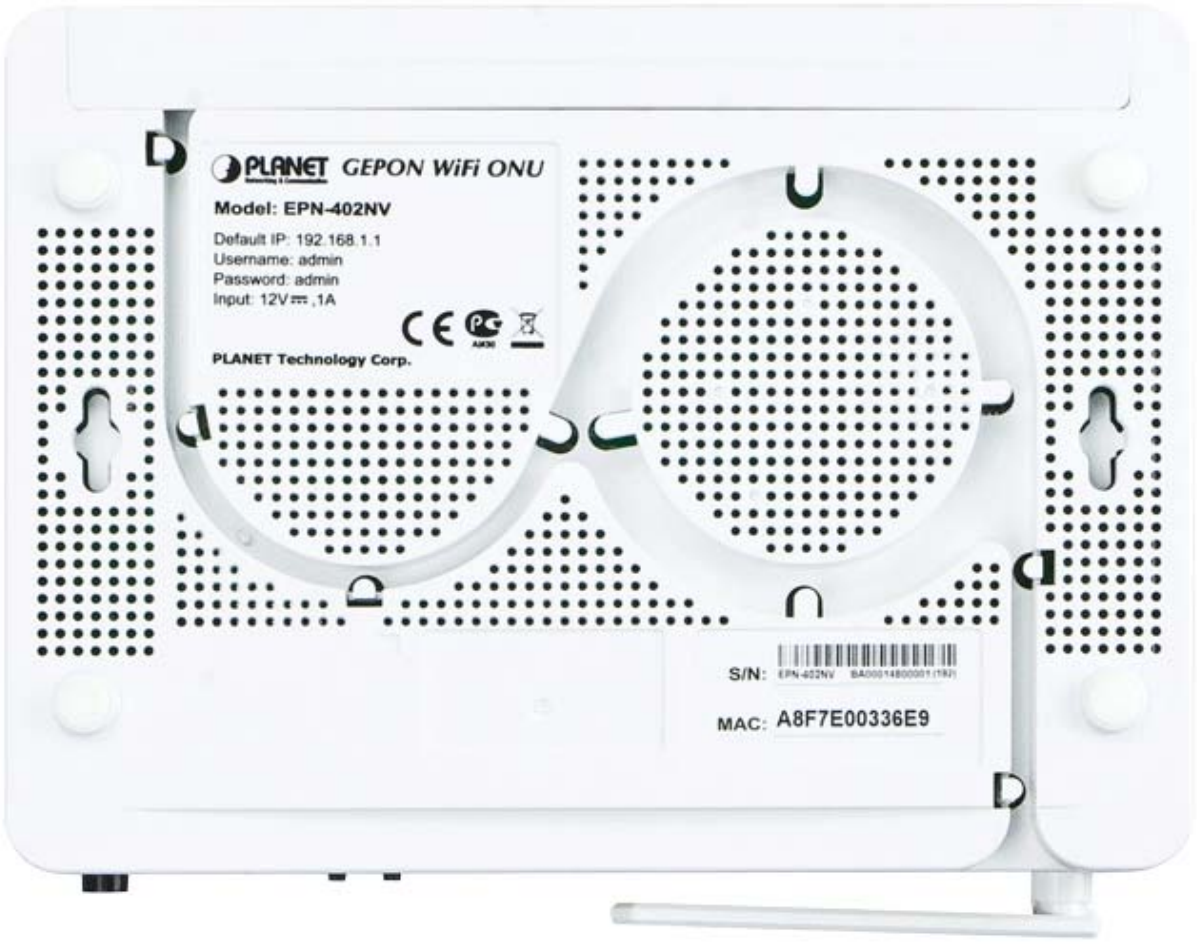



**Figure 2-8** EPN-402NV Bottom Side

# Chapter 3. Connecting to the Wi-Fi ONU

## 3.1 System Requirements

- Broadband Internet Access Service (Passive Optical Network connection)
- PCs with a working Ethernet Adapter and an Ethernet cable with RJ45 connectors
- PC subscribers use Windows 98/ME, NT4.0, 2000/XP, Windows Vista / Win 7, MAC OS 9 or later, or Linux, UNIX or other platforms compatible with **TCP/IP** protocols
- The above PC is installed with a Web browser

Note

1. The GEPON in the following instructions means PLANET EPN-402NV.
2. It is recommended to use Internet Explore 7.0 or above to access the Wi-Fi ONU.

## 3.2 Installing the Wi-Fi ONU

Before installing the Wi-Fi ONU, make sure your PC is connected to the Internet through the broadband service successfully at this moment. If there is any problem, please contact your local ISP. After that, please install the Wi-Fi ONU according to the following steps. Don't forget to pull out the power plug and keep your hands dry.

**Step 1.** Power off your PC and PLANET EPN-402NV.

**Step 2.** Locate an optimum location for the EPN-402NV. The best place is usually at the center of your wireless network.

**Step 3.** Connect the Passive Optical Network to the SC Port of the EPN-402NV with fiber cable, shown in Figure 3-1.

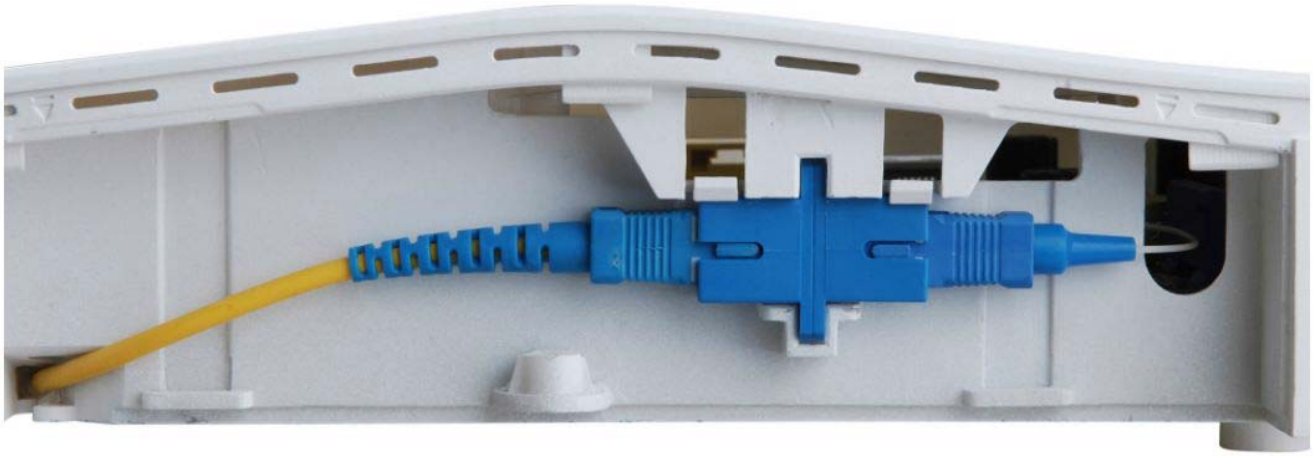


**Figure 3-1**

**Step 4.** Please fix the fiber cable on the bottom of the EPN-402NV as shown in Figure 3-2.

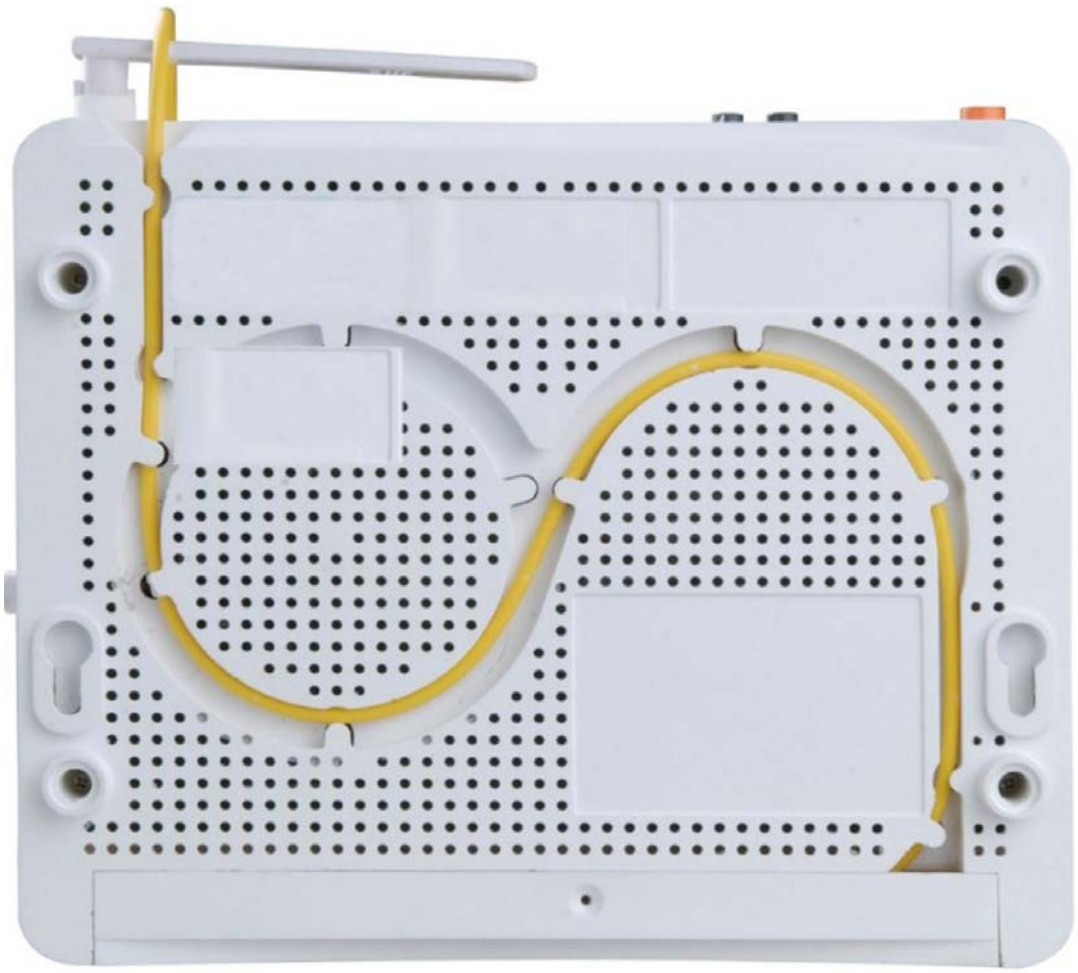


**Figure 3-2**

# Chapter 4. Quick Installation Guide

This chapter will show you how to configure the basic functions of your Wi-Fi ONU.


A computer with wired Ethernet connection to the Wi-Fi ONU is required for the first-time configuration.

## 4.1 Manual Network Setup - TCP/IP Configuration

The default IP address of the Wi-Fi ONU is **192.168.1.1** and the default Subnet Mask is **255.255.255.0**. These values can be changed as you desire in the web UI of the Wi-Fi ONU. In this section, we use all the default values for description.

Whether the Wi-Fi ONU is configured via wired or wireless connection, the PC needs to be assigned an IP address first. Before you connect the local PC to the Wi-Fi ONU via wired or wireless connection, please configure the IP address for your PC in the following two ways first.

- **Obtaining an IP address automatically**
- **Configuring the IP address manually**

In the following sections, we'll introduce how to install and configure the TCP/IP correctly in **Windows 7**. And the procedures in other operating systems are similar. First, make sure your Ethernet Adapter is working, and refer to the Ethernet adapter's manual if needed.

### 4.1.1 Obtaining an IP Address Automatically

**Summary:**

1. Set up the TCP/IP Protocol in "**Obtain an IP address automatically**" mode on your PC.
2. Then the Wi-Fi ONU built-in DHCP server will assign IP address to the PC automatically.

If you are sure the DHCP server of Wi-Fi ONU is enabled (the default setting of ONU Mode), you can set up the TCP/IP Protocol in "**Obtain an IP address automatically**" mode on your PC. And then the Wi-Fi ONU built-in DHCP server will assign an IP address to the PC automatically.

**1. Installing TCP/IP Component**

1) On the Windows taskbar, click the **Start** button, point to **Control Panel** and then click it.

2) Under the **Network and Internet** icon, click on the **View network status and tasks.** And then click

**Change adapter settings**.

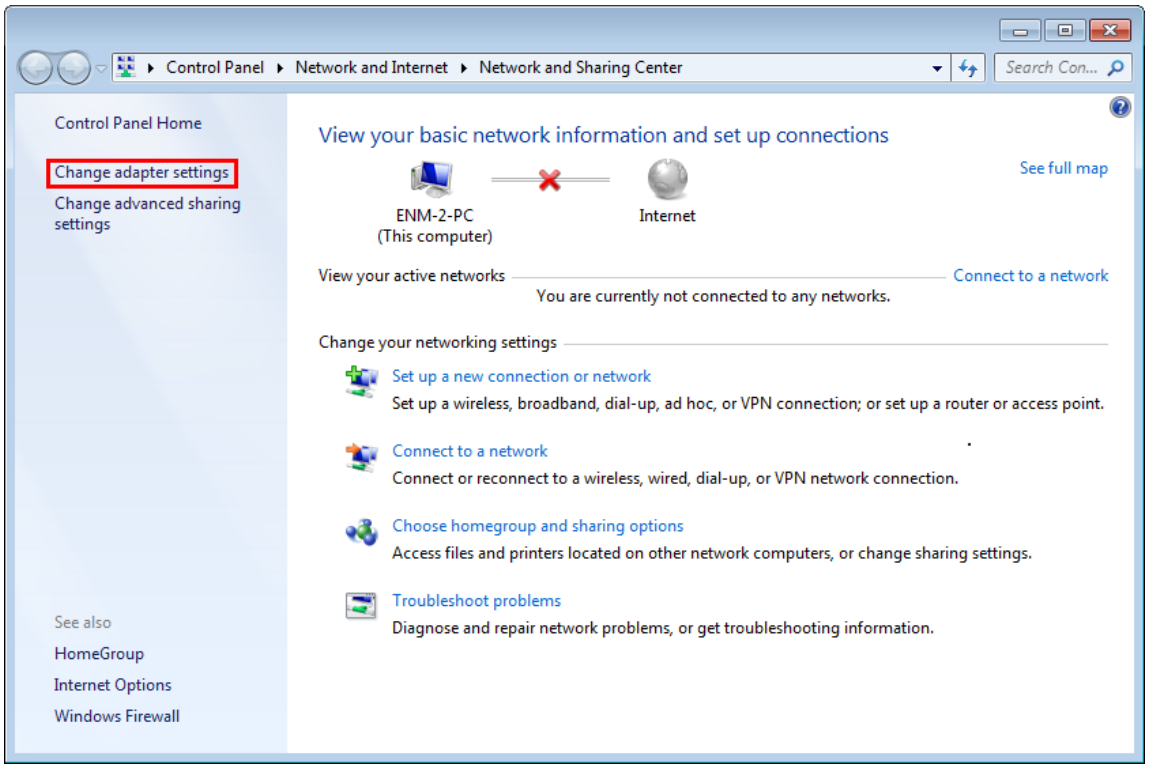



**Figure 4-1** Change Adapter Settings

3) Right-click on the **Wireless Network Connection** and select **Properties** in the appearing window.

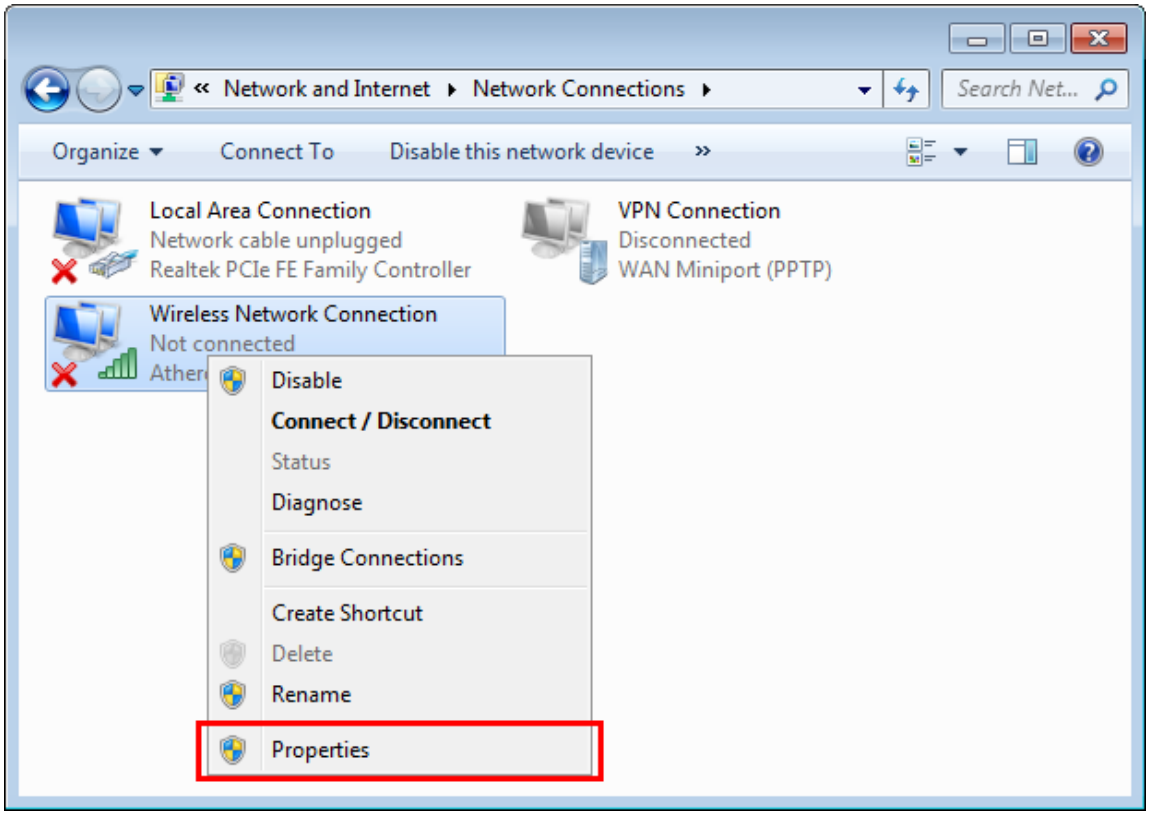



**Figure 4-2** Network Connection Properties

4) In the prompt window shown below, double-click on the **Internet Protocol Version 4 (TCP/IPv4)**.

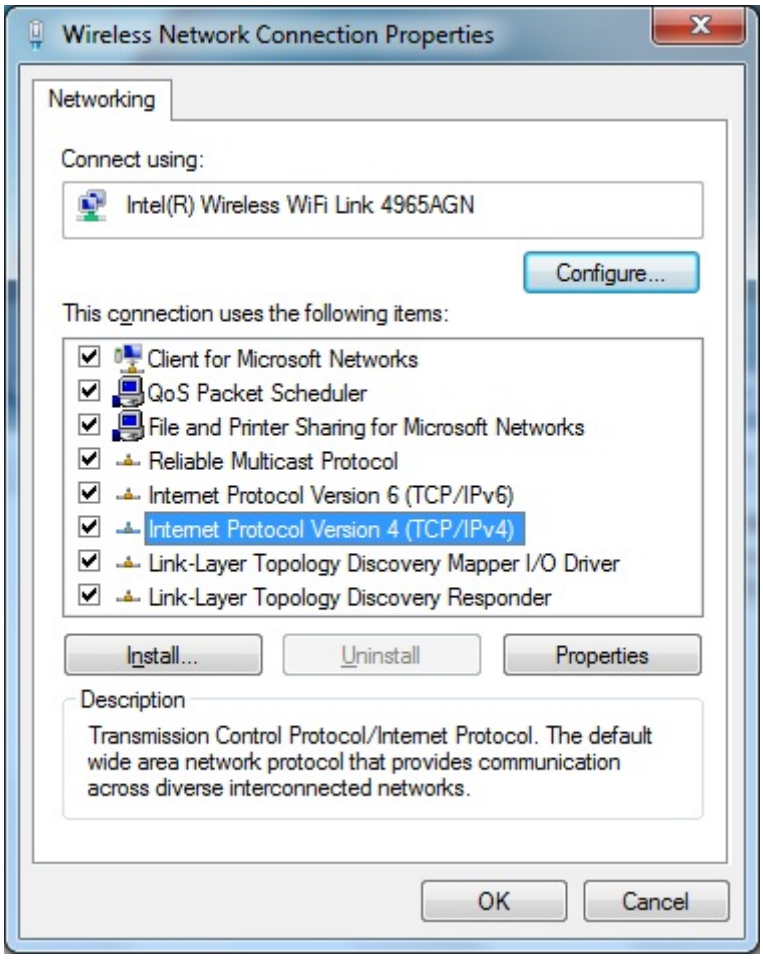



**Figure 4-3** TCP/IP Setting

5) Choose **Obtain an IP address automatically**, and **Obtain DNS server address automatically** as shown in the figure below. Then click **OK** to save your settings.

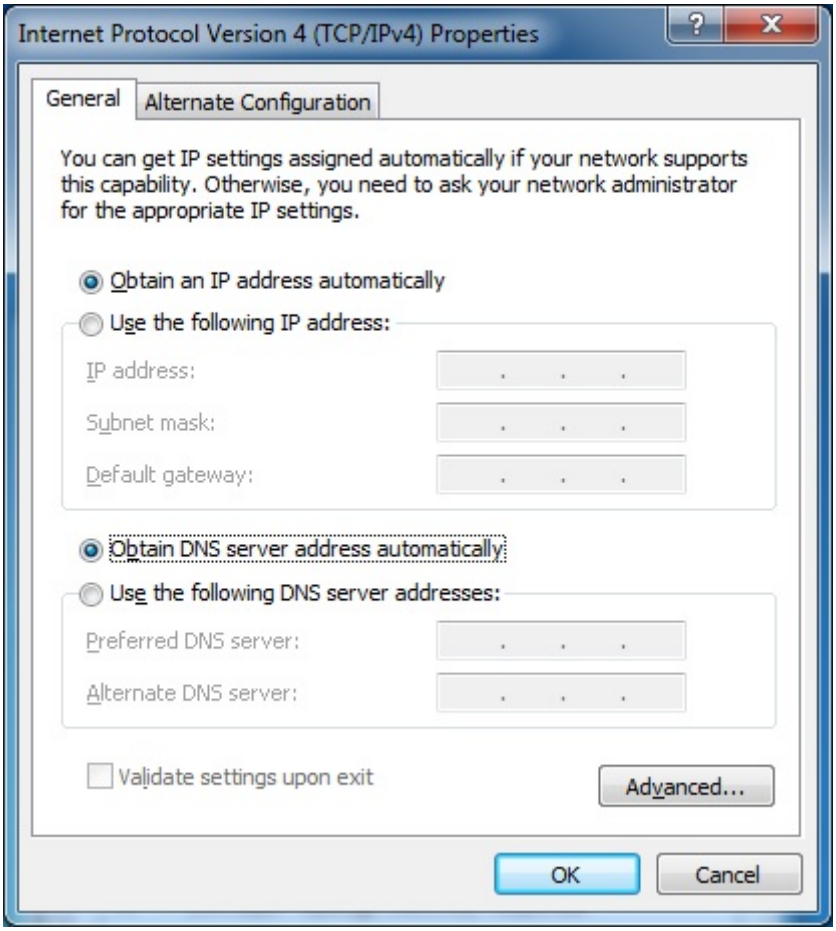



**Figure 4-4** Obtain an IP Address Automatically

### 4.1.2 Configuring the IP Address Manually

Summary:

- Set up the TCP/IP Protocol for your PC.
- Configure the network parameters. The IP address is ***192.168.1.xxx*** ("xxx" is any number from 2 to 254), Subnet Mask is ***255.255.255.0***, and Gateway is ***192.168.1.1*** (The ONU's default IP address)

If you are sure the DHCP server of WiFi ONU is disabled, you can configure the IP address manually. The IP address of your PC should be 192.168.1.xxx (the same subnet of the IP address of the Wi-Fi ONU, and "xxx" is any number from 2 to 254), Subnet Mask is 255.255.255.0, and the Gateway is 192.168.1.1 (The default IP address of the Wi-Fi ONU)

1) Continue the settings from the last figure. Select **Use the following IP address** radio button.

2) If the LAN IP address of the Wi-Fi ONU is 192.168.1.1, enter IP address 192.168.1.x (x is from 2 to 254), and Subnet mask 255.255.255.0.

3) Enter the LAN IP address of the Wi-Fi ONU (the default IP is 192.168.1.1) into the default gateway field.

4) Select **Use the following DNS server addresses** radio button. In the preferred DNS Server field, you can enter the DNS server IP address provided by your local ISP. Then click OK to save your settings.

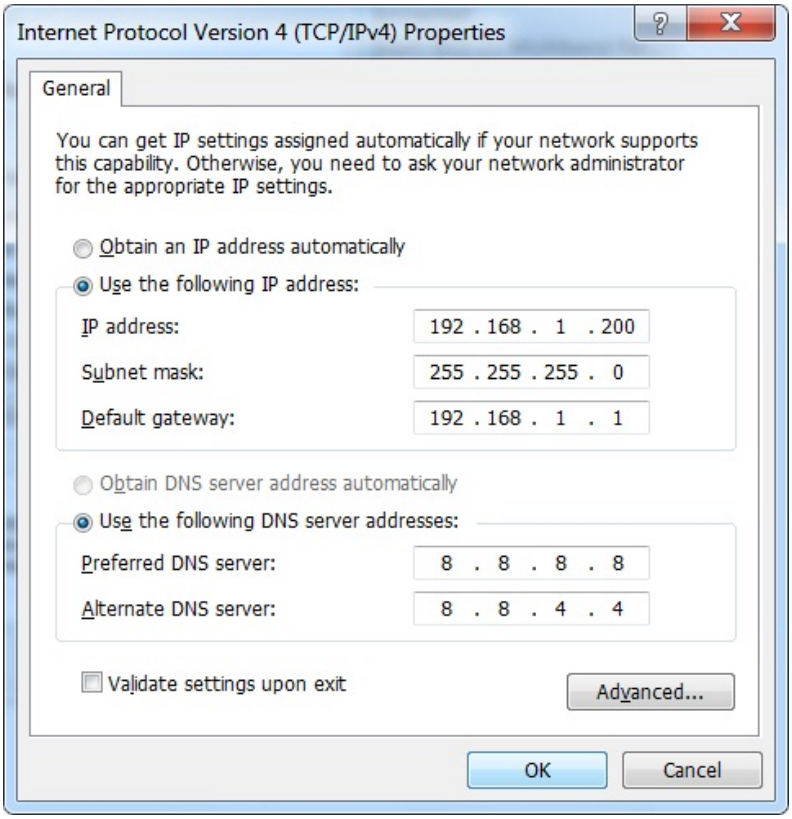



**Figure 4-5** IP and DNS Server Addresses

Now, you can run the ping command in the **command prompt** to verify the network connection between your PC and the ONU. The following example is in **Windows 7** OS. Please follow the steps below:

1. Click on **Start**
2. Type "**cmd**" in the Search box.

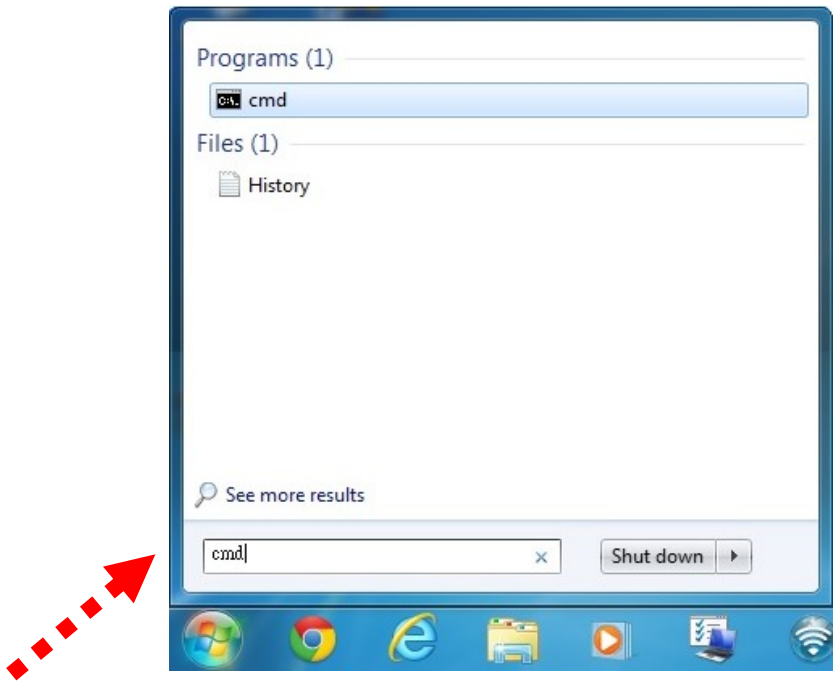



**Figure 4-6**

3. Open a command prompt, and type ping **192.168.1.1**, and then press **Enter**.

- If the result displayed is similar to Figure 4-7, it means the connection between your PC and the ONU has been established well.

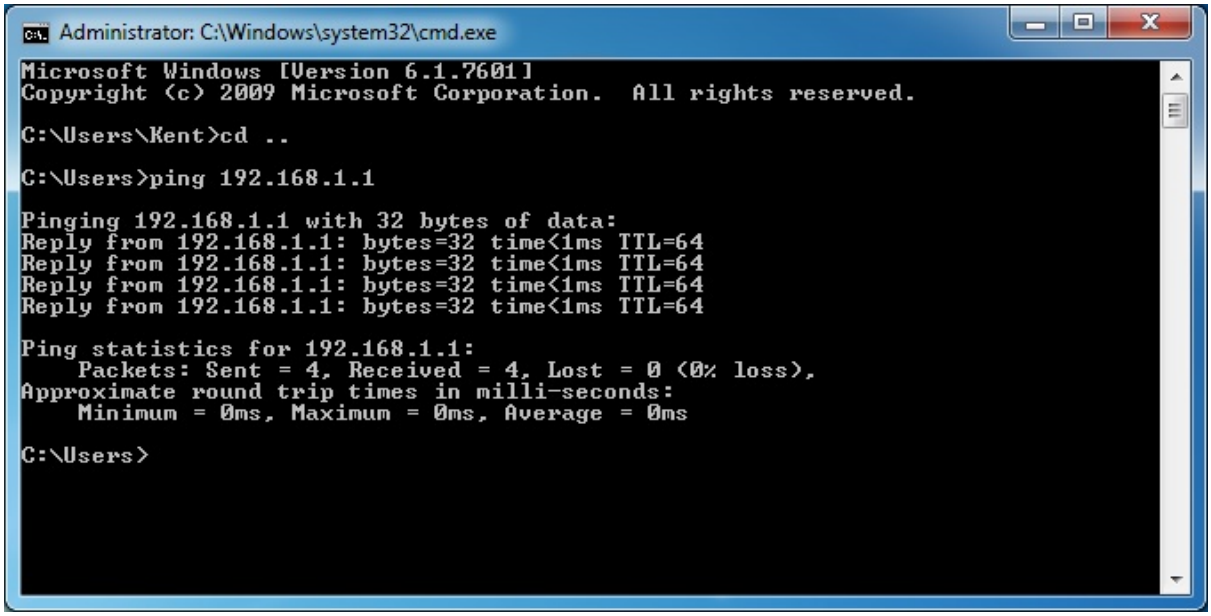



**Figure 4-7** Successful Ping Command

- If the result displayed is similar to Figure 4-8, it means the connection between your PC and the ONU has failed.

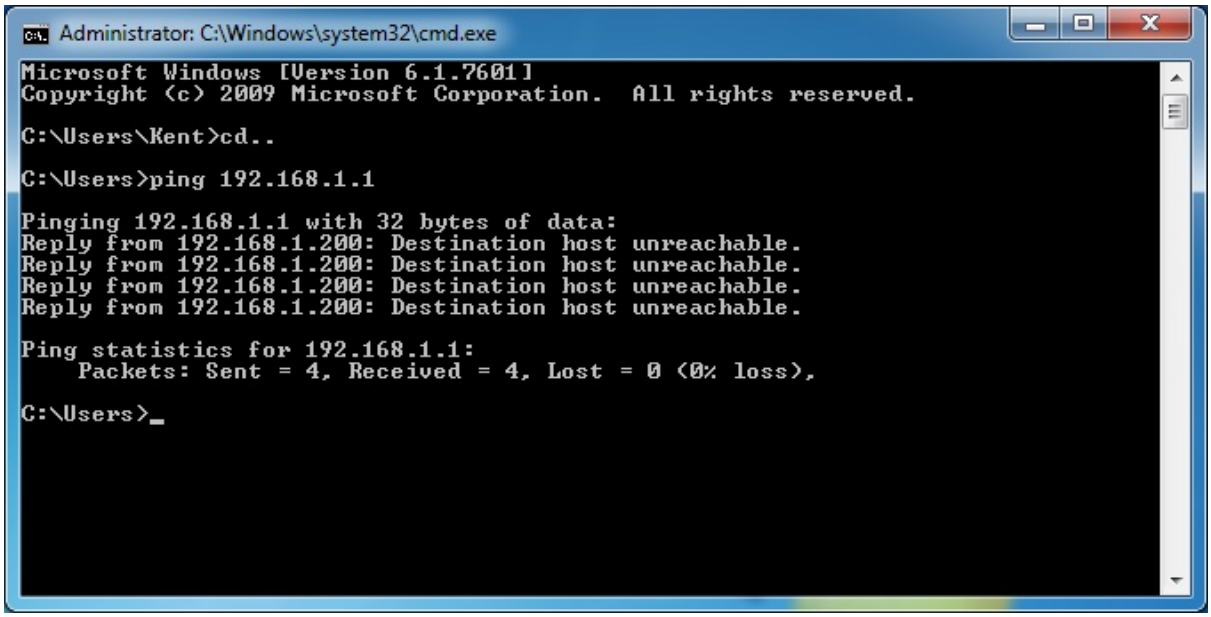



**Figure 4-8** Failed Ping Command

If the address is 0.0.0.0, check your adapter installation, security settings, and the settings on your ONU. Some firewall software programs may block a DHCP request on newly installed adapters.


If the ONU's IP address is 192.168.1.1, your PC's IP address must be within the range of 192.168.1.2 ~ 192.168.1.254.

## 4.2 Starting Setup in the Web UI

It is easy to configure and manage the EPN-402NV with the web browser.

**Step 1.** To access the configuration utility, open a web-browser and enter the default IP address http://192.168.1.1 in the web address field of the browser.

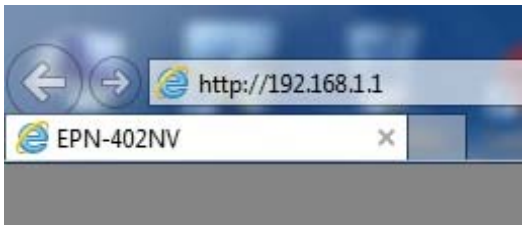



**Figure 4-9** Login the ONU

After a moment, a login window will appear. Enter **admin** for the User Name and Password, both in lower case letters. Then click the **OK** button or press the **Enter** key.


**Figure 4-10** Login Window

Default IP Address: **192.168.1.1**

Default User Name: **admin**

Default Password: **admin**

Note

If the above screen does not pop up, it may mean that your web browser has been set to a proxy. Go to Tools menu>Internet Options>Connections>LAN Settings in the screen that appears, cancel the Using Proxy checkbox, and click OK to finish it.

# Chapter 5. Configuring the Wi-Fi ONU

This chapter delivers a detailed presentation of ONU's functions and features.


**Figure 5-1 Wi-Fi ONU Functions**

## 5.1 STATUS

### 5.1.1 Device Info

On this page, you can view information about the current running status of the EPN-402NV, including device identifier, hardware version, software version and PON status.

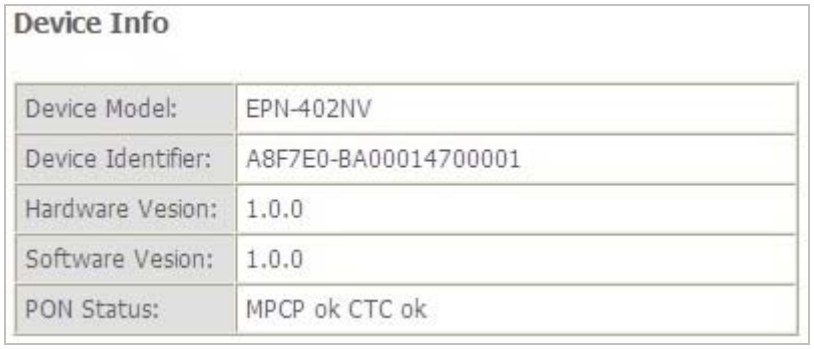



**Figure 5-1-1 Device Info**

The page includes the following information:

| Object | Description |
|---|---|
| **Device Type** | The Wi-Fi ONU model. |
| **Software Version** | This is the current software the Wi-Fi ONU is using. This will change if you upgrade your ONU. |
| **PON Status** | The current mode in use. |

### 5.1.2 WAN Info

This page shows the status of your WAN network.

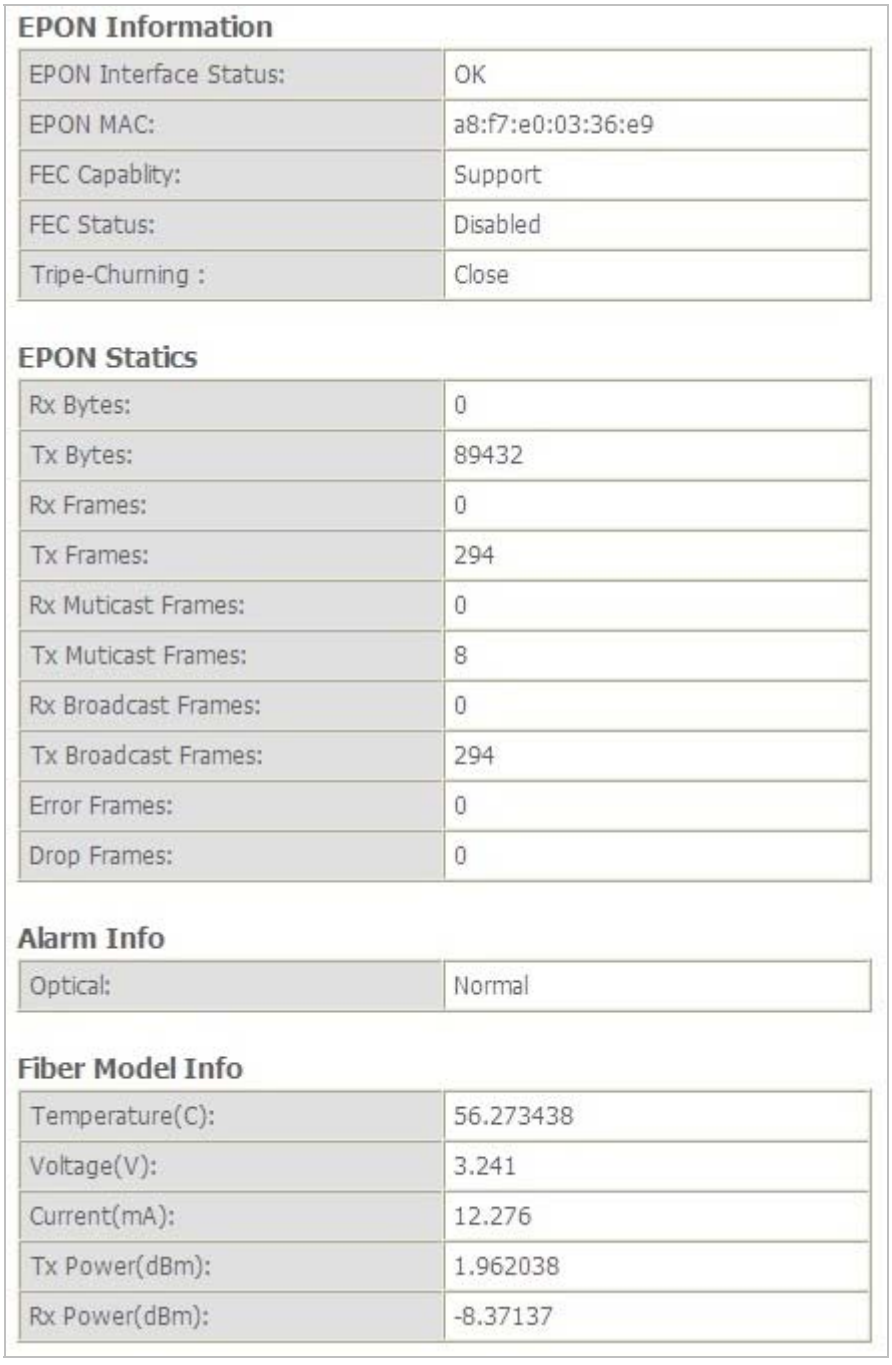
**WAN Info**

| Interface | Description | Type | VlanMuxId | Igmp | NAT | Firewall | STATUS | DNS | Ipv4 address |
|---|---|---|---|---|---|---|---|---|---|
| epon0.1 | 1_TR069_R_VID_46 | IPoE | 46 | Disable | Disable | Enable | Connecting | | |

**WAN Info**

| | |
|---|---|
| Default Gateway | |
| Subnet Mask | |
| Primary DNS | |
| Secondary DNS | |

**Figure 5-1-2 WAN Info**



**EPON Information**

| | |
|---|---|
| EPON Interface Status: | OK |
| EPON MAC: | a8:f7:e0:03:36:e9 |
| FEC Capablity: | Support |
| FEC Status: | Disabled |
| Tripe-Churning : | Close |

**EPON Statics**

| | |
|---|---|
| Rx Bytes: | 0 |
| Tx Bytes: | 89432 |
| Rx Frames: | 0 |
| Tx Frames: | 294 |
| Rx Muticast Frames: | 0 |
| Tx Muticast Frames: | 8 |
| Rx Broadcast Frames: | 0 |
| Tx Broadcast Frames: | 294 |
| Error Frames: | 0 |
| Drop Frames: | 0 |

**Alarm Info**

| | |
|---|---|
| Optical: | Normal |

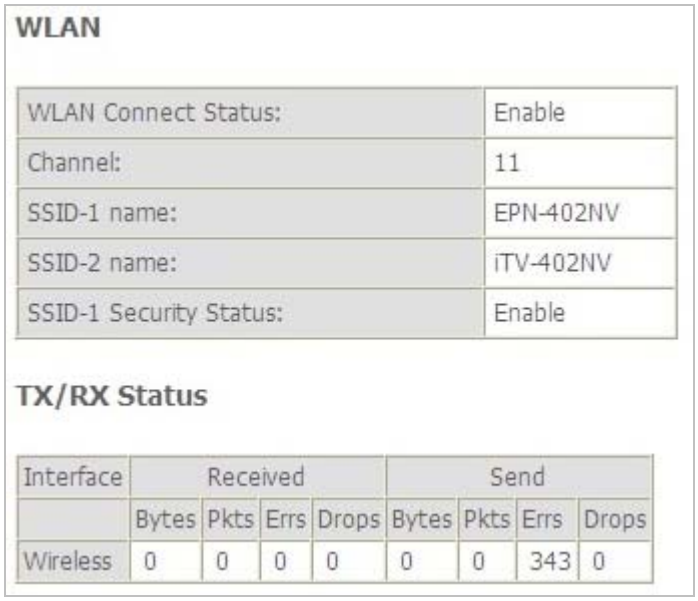
**Fiber Model Info**

| | |
|---|---|
| Temperature(C): | 56.273438 |
| Voltage(V): | 3.241 |
| Current(mA): | 12.276 |
| Tx Power(dBm): | 1.962038 |
| Rx Power(dBm): | -8.37137 |

**Figure 5-1-3 EPON information**

### 5.1.3 Userside Info

This page shows the status of your WLAN, LAN and USB.



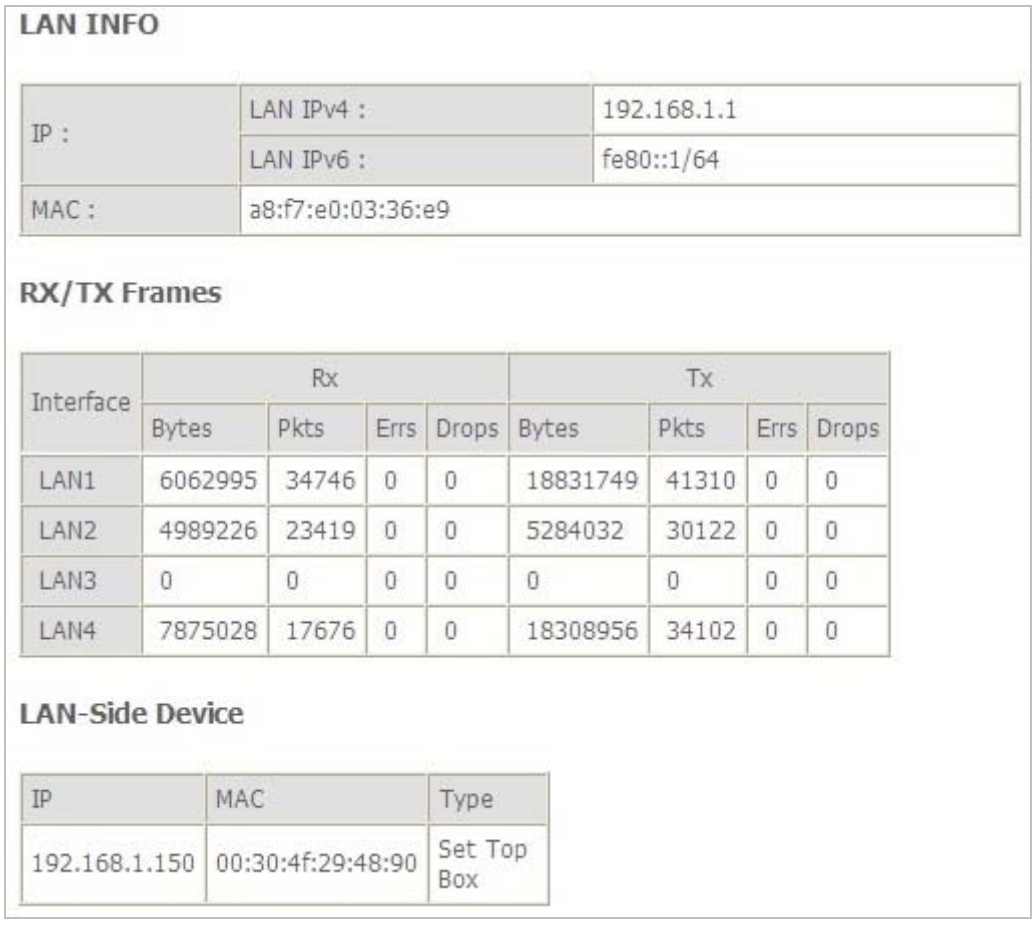
**WLAN**

| | |
|---|---|
| WLAN Connect Status: | Enable |
| Channel: | 11 |
| SSID-1 name: | EPN-402NV |
| SSID-2 name: | iTV-402NV |
| SSID-1 Security Status: | Enable |

**TX/RX Status**

| Interface | Received | | | | Send | | | |
|---|---|---|---|---|---|---|---|---|
| | Bytes | Pkts | Errs | Drops | Bytes | Pkts | Errs | Drops |
| Wireless | 0 | 0 | 0 | 0 | 0 | 0 | 343 | 0 |

**Figure 5-1-4 WLAN information**



**LAN INFO**

| | | |
|---|---|---|
| IP : | LAN IPv4 : | 192.168.1.1 |
| | LAN IPv6 : | fe80::1/64 |
| MAC : | a8:f7:e0:03:36:e9 | |

**RX/TX Frames**

| Interface | Rx | | | | Tx | | | |
|---|---|---|---|---|---|---|---|---|
| | Bytes | Pkts | Errs | Drops | Bytes | Pkts | Errs | Drops |
| LAN1 | 6062995 | 34746 | 0 | 0 | 18831749 | 41310 | 0 | 0 |
| LAN2 | 4989226 | 23419 | 0 | 0 | 5284032 | 30122 | 0 | 0 |
| LAN3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LAN4 | 7875028 | 17676 | 0 | 0 | 18308956 | 34102 | 0 | 0 |

**LAN-Side Device**

| IP | MAC | Type |
|---|---|---|
| 192.168.1.150 | 00:30:4f:29:48:90 | Set Top Box |

**Figure 5-1-5 LAN information**


**Figure 5-1-6 USB information**

### 5.1.4 VoIP Info

This page shows the status of your VoIP.


**Figure 5-1-7 VoIP status**

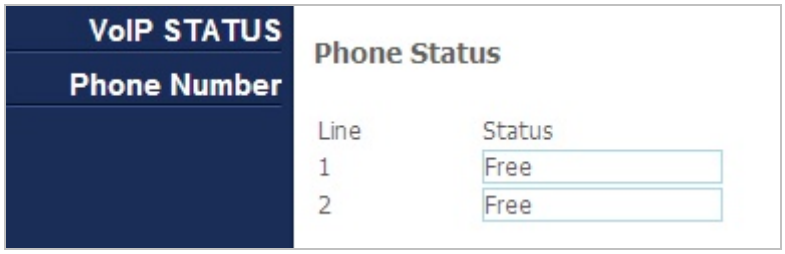



**Figure 5-1-8 Phone status**

### 5.1.5 Remote Management

This page shows the status of your WAN connection.

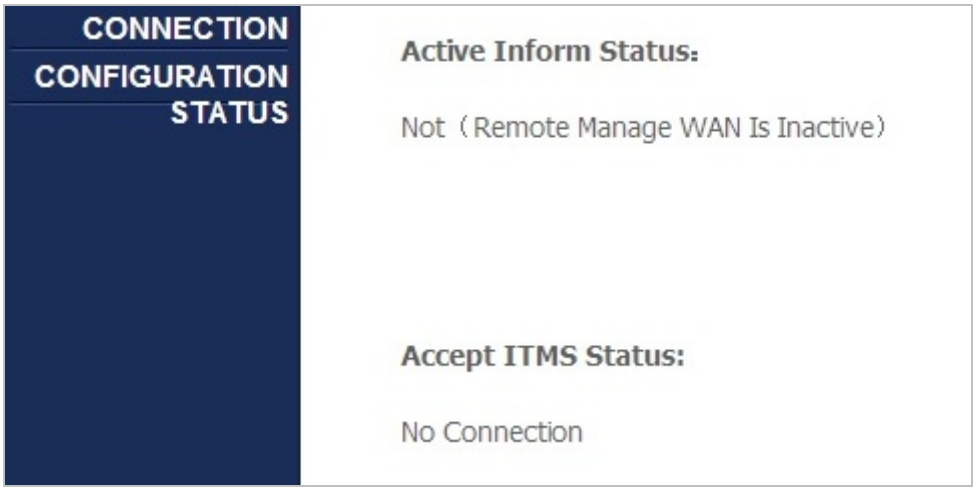



**Figure 5-1-9 Connection**

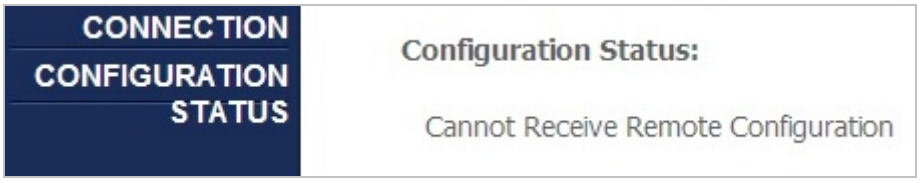



**Figure 5-1-10 Configuration**

# 5.2 NETWORK

## 5.2.1 WAN Setup

This page displays the information of the WAN interface for you to set up.

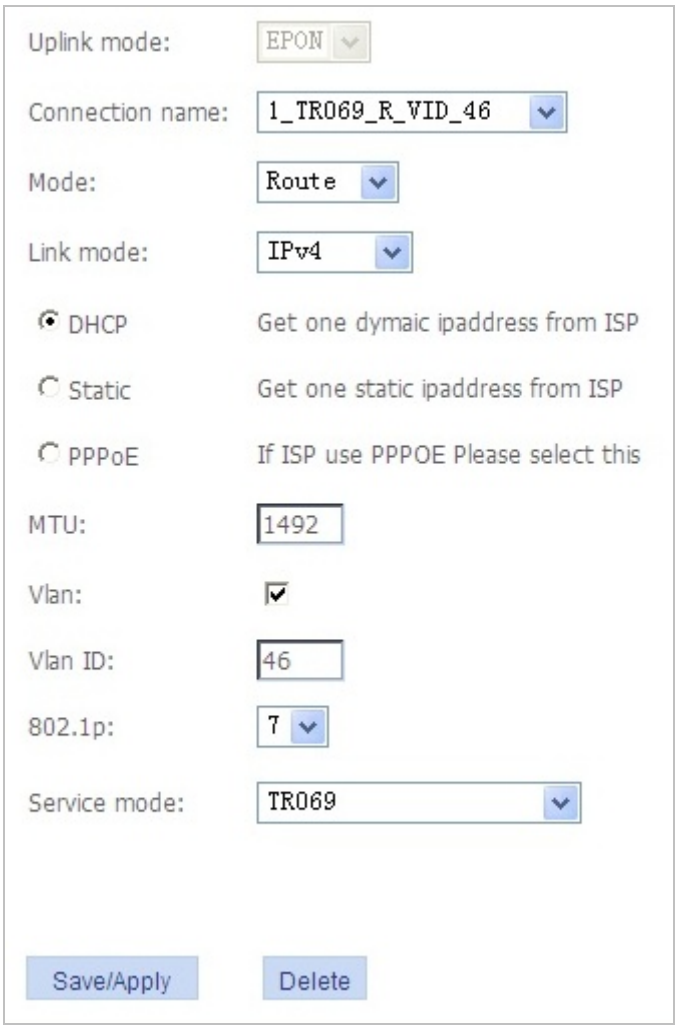



**Figure 5-2-1** WAN Setup

The page includes the following fields:

| Object | Description |
|---|---|
| **Connection Name** | The default setting is TR-069. You can add a new WAN connection. |
| **Mode** | Select **Bridge** or **Route**. |
| **Link Mode** | Select IPv4, IPv6 or IPv4/ v6. |
| **DHCP** | Select this option to let ONU obtain IP settings automatically from your ISP, if your ISP does not give you any IP information or account information. You don't need to configure any settings for this connection. |

| | |
|---|---|
| **Static** | If your ISP offers you static IP Internet connection type, select “Static IP" from corresponding drop-down menu and then enter IP address, subnet mask, primary DNS and secondary DNS information provided by your ISP in the corresponding fields. |
| **PPPoE** | Select PPPoE, if your ISP is using a PPPoE connection and provide you with PPPoE user name and password info. |
| **MTU** | The maximum transmission unit. You can keep it as default. |
| **VLAN** | Enable or disable VLAN function. |
| **VLAN ID** | Enter the VLAN ID from 1 to 4094. |
| **802.1p** | Select the priority levels. |
| **Service mode** | Select a different kind of service. |

### 5.2.2 Banding Setup

This page displays the information of the Banding Setup. You can enable or disable the function.

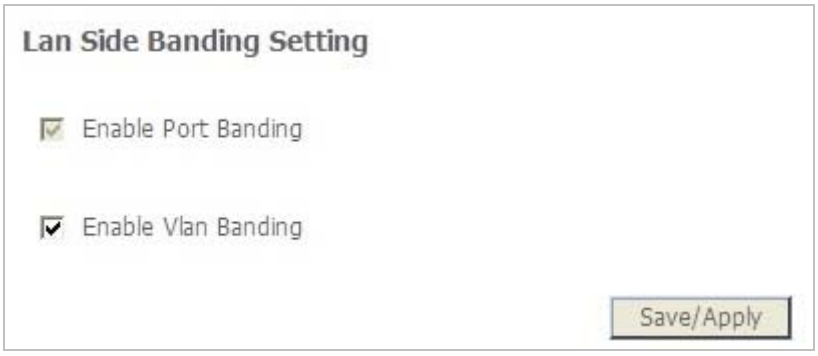



**Figure 5-2-2** Banding Setup

### 5.2.3 LAN Setup

This page displays LAN information.

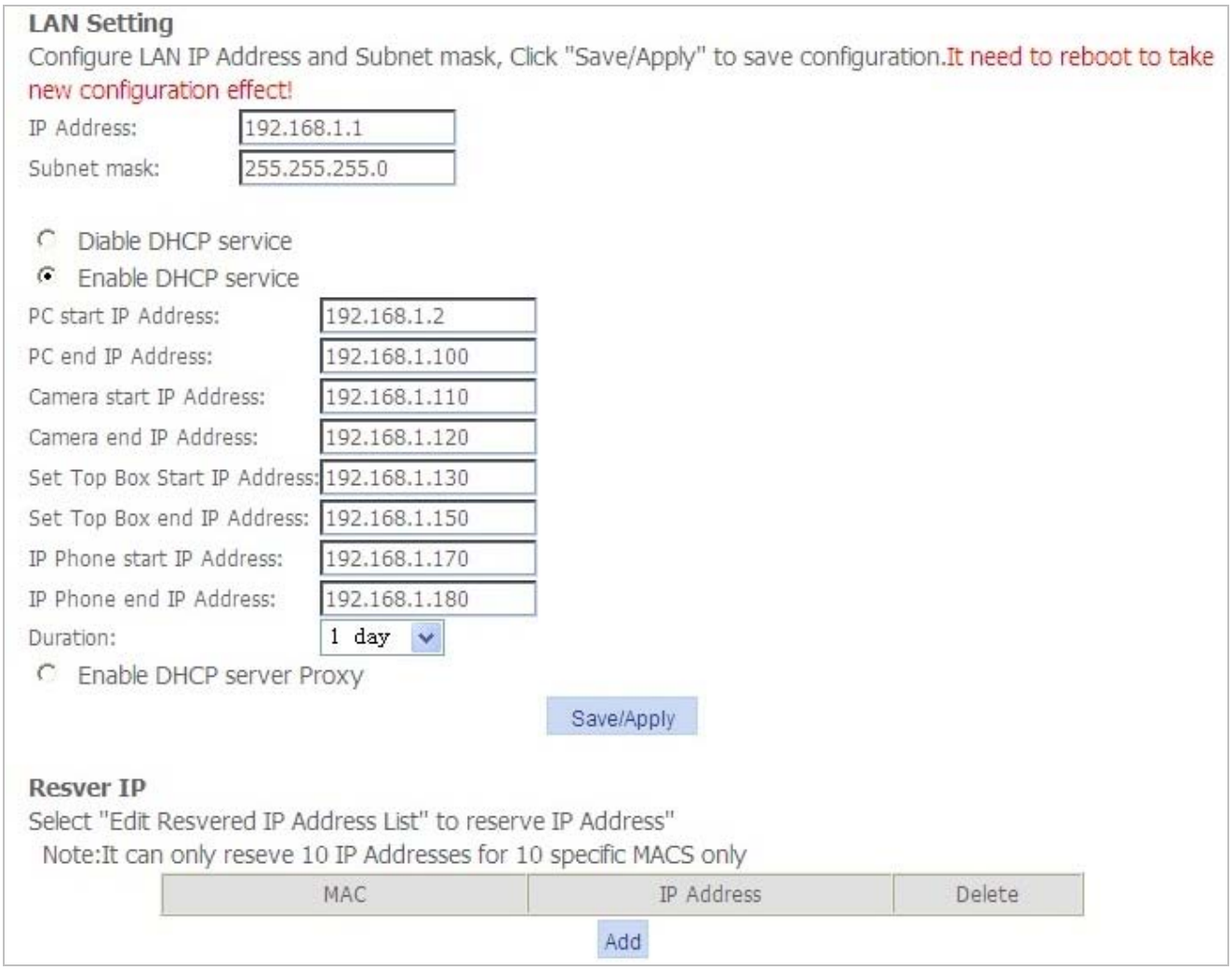



**Figure 5-2-3 IPv4 Setup**

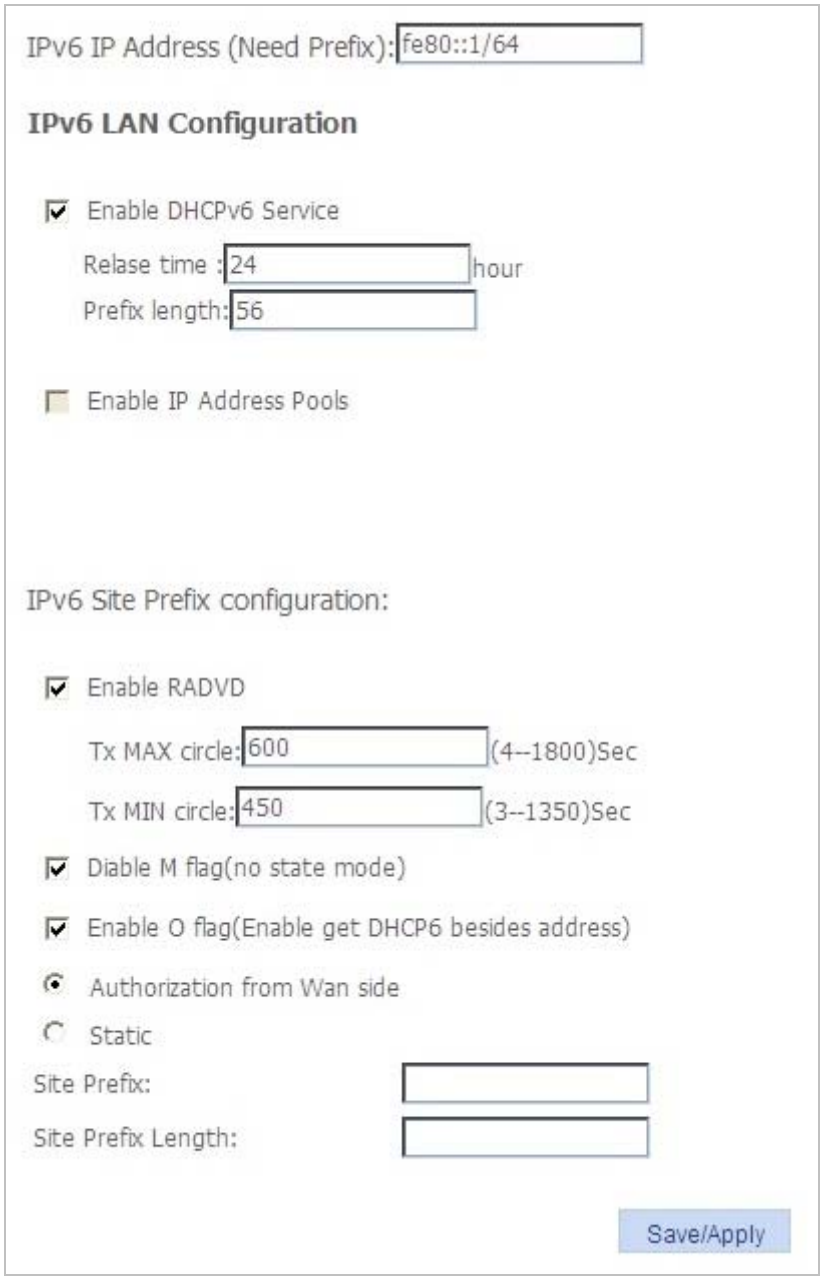



**Figure 5-2-4 IPv6 Setup**

### 5.2.4 WLAN Setup

On the coming page, you can configure the basic wireless parameters.

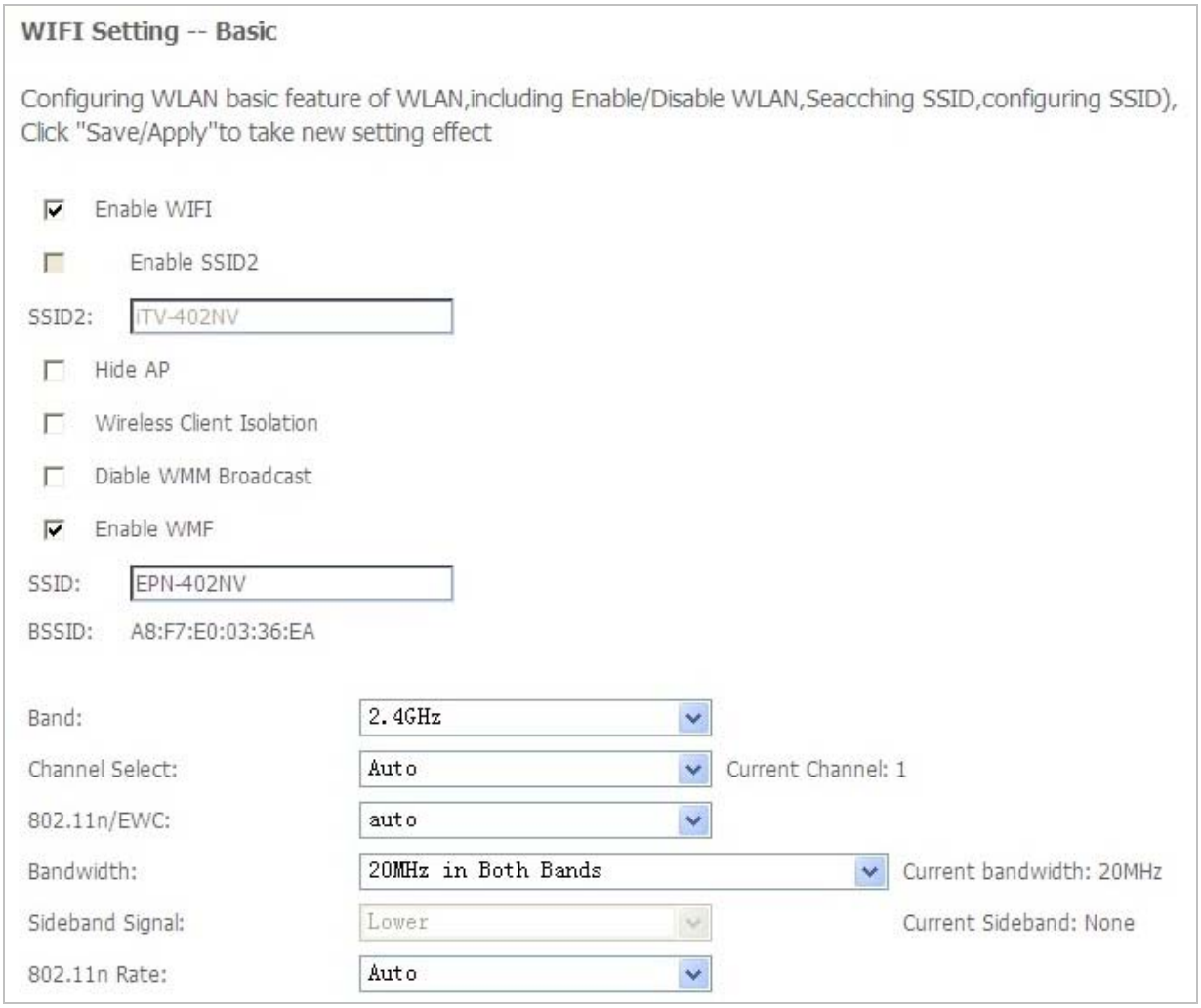



**Figure 5-2-5 WLAN Setup**

| Object | Description |
|---|---|
| **Enable Wi-Fi** | You may choose to enable or disable wireless function. |
| **Hide AP** | You may choose to enable or disable SSID broadcast. When it is enabled, the ONU SSID will be broadcast in the wireless network, so that it can be scanned by wireless clients and they can join the wireless network with this SSID. |
| **Wireless Client Isolation** | Enable or disable wireless Isolation function |
| **Disable WMM Broadcast** | After enabling this option, the transmission performance of the voice and video data can be improved. |
| **Enable WMF** | After enabling this option, the transmission quality of video service such as IPTV can be improved. |
| **SSID** | Set a name (SSID) for your wireless network -- the ID of the wireless network. User can access the wireless network through it only. However, if you switch to Client Mode, this field becomes the SSID of the AP you |

| | |
|---|---|
| | want to connect with.<br><br>Default: **EPN-402NV** |
| **BSSID** | Display the MAC address of the wireless interface. |
| **Channel Select** | For an optimal wireless performance, you may select the least interferential channel. It is advisable that you select an unused channel or “Auto” to let device detect and select the best possible channel for your wireless network to operate on from the drop-down list. |
| **802.11n/EWC** | Select or disable this function. |
| **Bandwidth** | Select a proper channel bandwidth to enhance wireless performance. When there are 11b/g and 11n wireless clients, please select the 802.11n mode of 20/40M frequency band. |
| **Sideband Signal** | If you select 20MHz in both Bands or 20MHz in 2.4G Band and 40MHz in 5G Band, the service of control sideband does not work. When you select 40MHz in both Bands as the bandwidth, the following page appears. Then you can select Lower or Upper as the value of sideband. As the control sideband, when you select Lower, the channel is 1~7. When you select Upper, the channel is 5~11. |
| **802.11n Rate** | Select the transmission rate for the network. The rate of data transmission should be set depending on the speed of your wireless network. You can select from a range of transmission speeds, or you can select Auto to have the ONU automatically use the fastest possible data rate and enable the Auto-Fallback feature. Auto-Fallback will negotiate the best possible connection speed between the ONU and a wireless client. The default value is **Auto**. |
| **802.11n Protection Mode** | The 802.11n standards provide a protection method so 802.11b/g and 802.11n devices can co-exist in the same network without “speaking” at the same time. |
| **802.11n Client Support Only** | Only stations that are configured in 802.11n mode can associate. |
| **54g Rate** | This enables Broadcom 54G Wireless Chipset to be more compatible with other IEEE802.11b, IEEE802.11g based devices. |
| **Muti Rate** | To set the wireless transmission power for multicast applications |
| **XPress™ Technology** | Broadcom's standards-based frame-bursting technology is to improve 802.11 wireless LAN performance. If the WMM (Quality of Service) is enabled, the XPress™ Technology option can also be enabled. |
| **TX Power** | To set the Wireless Transmission power for the wireless router. |
| **WMM(Wi-Fi Media)** | To enable Wi-Fi Multimedia. |

| | |
|---|---|
| **WMM QoS** | Enable or disable QoS features. |
| **WMM APSD** | To enable the Power Saving mode in Wi-Fi Multimedia. |

Click "**Advanced**" to configure wireless security policies.


**Figure 5-2-6 WLAN Security Setup**

| Object | Description |
|---|---|
| **SSID** | To choose the appropriate SSID that you configured. |
| **Authentication Mode** | Select the security mode from the dropdown list. There are 5 options in the Security Mode dropdown list:<br>■ **OPEN**<br>■ **SHARE**<br>■ **WPA-PSK**<br>■ **WPA2-PSK**<br>■ **Mixed WPA2/WPA-PSK** |

■ **Open Mode**

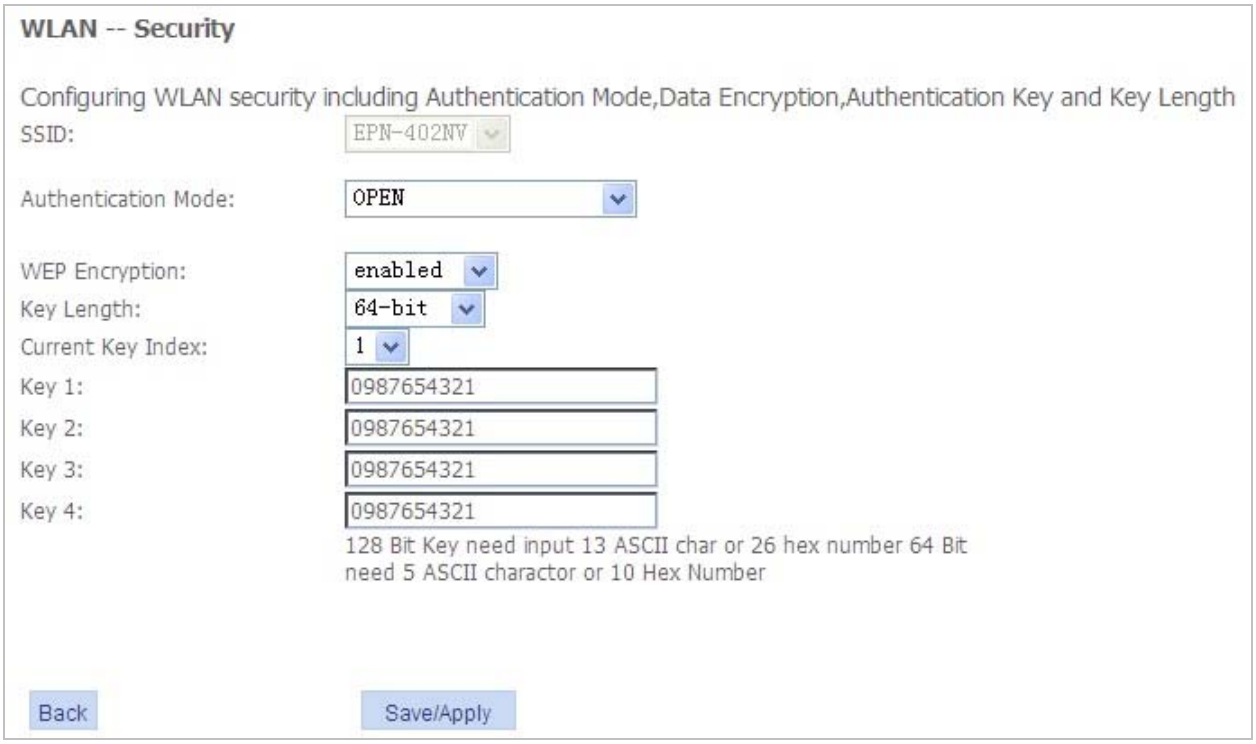



**Figure 5-2-7 WLAN Security OPEN mode**

| Object | Description |
|---|---|
| **SSID** | Select an SSID for configuring the security settings. |
| **Authentication Mode** | Select the Open mode. |
| **WEP Encryption** | Enable or disable WEP encryption. After enabling this function, you can set the encryption strength, current network key, and network keys. |
| **Key Length** | You can set 64-bit or 128-bit key. |
| **Current Key Index** | The current key that you use. |
| **Key1/2/3/4** | Set the network key. If it is 128-bit key, you need to enter 13 ASCII characters or 26 hexadecimal digits. For the 64-bit key, you need to enter 5 ASCII characters or 10 hexadecimal digits. |

- **Shared Mode**

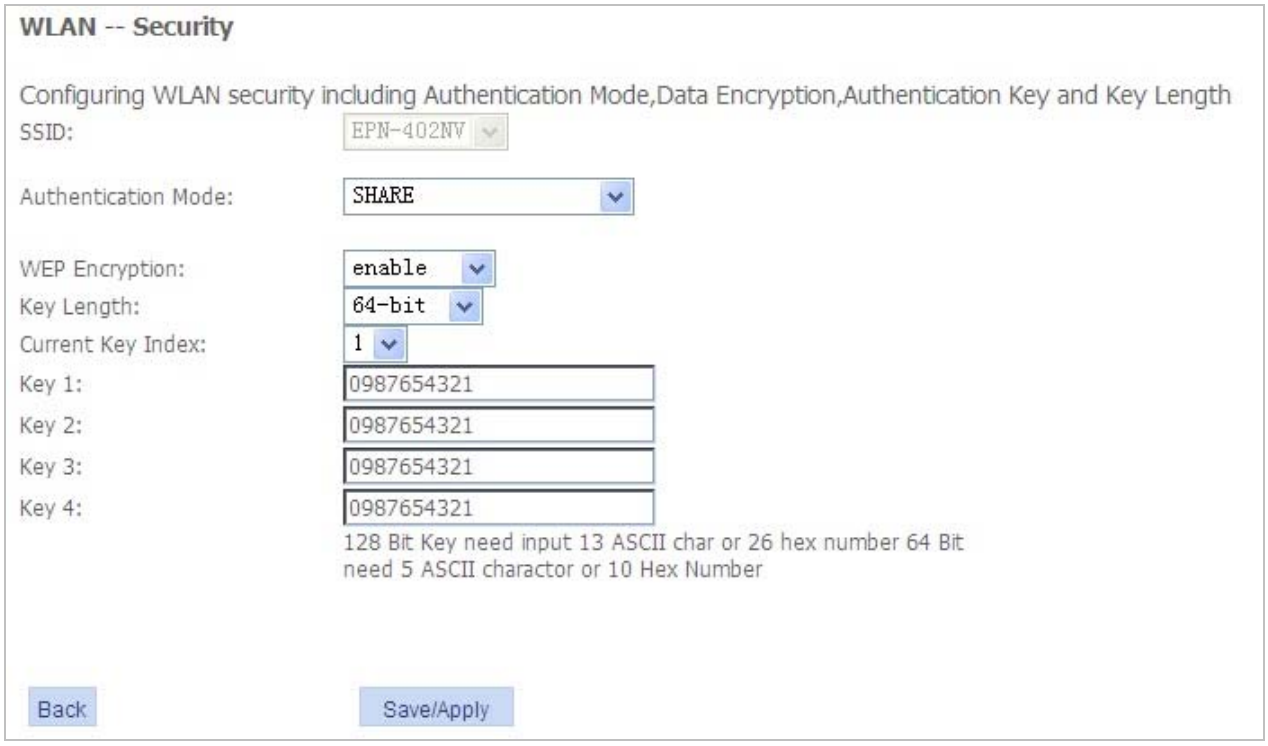



**Figure 5-2-8 WLAN Security Shared Mode**

For the parameters' description of shared mode, please refer to the **Open Mode**.

- **WPA Mode**


**Figure 5-2-9 WLAN Security WPA Mode**

| Object | Description |
|---|---|
| **Select SSID** | Select an SSID for configuring the security settings. |

| | |
|---|---|
| **Authentication Mode** | Select the WPA-PSK mode. |
| **WPA Pre-share Key** | The key for WPA encryption. Click the "**Click Here to display"** button to display the current key. The default key is 12345678. |
| **WPA Refresh Session key Interval** | Setting the interval for refresh session key. |
| **WPA Encryption** | You may select AES, or TKIP+AES. |

- **WPA2 Mode**


**Figure 5-2-10 WLAN Security WPA2 Mode**

For the parameters' description of WPA2 mode, please refer to the **WPA Mode**.

- **Mixed WPA2/WPA-PSK Mode**


**Figure 5-2-11 WLAN Security WPA2/WPA-PSK Mode**

For the parameters' description of WPA2/WPA-PSK mode, please refer to the **WPA Mode**.

### 5.2.5 Remote Management

On the coming page, you can configure the parameters for remote management of the ONU through TR069.

- **TR069**

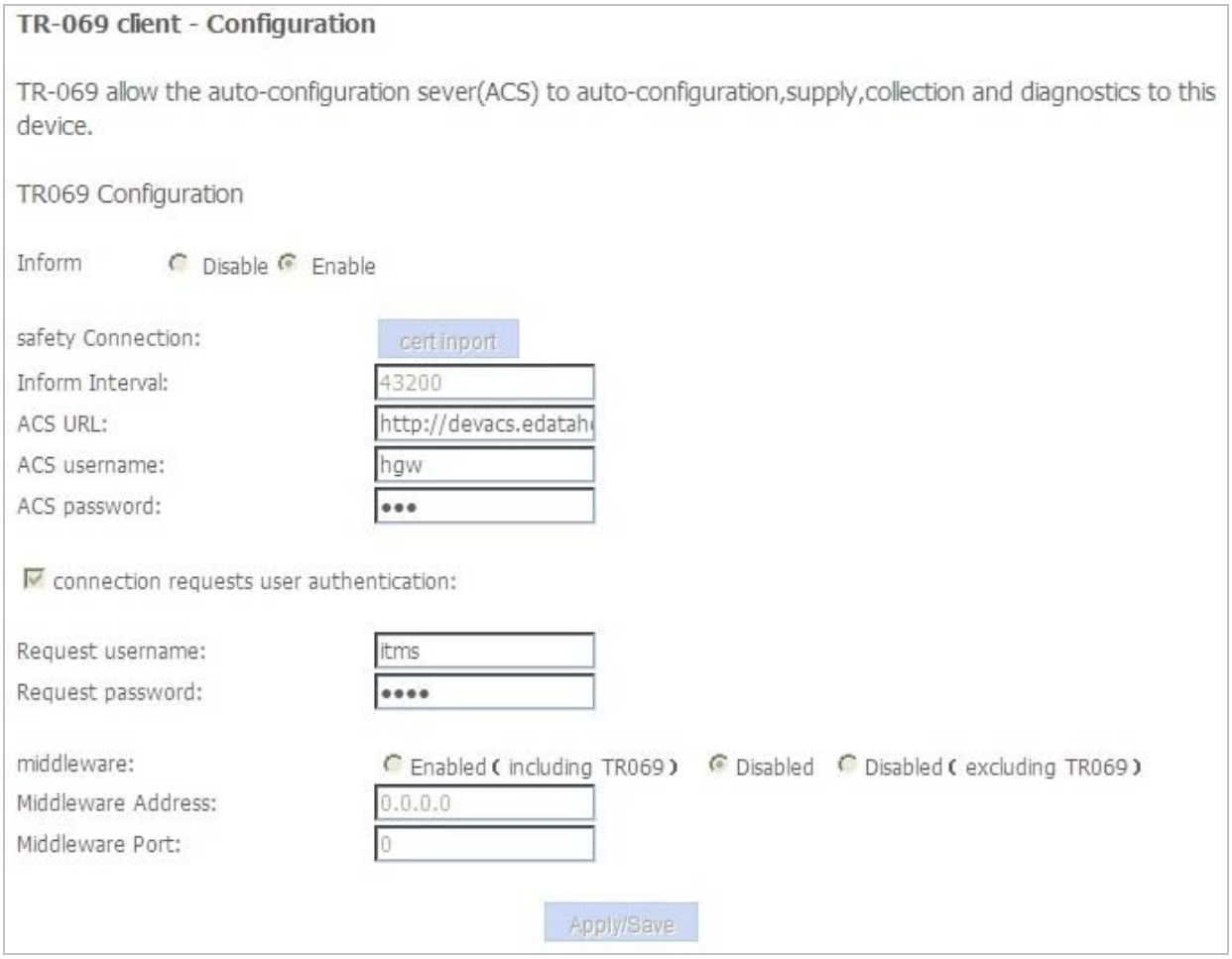



**Figure 5-2-12 TR069**

The page includes the following fields:

| Object | Description |
|---|---|
| **Inform** | To Enable or Disable TR069 |
| **Safety Connection** | To import the license for the ITMS Server |
| **Inform Interval** | The time interval to send a notification (seconds) |
| **ACS URL** | The TR069 ACS Server address |
| **ACS username** | The User Name for the Remote Management Server |
| **ACS password** | The password for the associated User Name |
| **Connection requests user authentication** | To enable or disable User Authentication for the Remote Management Server |
| **Request username** | The Authentication ID for the Remote Management Server |
| **Request password** | The password for the Authentication ID |

| | |
|---|---|
| **Middleware** | To enable or disable the middleware<br>■ Enabled (including TR069): To enable middleware with TR069 functionalities<br>■ Disabled: Check the box to disable middleware<br>■ Disabled (excluding TR069): To enable middleware without TR069 functionalities |
| **Middleware Address** | The remote server address for the Middleware |
| **Middleware Port** | To set the port number for the Middleware server |

■ **OLT AUTH**

To authorize the GEPON OLT with LOID, this function can prevent your Internet connection from being illegally connected by other unknown users. It is available only if your GEPON OLT supports LOID authorization.

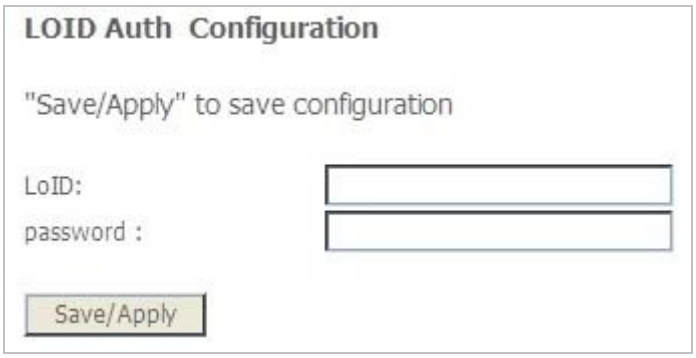



**Figure 5-2-13 OLT AUTH**

The page includes the following fields:

| Object | Description |
|---|---|
| **LOID** | The Authorization LOID (The length must be within 24 digits) |
| **Password** | The password for the associated LOID |

## 5.2.6 QoS

■ **QoS**

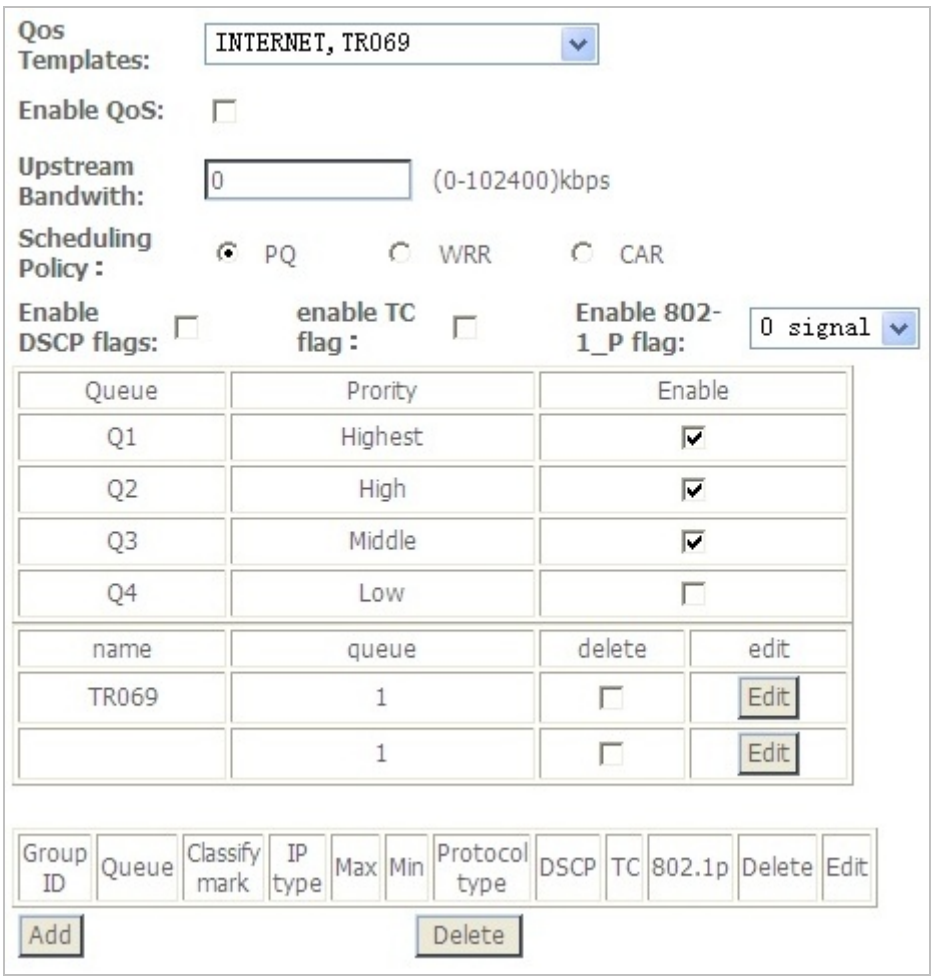



**Figure 5-2-14 QoS**

The page includes the following fields:

| Object | Description |
|---|---|
| **QoS Templates** | To choose the available templates or to customize the template to determine what services to enable the QoS for.<br>■ **Internet, TR069** – To enable QoS for Internet Data and TR069 service<br>■ **Internet, TR069, VoIP** – To enable QoS for Internet Data, TR069 and VoIP services<br>■ **Internet, TR069, IPTV** – To enable QoS for Internet Data, TR069 and IPTV services<br>■ **Internet, TR069, VoIP, IPTV** – To enable QoS for Internet Data, TR069, VoIP and IPTV services<br>■ **Manual templates** – To customize the template to determine the services to enable QoS |
| **Enable QoS** | Check the box to enable QoS |

| | |
|---|---|
| **Upstream Bandwidth** | To set the uploading bandwidth for the customized QoS template |
| **Scheduling Policy** | To determine the alternative QoS mode. You can choose to use QoS PQ, QoS WRR or QoS CAR mode. |
| **Enable DSCP Flag** | To enable the DSCP (Differentiated Services Code Point) flag for QoS |
| **Enable TC Flag** | To enable the TC (Traffic Categories) flag for QoS |
| **Enable 802.1_P Flag** | To enable IEEE802.1P flag for QoS |
| **Q1** | To enable the highest QoS level |
| **Q2** | To enable a high QoS level |
| **Q3** | To enable a medium QoS level |
| **Q4** | To enable a low QoS level |

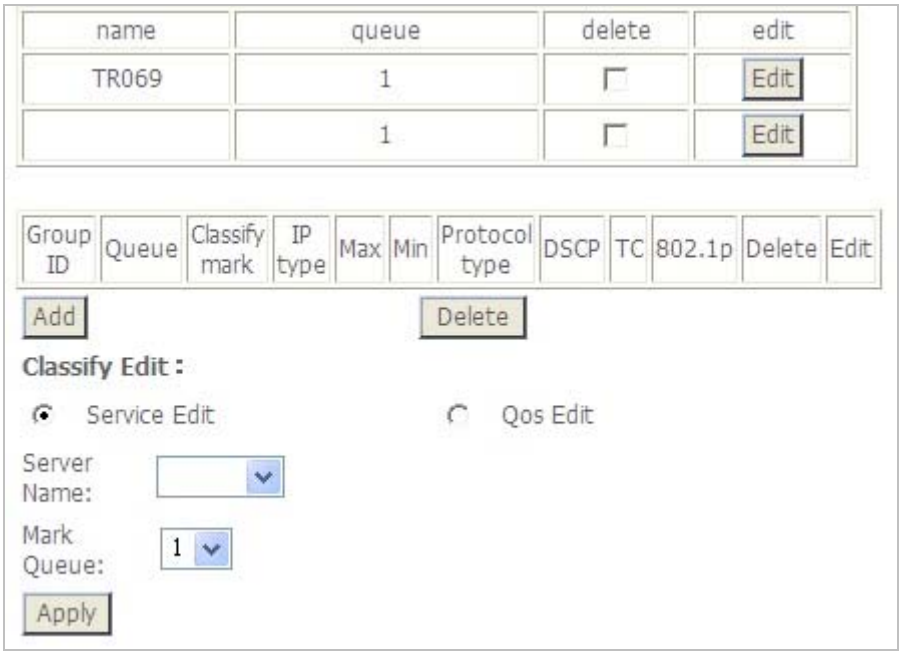



**Figure 5-2-14 QoS**


**Figure 5-2-15 QoS**

The page includes the following fields:

| Object | Description |
|---|---|
| **Name** | The Service Name that you want to enable QoS for, e.g, VoIP, TR069 |
| **Queue** | The QoS queue for the service specified |
| **Delete** | Remove the service from the QoS template |
| **Edit** | To edit the service that you want to enable for QoS |
| **Add** | Click this button to edit Service Classification and edit Flow Classification. |
| **Delete** | Click this button to delete the configured QoS service and flow classification template |
| **Server Name** | The service that you want to enable QoS for; you can set either VoIP or TR069 service |
| **Mark Queue** | The QOS level that you want to enable for the configured service |

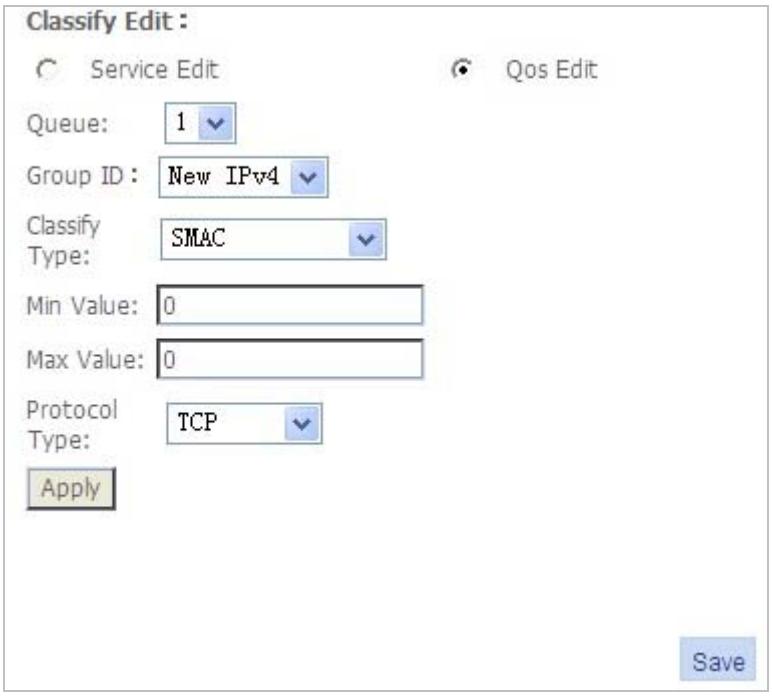



**Figure 5-2-16 QoS**

The page includes the following fields:

| Object | Description |
|---|---|
| **Name** | The Service Name that you want to enable QoS for, e.g, VoIP, TR069 |
| **Queue** | The QoS queue for the service specified |
| **Delete** | Remove the service from the QoS template |
| **Edit** | To edit the service that you want to enable for QoS |
| **Add** | Click this button to edit Service Classification and edit Flow Classification. |
| **Delete** | Click this button to delete the configured QoS service and flow classification template |
| **Server Name** | The service that you want to enable QoS for; you can set either VoIP or TR069 service |
| **Mark Queue** | The QoS level that you want to enable for the configured service |

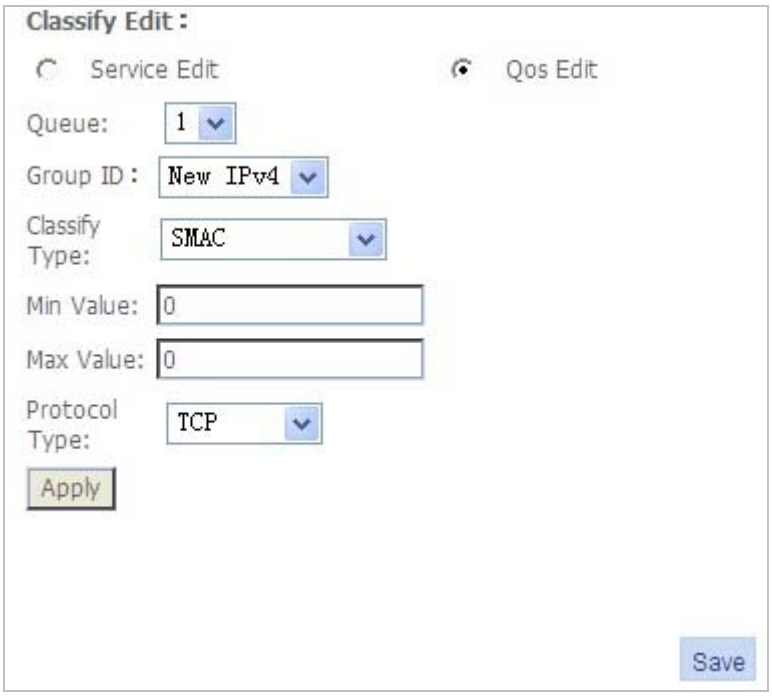



**Figure 5-2-17 QoS**

The page includes the following fields:

| Object | Description |
|---|---|
| **Queue** | To set the priority for the flow classification that you enabled.<br>■ 1 is the highest QoS level<br>■ 2 is the high QoS level<br>■ 3 is the medium QoS level<br>■ 4 is the low QoS level |
| **Group ID** | To set the IPV4 or IPV6 version for the flow classification. |
| **Classify Type** | To set a different service or interface for flow classification<br>■ **SMAC:** To set flow classification for SMAC service<br>■ **DMAC:** To set flow classification for DMAC Service<br>■ **802.1P:** To set based flow classification for IEEE802.1P service<br>■ **DIP:** To set flow classification for DIP service<br>■ **SPORT:** To set flow classification for SPORT service<br>■ **DPORT:** To set flow classification for DPORT service<br>■ **TOS:** To set flow classification for TOS service<br>■ **DSCP:** To set flow classification for DSCP service<br>■ **WAN Interface:** To set flow classification for WAN interface<br>■ **LAN Interface:** To set flow classification for LAN interface |
| **Min Value** | The minimum QoS level for the enabled Service |

| | |
|---|---|
| **Max Value** | The maximum QoS level for the enabled Service |
| **Protocol Type** | To determine which protocol to enable QoS |

■ **FLOW CACHE**


**Figure 5-2-18 Flow Cache**

The page includes the following fields:

| Object | Description |
|---|---|
| **Enable Flow Cache** | Check the box for 'Enable Flowcache' to enable Cache for the transmission flow |

## 5.2.7 SNTP

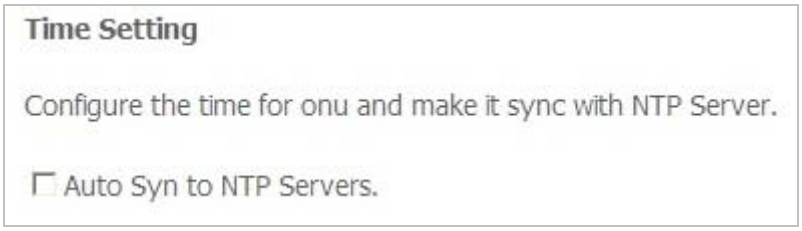



**Figure 5-2-19 SNTP**

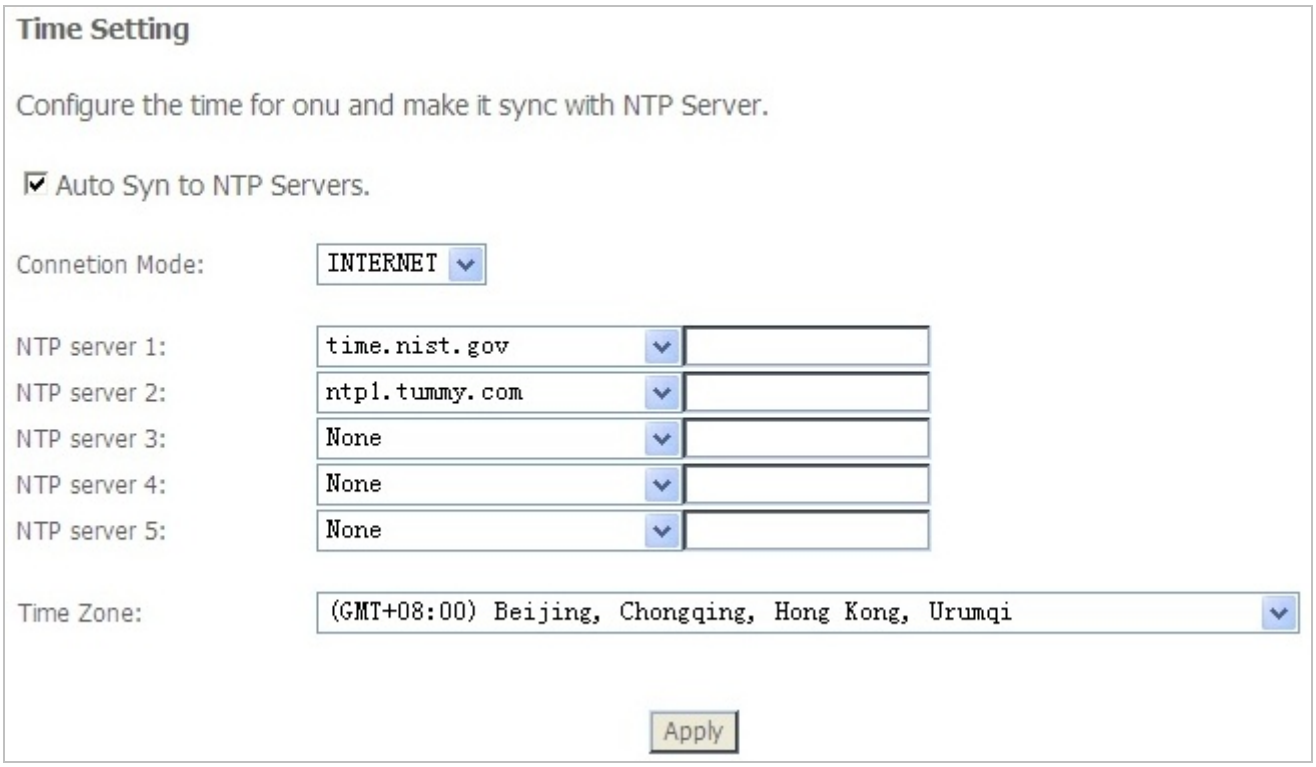



**Figure 5-2-20 SNTP**

The page includes the following fields:

| Object | Description |
|---|---|
| **Auto Syn to NTP Servers** | Check the box to automatically sync with the available NTP time servers |
| **Connection Mode** | To determine the way to connect to NTP servers. |
| **Time Server** | Select the available NTP servers for your NTP Server |
| **Time Zone** | To choose the appropriate Time Zone for your EPN-402NV |

### 5.2.8 Route Setup

- **Static Route**

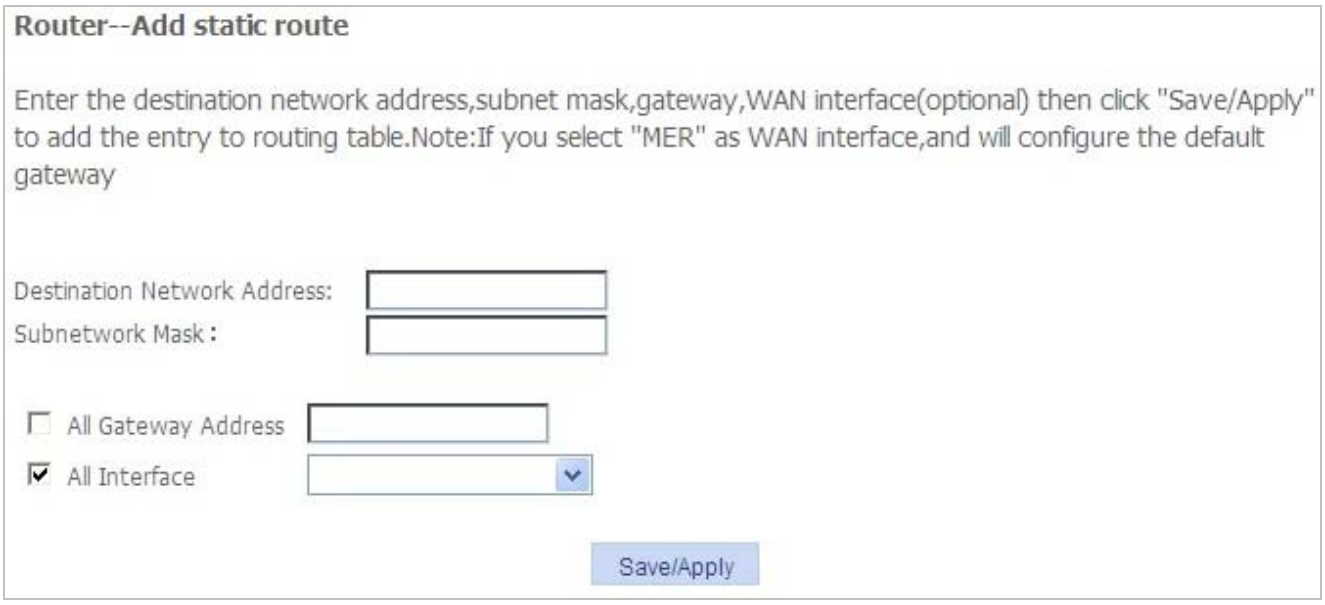



**Figure 5-2-21 Static Route**

The page includes the following fields:

| Object | Description |
|---|---|
| **Destination Network Address** | The destination address that you want to add a route for |
| **Subnet Work Mask** | The Subnet Mask for your Destination Routing address |
| **All Gateway Address** | The Gateway IP Address for your destination routing address |
| **All Interfaces** | To determine which interface to enable the Static Route for |

- **Dynamic Route**

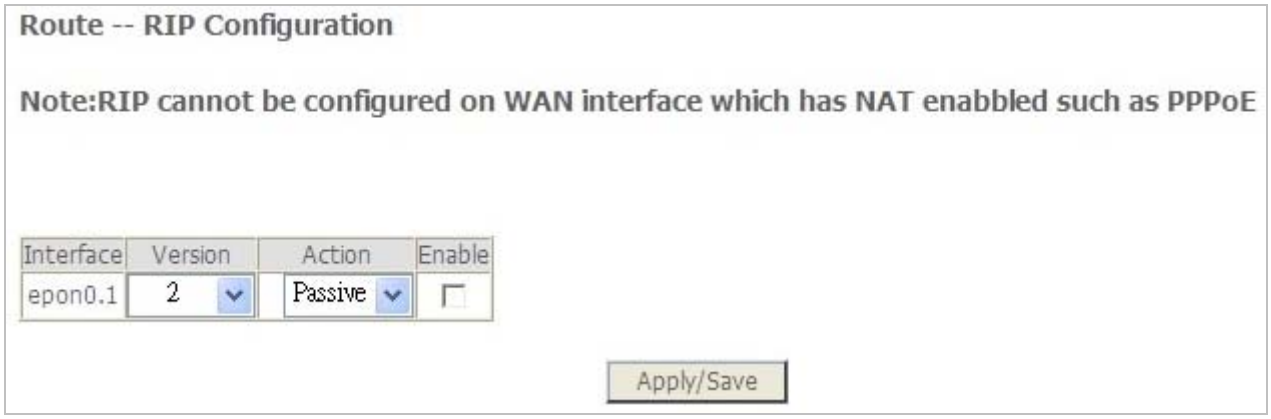



**Figure 5-2-22 Dynamic Route**

The page includes the following fields:

| Object | Description |
|---|---|
| **Interface** | The LAN interface of your EPN-402NV |
| **Version** | To determine which RIP Version for the Dynamic Routing |
| **Enable** | To enable or disable dynamic routing for the LAN interface |

- **IPv6 Static Route**


**Figure 5-2-23 IPv6 Static Route**

The page includes the following fields:

| Object | Description |
|---|---|
| **Add** | Click 'Add' to add an IPV6 Static Route for your EPN-402NV |
| **Destination IPv6 Address** | Input the destination IPV6 address that you want to add a Static Route for |
| **Subnet Prefix Length** | To determine the length for your IPV6 Subnet Prefix |
| **IPv6 Gateway Address** | Input the Gateway IP address for your destination IPV6 address |
| **Interface** | To determine which WAN interface to be associated with the Static IPV6 Route |
| **Metric** | To determine the Metric for your IPV6 Static Route (Value in |

| | |
|---|---|
| | between 0-4261412864) |

# 5.3 SECURITY

## 5.3.1 WAN Access Setup

On this page, you can enable or disable URLs to pass through the WAN interface.


**Figure 5-3-1 WAN Access Setup**

The page includes the following fields:

| Object | Description |
|---|---|
| **URL Filter** | Check the box on '**Enable**' to enable URL filter; check the box on '**Disable**' to disable URL Filter |
| **URL Classification** | ■ **Blacklist:** Check the box on 'Blacklist' and click the '**Add**' button to specify a URL in blacklist<br>■ **Whitelist** : Check the box on '**Whitelist**' and click the '**Add**' button to specify a URL in whitelist |


**Figure 5-3-2 URL Filter**

The page includes the following fields:

| Object | Description |
|---|---|
| **URL** | The URL address that you want to allow access with |
| **Port Number** | The port number that you want to enable for the whitelist URL |

### 5.3.2 Firewall

On this page, you can set the firewall level for the multiple services that pass through the EPN-402NV.

- **Security Level**


**Figure 5-3-3 Security Level**

- **Attack Protection**

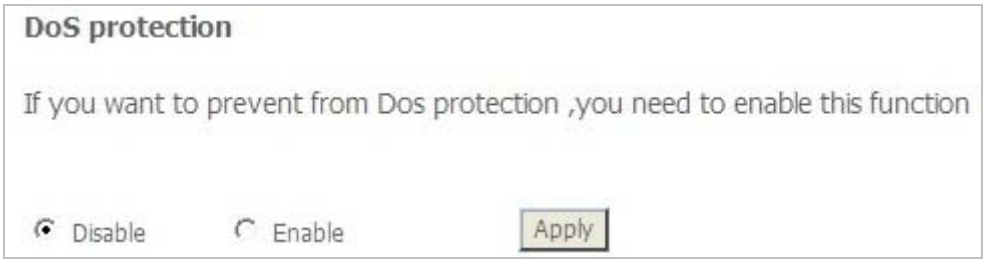



**Figure 5-3-4 Attack Protection**

The page includes the following fields:

| Object | Description |
|---|---|
| **Disable** | To disable protection for DOS attack |
| **Enable** | To enable protection for DOS attack |

### 5.3.3 MAC Filter

On this page, you can create a firewall filter based on a specific MAC Address.

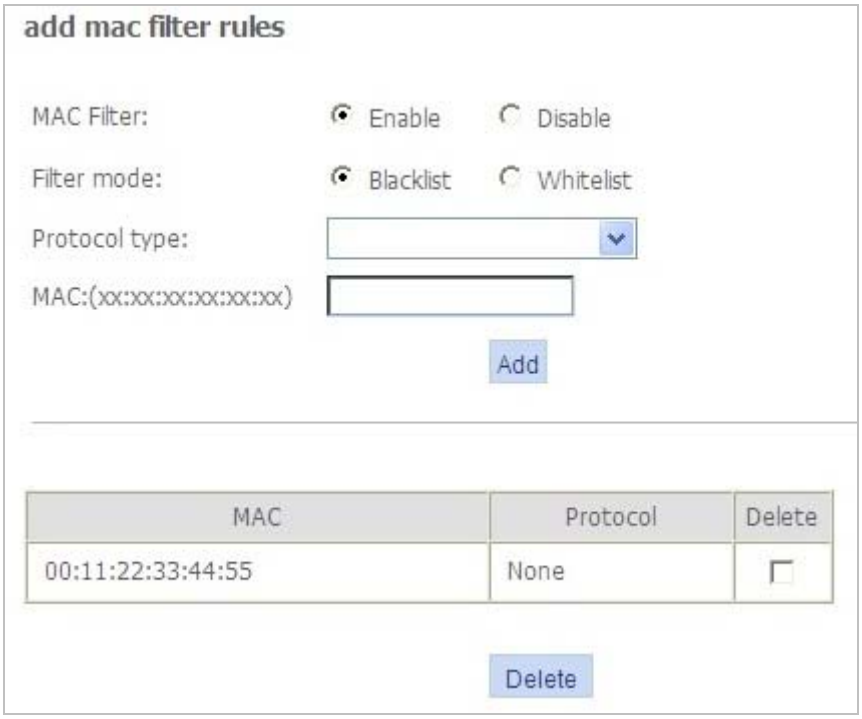



**Figure 5-3-5 MAC Filter**

The page includes the following fields:

| Object | Description |
|---|---|
| **MAC Filter** | Enable or Disable to create a filter based on MAC address |
| **Filter Mode** | ■ **Blacklist**: Enable banning a specific MAC Address<br>■ **Whiltelist:** Enable allowing a specific MAC Address |
| **Protocol Type** | To determine which service to be allowed or denied with the appointed MAC address |
| **MAC** | The MAC address that you want to add the MAC Address filter for |
| **Add** | Click the 'Add' button to add a MAC Address filter |
| **Delete** | Click the 'Delete' button to delete a MAC Address filter that you created |

### 5.3.4 IP Filter

On this page, you can create a firewall filter based on a specific port.

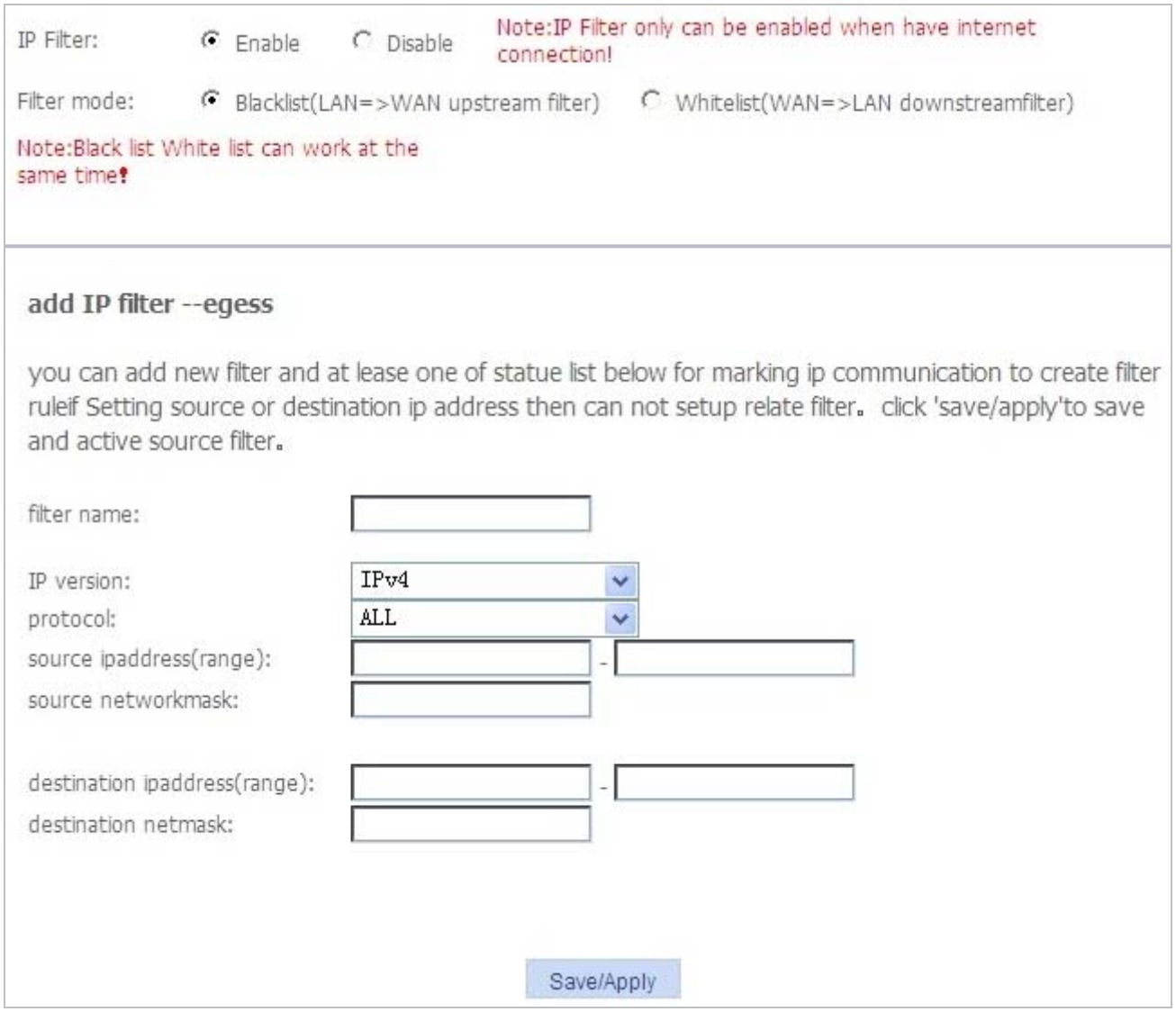



**Figure 5-3-6 IP Filter**

The page includes the following fields:

| Object | Description |
|---|---|
| **IP Filter** | Enable or disable the IP filter |
| **Filter Mode** | ■ **Blacklist**: To disable the specified port to pass through LAN to WAN<br>■ **Whiltelist:** To enable the specified port to pass through WAN to LAN |
| **Filter Name** | To specify a name for the filter |
| **IP Version** | To determine either IPV4 or IPV6 version for the filter |
| **Protocol** | To determine which protocol to be allowed or denied |
| **Source IP Address (range)** | The IP address range that you want to allow or deny, e.g, 192.168.1.2 – 192.168.1.254 |

| | |
|---|---|
| **Source Network Mask** | The subnet mask for the IP range that you specified |
| **Destination IP Address (range)** | The Destination IP or host that you want to allow or deny for the filter |
| **Destination Network Mask** | The Subnet Mask for the Destination IP or host that you allowed or denied |

# 5.4 APPLICATION

## 5.4.1 DDNS Setup

On this page, you can create a Dynamic DNS for your EPN-402NV.

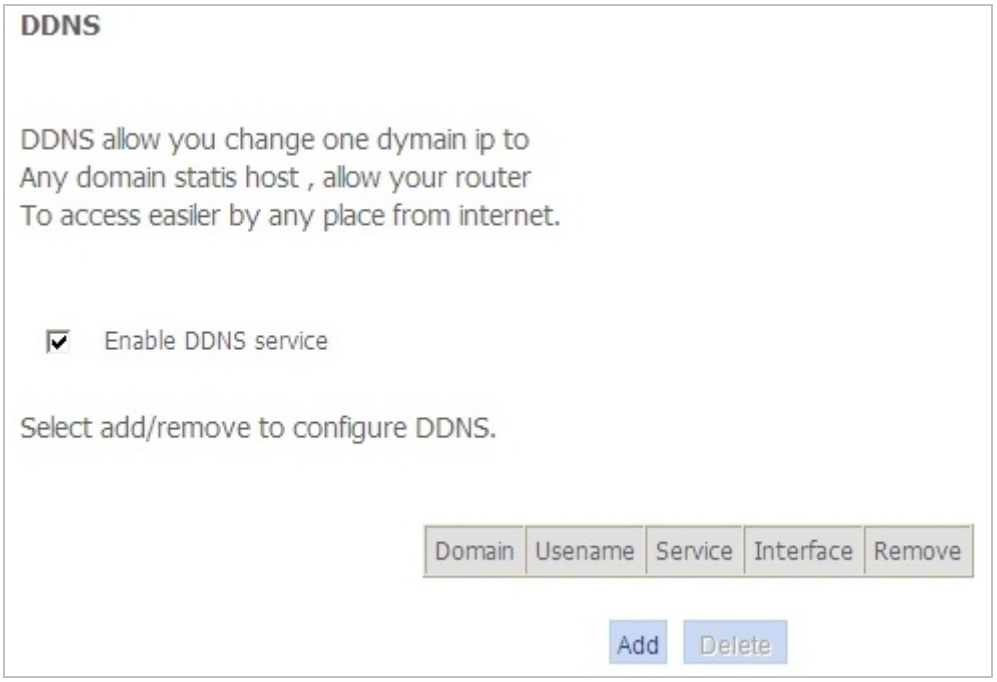



**Figure 5-4-1 DDNS**


**Figure 5-4-2 Add DDNS**

The page includes the following fields:

| Object | Description |
|---|---|
| **DDNS provider** | To determine the DDNS service provider |
| **Domain** | The URL/Host name for your DDNS service provider |
| **Interface** | To determine which WAN connection to be applied with DDNS service |
| **Username** | The user name of your DDNS |
| **Password** | The password of your DDNS |

### 5.4.2 Advanced NAT

- **ALG SETUP**


**Figure 5-4-3 ALG**

The page includes the following fields:

| Object | Description |
|---|---|
| **Enable H.323** | Check the box to enable H.323 ALG |
| **Enable RTSP** | Check the box to enable RTSP ALG |
| **Enable IPSEC** | Check the box to enable IPSEC |
| **Enable SIP** | Check the box to enable SIP |
| **Enable L2TP** | Check the box to enable L2TP |
| **Enable FTP** | Check the box to enable FTP |

## ■ DMZ SETUP


**Figure 5-4-4 DMZ**

The page includes the following fields:

| Object | Description |
|---|---|
| **Enable DMZ Host** | Check the box to enable DMZ |
| **DMZ Host IP Address** | The LAN IP address that you want to enable with DMZ |

## ■ VIRTUAL HOST


**Figure 5-4-5 Virtual Server**

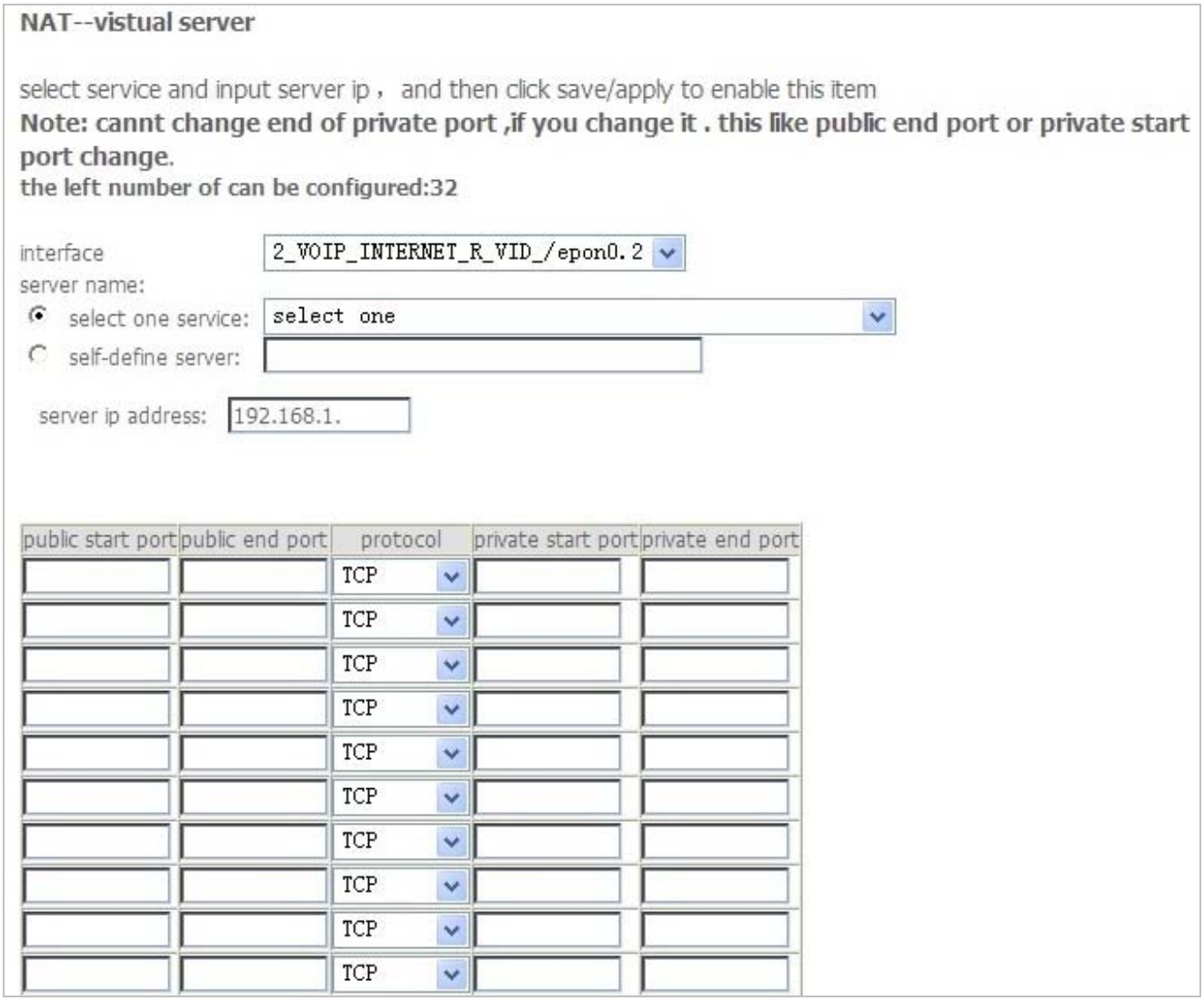



**Figure 5-4-6 Add Virtual Server**

The page includes the following fields:

| Object | Description |
|---|---|
| **Add** | Click 'Add' to add a virtual host server |
| **Delete** | Click 'Delete' to remove a Virtual Host Server |
| **Interface** | The WAN interface that you want to enable with Virtual Host Server service |
| **Server Name** | Select the services that you want to enable with Virtual Host Server service |
| **Server IP Address** | The LAN IP address that you want to enable for Virtual Host Server |
| **Public Start Port** | The outbound start port of your Virtual Host Server |
| **Public End Port** | The outbound end port of your Virtual Host Server |

| | |
|---|---|
| **Private Start Port** | The inbound start port of your Virtual Host Server |
| **Private End Port** | The inbound end port of your Virtual Host Server |

### 5.4.3 UPnP Setup

On this page you can enable or disable UPNP.


**Figure 5-4-7 UPnP**

### 5.4.4 VoIP

- **Basic**

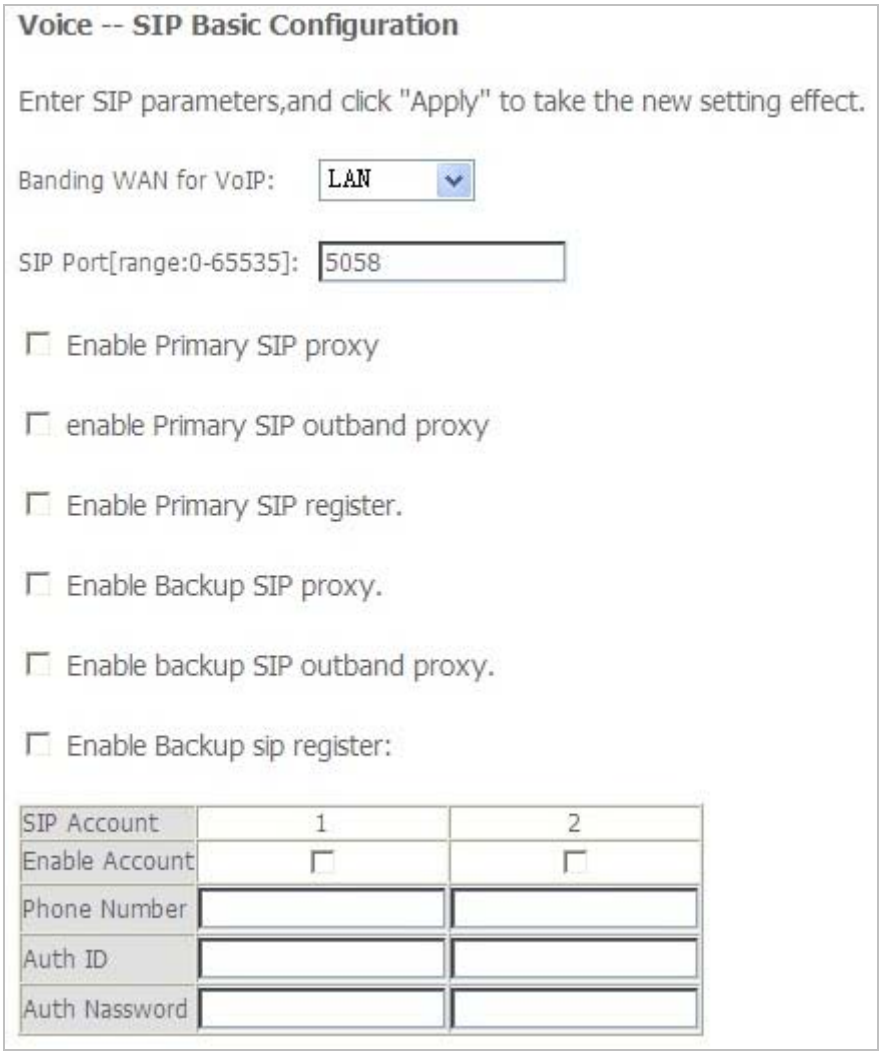



**Figure 5-4-8 VoIP Basic**

The page includes the following fields:

| Object | Description |
|---|---|
| **Banding WAN for VoIP** | Check the box to select the WAN connection interface for your VoIP service |
| **SIP Port** | To input the port number for SIP, generally default SIP port is 5058 |
| **Enable Primary SIP Proxy** | Check the box to enable register to a SIP Server |
| **Enable Primary SIP Outbound Proxy** | The primary SIP Server address can be Host name or IP address |
| **Enable Primary SIP Register** | The primary SIP port by default is 5060 |
| **Enable Backup SIP Proxy** | Check the box to enable register to a backup SIP Server |

| | |
|---|---|
| **Enable Backup SIP Outbound Proxy** | The backup SIP Server address can be Host name or IP address |
| **Enable Backup SIP Register** | The backup SIP port by default is 5060 |

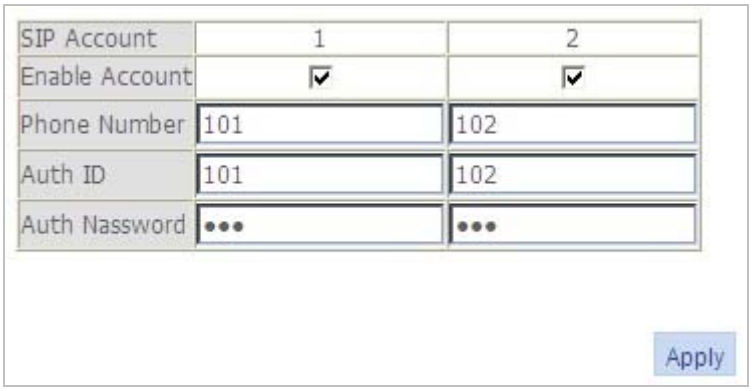



**Figure 5-4-8 VoIP Account**

The page includes the following fields:

| Object | Description |
|---|---|
| **SIP Account** | There are two SIP accounts able to be registered with EPN-402NV simultaneously |
| **Enable Account** | Check the boxes to enable the associated SIP 1 and SIP 2 accounts |
| **Phone Number** | The SIP user name |
| **Auth ID** | The ID for your SIP account |
| **Auth Password** | The password for your SIP account |

- **Digital Map**

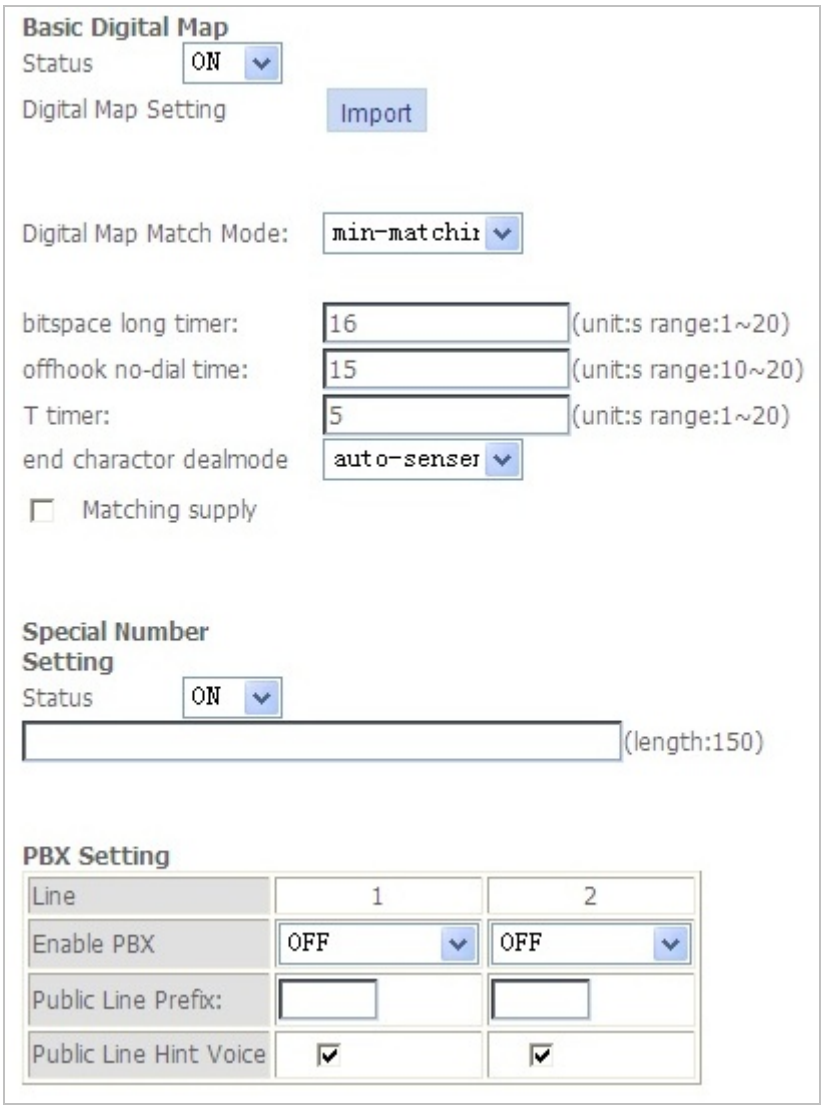



**Figure 5-4-9 Digital Map**

The page includes the following fields:

| Object | Description |
|---|---|
| **Status** | Enable Standard Digital Map/Dial plans for VoIP service |
| **Digital Map Match Mode** | The matching mode of the specified dialing plans |
| **Bit Space Long Timer** | Specify the max timer time |
| **Off Hook No-dial Time** | Specify the time of not dialing after you pick up the phone |
| **T Timer** | Specify the T-timer time |
| **End Character Deal Mode** | To select the stop character processing mode |

| | |
|---|---|
| **Matching Supply** | Match with the specified number |
| **Status** | Enable hotline number |

- **Voice Media**

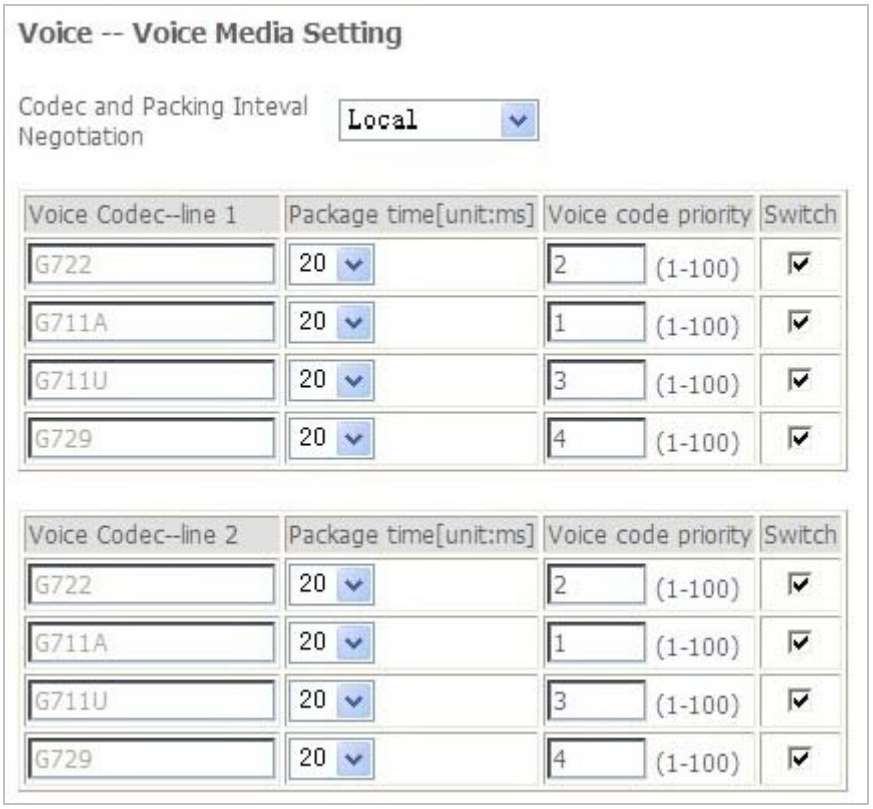



**Figure 5-4-10 Voice Media**

The page includes the following fields:

| Object | Description |
|---|---|
| **Status** | Enable Standard Digital Map/Dial plans for VoIP service |
| **Digital Map Match Mode** | The matching mode of the specified dialing plans |
| **Bit Space Long Timer** | Specify the max. timer time |
| **Off Hook No-dial Time** | Specify the time of not dialing after you pick up the phone |
| **T timer** | Specify the T-timer time |
| **End character deal mode** | To select the stop character processing mode |
| **Matching supply** | Match with the specified number |

| Status | Enable hotline number |
|---|---|

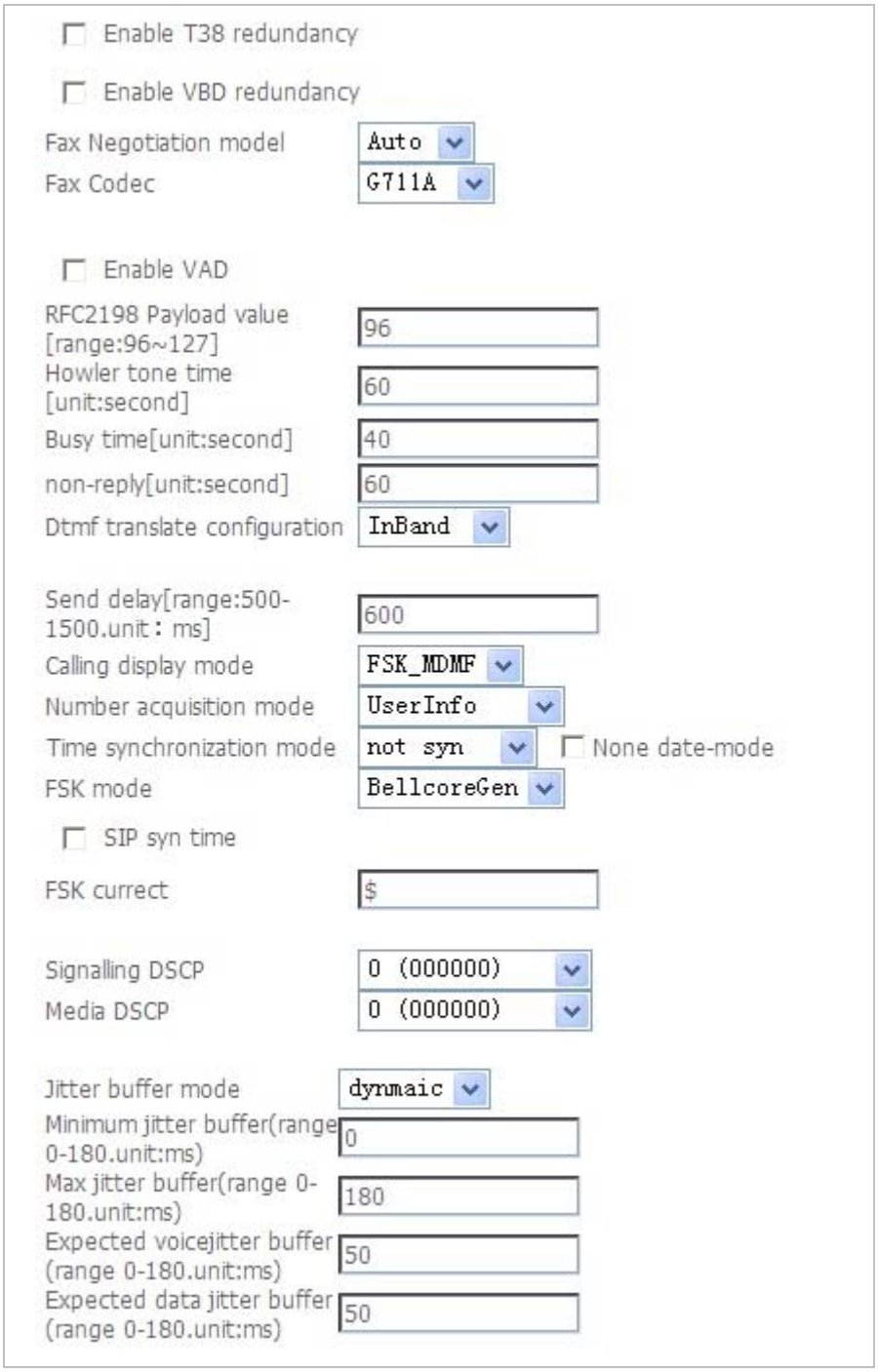



**Figure 5-4-11 Voice Media**

The page includes the following fields:

| Object | Description |
|---|---|
| **Enable T38 Redundancy** | Check the box to enable T.38 fax redundancy |
| **Enable VBD** | Check the box to enable VBD (Voice Band Data) redundancy |

| | |
|---|---|
| **Redundancy** | |
| **Fax Negotiation Mode** | Set the fax session mode |
| **Fax Codec** | Set the codec for fax |
| **Enable T38 Fax** | Enable T.38 fax |
| **Enable G711 Fax** | Enable fax with G.711 codec |
| **Enable VAD** | Check the box to enable VAD (Voice Activation Detection) |
| **CNG Mode** | Select the CNG mode |
| **RFC2198 Payload Value** | Set the value of RFC2198 payload, ranging from 96 to 127 |
| **Howler Tone Time** | Set the urging tone time |
| **Busy Time** | Set the busy tone time |
| **Non-reply** | Set the no answer tone time |
| **DTMF Translate Configuration** | Set the DTMF mode of VoIP |
| **Send Delay** | Set the Caller ID sending delay time |
| **Calling Display Mode** | Set the Caller ID mode |
| **Signaling DSCP** | The QoS value of SIP signaling |
| **Media DSCP** | The QoS value for SIP media |
| **Jitter Buffer Mode** | Set the Voice Jitter buffer mood |
| **Minimum Jitter Buffer** | Set the minimum value of Voice Tendencies Jitter buffer |
| **Maximum Jitter Buffer** | Set the maximum value of Voice Tendencies Jitter buffer |
| **Expected Voice Jitter Buffer** | Set the value of Voice Static Jitter buffer |
| **Expected Data Jitter Buffer** | Set the value of Transparent Voice Static Jitter buffer |
| **Fixed Payment Number** | Set the PSTN telephone number |
| **RTP Port Range** | Set the range of RTP port |
| **Enable Reversed Polarity** | Check the box to enable Reverse Polarity for SIP account 1 and 2 |

| | |
|---|---|
| **Echo Suppression Set** | Check the box to enable Echo Suppression settings for SIP account 1 and 2 |
| **Receiving Gain** | Set the Receiving Gain value for Echo Suppression |
| **Transmission Gain** | Set the Sending Gain value for Echo Suppression |
| **Bat Minimum Time** | Set the minimum Hook Time |
| **Bat Maximum Time** | Set the maximum Hook Time |

- **SIP**

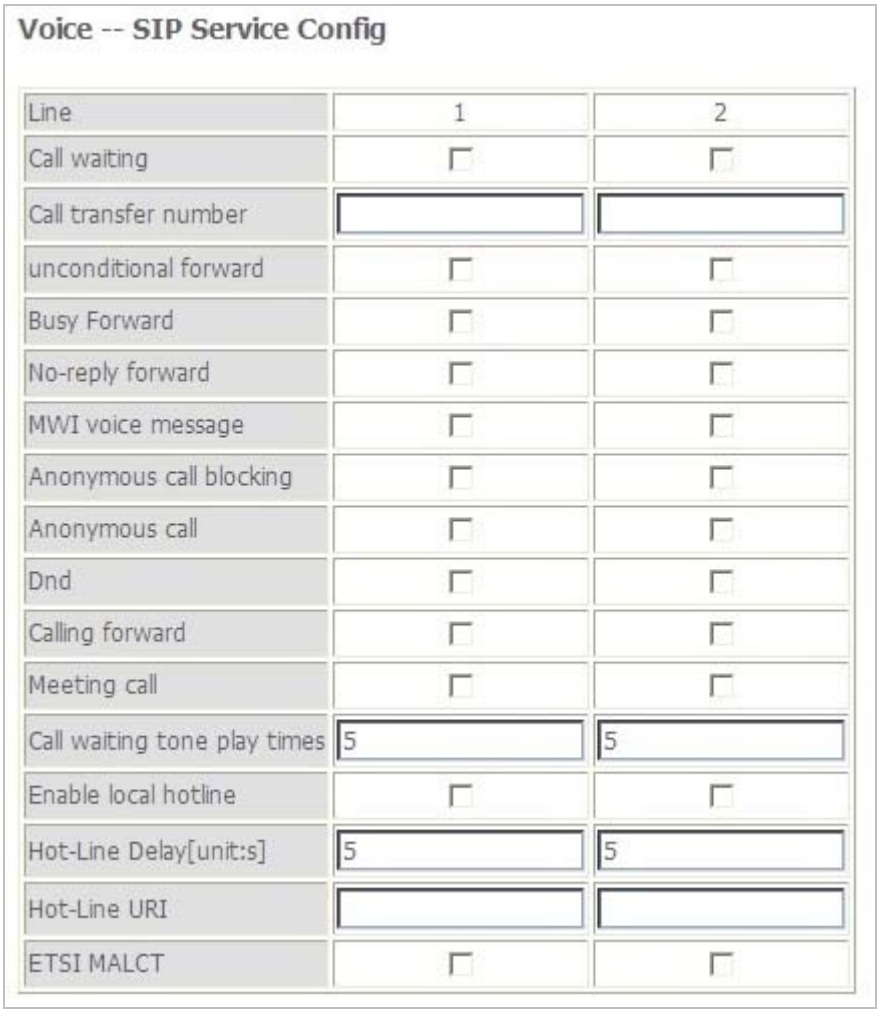



**Figure 5-4-12 SIP Configuration**

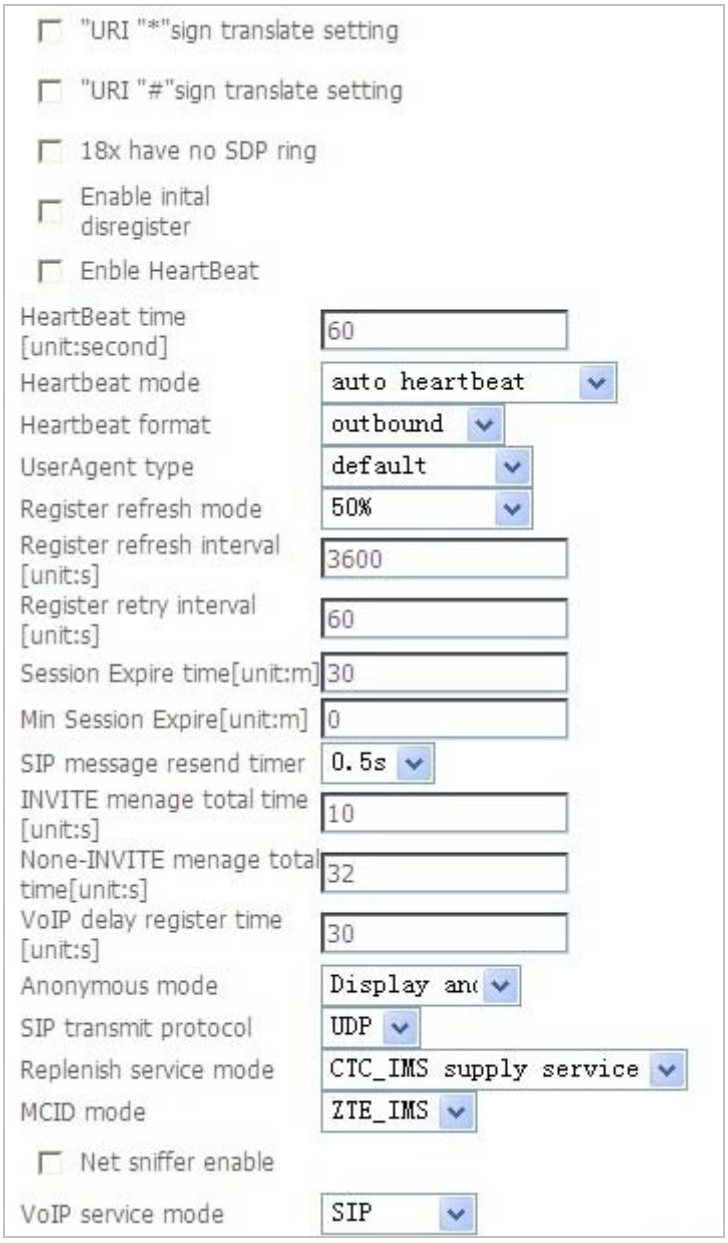



**Figure 5-4-13 SIP Configuration**

The page includes the following fields:

| Object | Description |
|---|---|
| **"URL" "*" Sign Translate Setting** | Check the box to enable URL and '*' Escape setting |
| **"URL" "#" Sign Translate Setting** | Check the box to enable URL and '#' Escape setting |
| **18x has no SDP Ring** | Check the box to disable SDP in 18x ring process |
| **Enable Initial Deregister** | Check the box to enable SIP initial cancellation |
| **Enable Heartbeat** | Check the box to enable SIP Heartbeat Switch |

| | |
|---|---|
| **Heartbeat Time** | Set the SIP Heartbeat Switch time interval |
| **Heartbeat Mode** | Set the SIP heartbeat mode |
| **Heartbeat Format** | Set SIP heartbeat switch in different authentication modes |
| **User Agent Type** | Set the SIP agent type |
| **Register Refresh Mode** | Set the SIP registration Refresh mode |
| **Register Refresh Interval** | Set the SIP registration Update time interval |
| **Register Retry Interval** | Set the SIP registration re-try time interval |
| **Session Expire Time** | Set the SIP session expiration time |
| **Min. Session Expire** | Set the minimum SIP Session Expiration Time |
| **SIP Message Resend Timer** | Set the SIP message re-transit initial time |
| **Invite Message Total Time** | Set the SIP Invite Message re-transit time |
| **Non-Invite Message Total Time** | Set the SIP non-invite message re-transit time |
| **VoIP Delay Register Time** | Set the SIP registration delay time |
| **Anonymous Mode** | Set the SIP Anonymous mode |
| **SIP Transmit Protocol** | Set SIP protocol through UDP or TCP |
| **Replenish Service Mode** | Set the Supplementary service mode |
| **MCID Mode** | Set the Malicious Call Identification mode |
| **Net Sniffer Enable** | Check the box to enable Network detection |
| **VoIP Service Mode** | Set VoIP protocol |

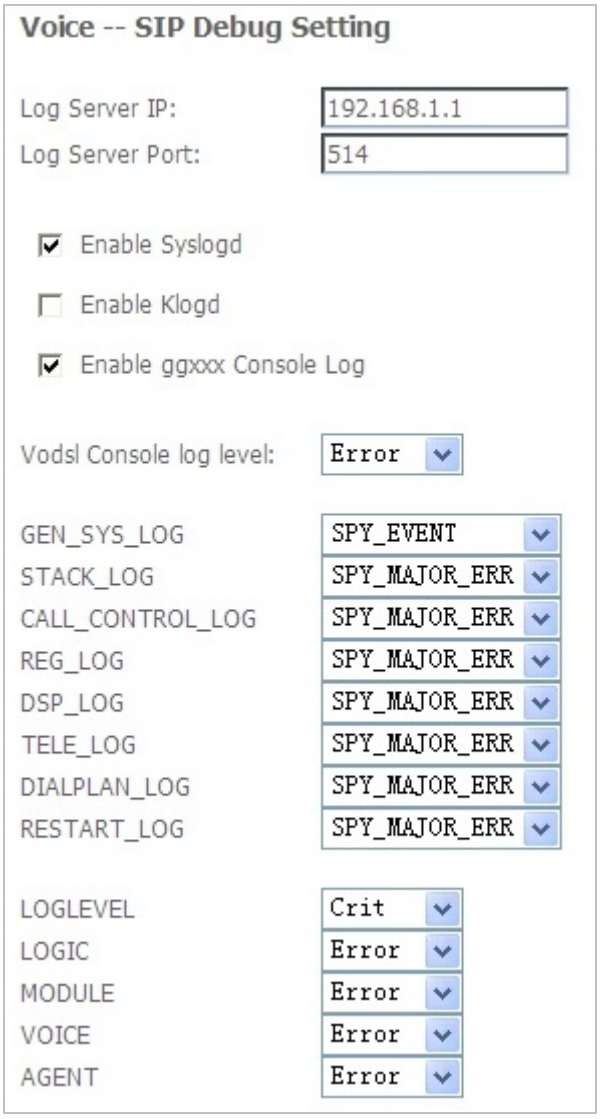
- **IMS Service**

On this page you can configure the Voice IMS Parameters. This is a feature available with IMS server configurations. (Not specified).


**Figure 5-4-14 IMS Service**

- **Debug**

On this page you can debug the VoIP SIP configurations.



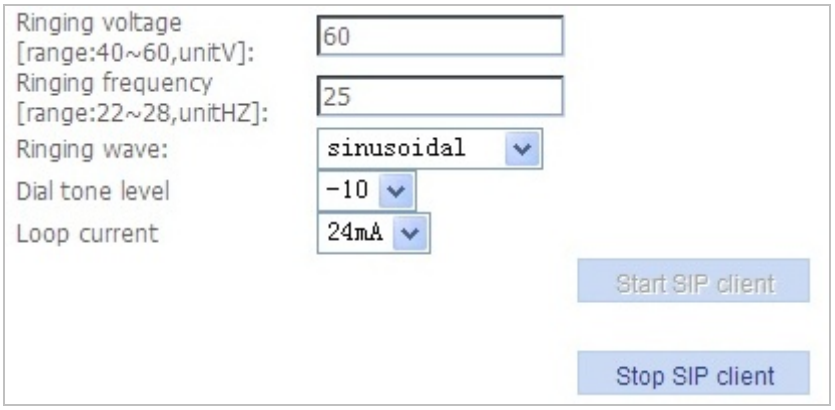




**Figure 5-4-15 Debug**

The page includes the following fields:

| Object | Description |
|---|---|
| **Log Server IP** | The Server Address that you want to store your SIP Syslog |

| | |
|---|---|
| **Log Server Port** | The port number of your SIP Syslog server |
| **Enable Syslog** | Check the box to enable SIP Syslog |
| **Enable Klog** | Check the box to enable SIP Klog |
| **Vodsl Console Log Level** | Set the Vodsl console level of your SIP Syslog |
| **GEN_SYS_LOG** | To determine the general system log level |
| **STACK_LOG** | To determine the STACK Log level |
| **CALL_CONTROL_LOG** | To determine the Call Control Log level |
| **REG_LOG** | To determine the Registration Log level |
| **DSP_LOG** | To determine the Voice DSP log level |
| **TELE_LOG** | To determine the telecommunication logo level |
| **DIALPLAN_LOG** | To determine the Dialplan_LOG level |
| **RESTART_LOG** | To determine the Rebooting Log level |
| **LOGLEVEL** | To set the log level of your SIP Syslog |
| **LOGIC** | To set different SIP Syslog type of SIP logic |
| **MODULE** | To set different SIP Syslog type of SIP module |
| **VOICE** | To set different SIP Syslog type of SIP Voice |
| **AGENT** | To set different SIP Syslog type of SIP Agent |
| **Ringing Voltage** | To set the ringing voltage level of your SIP Syslog |
| **Ringing Frequency** | To set the ringing frequency of your SIP Syslog |
| **Ringing Wave** | To set the ringing waveform of your SIP Syslog |
| **Start SIP Client** | Enable SIP client starting to report syslog |
| **Stop SIP Client** | Stop SIP client reporting SIP Syslog |

### 5.4.5 IGMP

- **IGMP Snooping**

Check the box to enable IGMP Snooping of your Wi-Fi ONU.

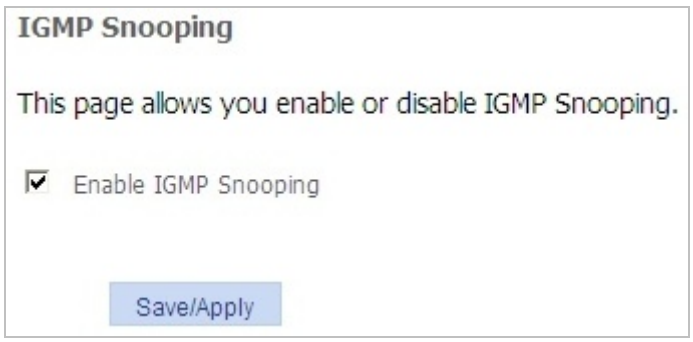



**Figure 5-4-16 IGMP Snooping**

- **IGMP Proxy**

On this page, you can enable IGMP pass-through a specific WAN interface.

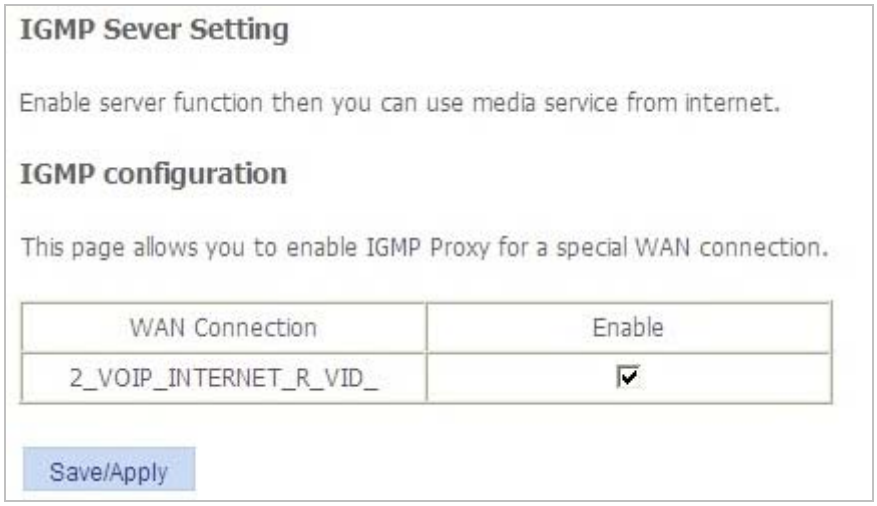



**Figure 5-4-17 IGMP proxy**

The page includes the following fields:

| Object | Description |
|---|---|
| **WAN Connection** | The WAN interface that you will enable for the IGMP Server |
| **Enable** | Check the box to enable IGMP Server |

### 5.4.6 MLD Setup

- **MLD Snooping**

This page allows you to enable or disable MLD Snooping function.

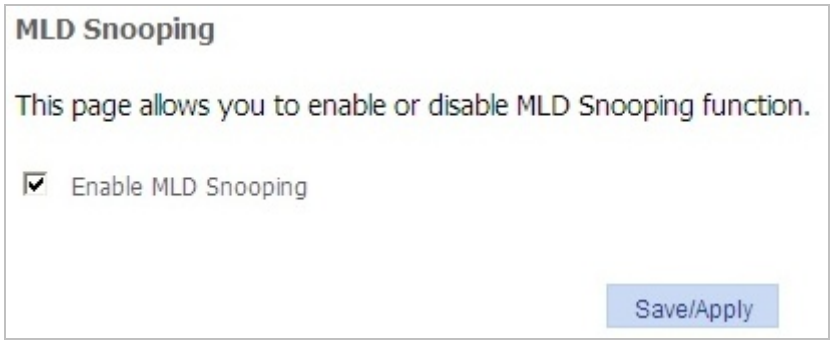



**Figure 5-4-18 MLD Snooping**

- **MLD Proxy**

On this page you can enable MLD Proxy for a special WAN connection.

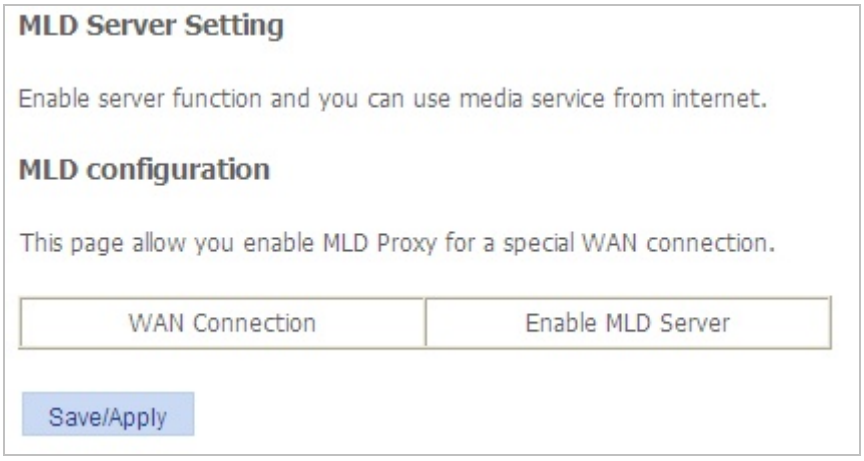



**Figure 5-4-19 MLD Proxy**

The page includes the following fields:

| Object | Description |
|---|---|
| **WAN Connection** | The WAN interface that you will enable for the MLD Server |
| **Enable MLD Server** | Check the box to enable MLD Server |

### 5.4.7 Daily Application

- **Family Storage**

On this page you can download files, music, and video from internet to the family storage USB device even you are not at home.


**Figure 5-4-20 Family Storage**

The page includes the following fields:

| Object | Description |
|---|---|
| **Download File Storage** | Specify the downloading directory of your USB Storage device |
| **Username** | Your remote FTP user name |
| **Password** | The password for your remote FTP server |
| **Port** | The port number specified for your remote FTP Server |
| **Remote URL** | The URL that you download from |
| **Download** | Click the 'Download' button to start downloading files to your USB storage device. |

- **IPTV**

On this page, you can configure a specific Multicast VLAN for your IPTV application.

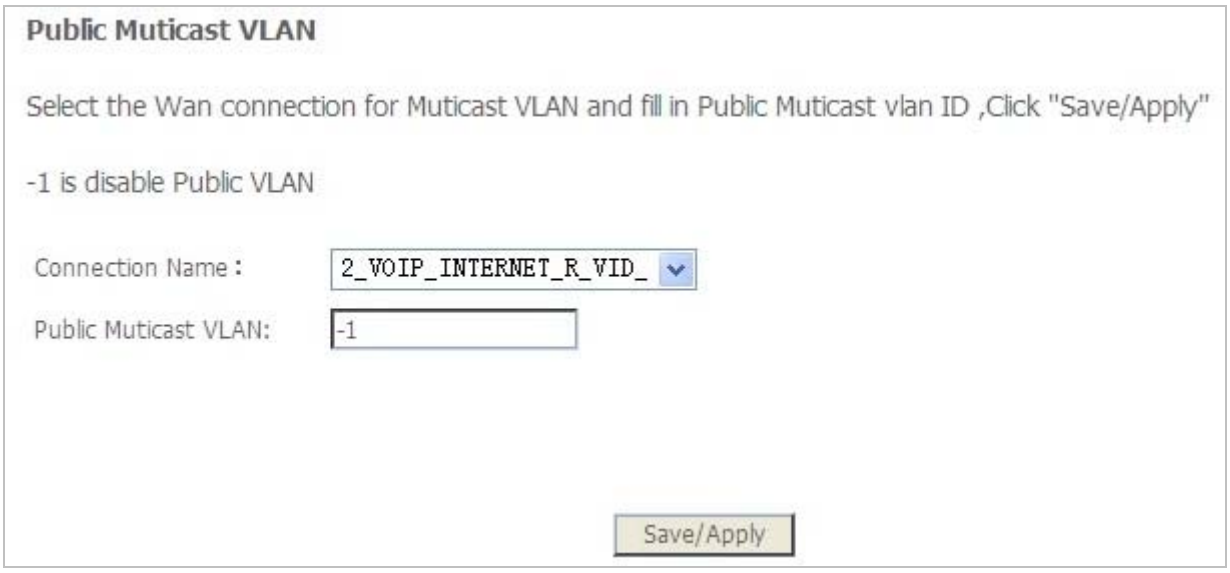



**Figure 5-4-21 IPTV**

The page includes the following fields:

| Object | Description |
|---|---|
| **Connection Name** | The WAN interface for your IPTV Application |
| **Public Multicast VLAN** | Specify the VLAN ID for your public Multicast streaming |

# 5.5 MANAGEMENT

## 5.5.1 User Management

On this page you can set up the User Account password for your EPN-402NV. By default, the password for user account is ‘admin’. You can modify this password.

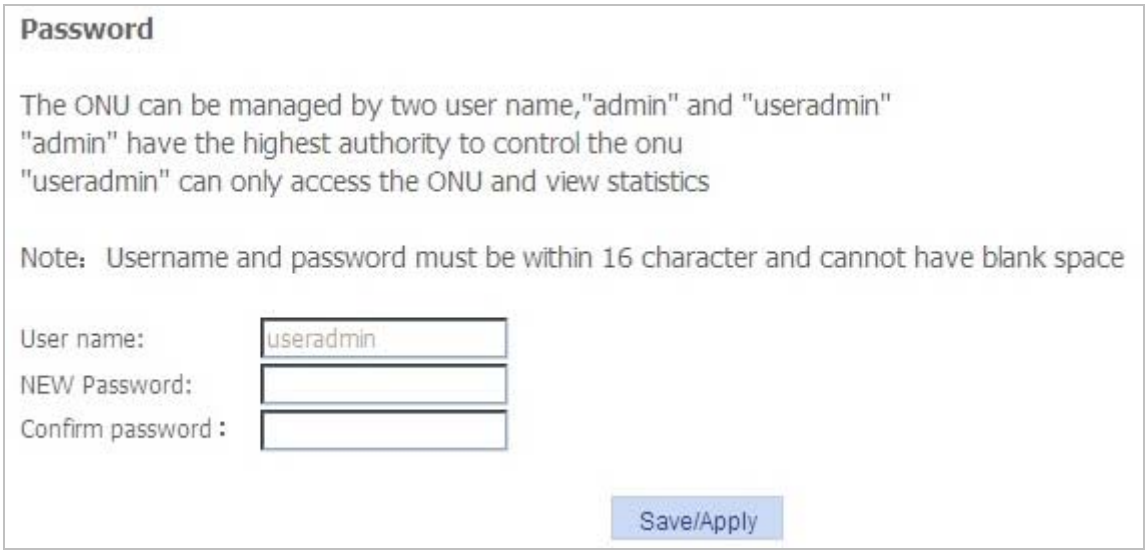



**Figure 5-5-1 Password**

The page includes the following fields:

| Object | Description |
|---|---|
| **User Name** | The original user name, by default, it’s ‘admin’ |
| **New Password** | The new password that you want to apply to your ONU |
| **Confirm Password** | Re-enter the new password |

## 5.5.2 Device Management

- **Device Reboot**

On this page, you can reboot the Wi-Fi ONU by pressing the Reboot button.


**Figure 5-5-2 Reboot**

- **USB Backup**

On this page you can back up the configuration file to your USB Storage device.

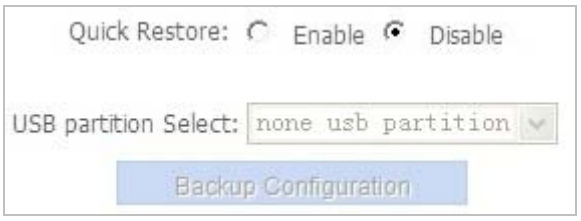



**Figure 5-5-3 USB Backup**

- **Reset ONU**

On this page, you can click the button to reset the ONU to factory default setting.


**Figure 5-5-4 Reset to Default**

### 5.5.3 Log Management

- **LOG LEVEL**

On this page, you can manage the log of your EPN-402NV.

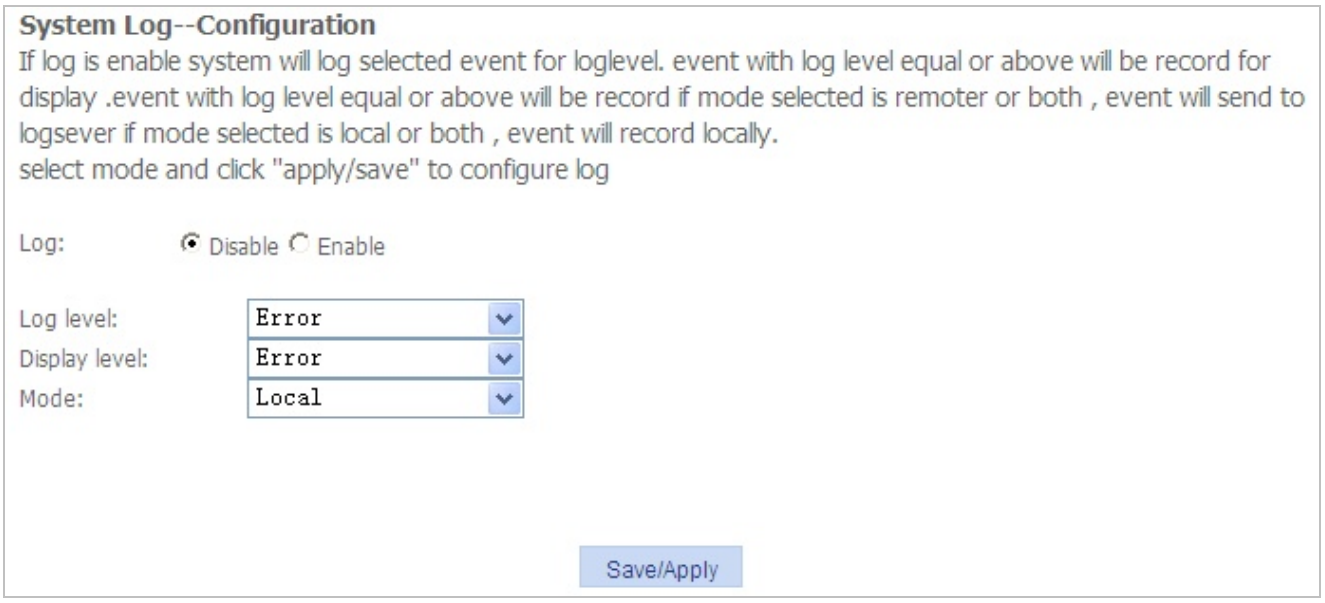



**Figure 5-5-5 Log Level**

The page includes the following fields:

| Object | Description |
|---|---|
| **Log** | Check the box to enable or disable Log for your EPN-402NV |
| **Log Level** | To determine which type of log to be recorded in the log file |
| **Display Level** | To determine which type of log to be displayed in the log file |
| **Mode** | To determine either to enable local or remote logs |
| **Server IP** | The Server that you will store the logs |
| **Server UDP Port** | The port number for the Server which you will store up the logs |

■ **LOG**

On this page, you can check or manage logs of your EPN-402NV.

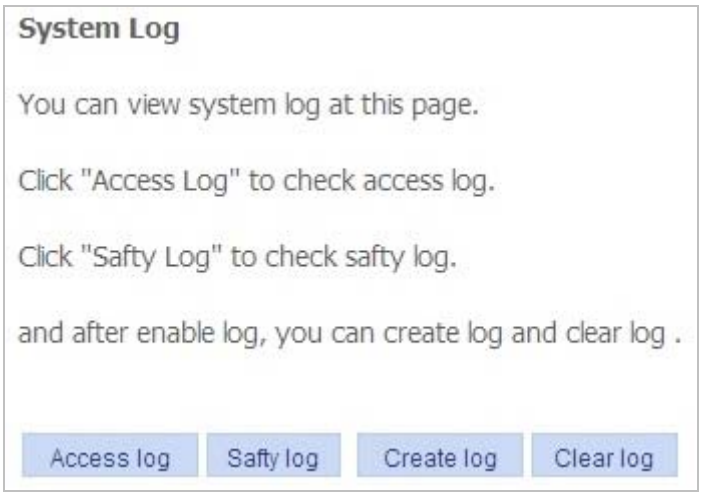



**Figure 5-5-6 Log**

The page includes the following fields:

| Object | Description |
|---|---|
| **Access Log** | Click the ‘Access Log’ button to view the access logs of your Wi-Fi ONU |
| **Safety Log** | Click the ‘ Safety Log’ button to view the Security logs of your Wi-Fi ONU |
| **Create Log** | Click the ‘Create log’ button to compose a new log file. |
| **Clear Log** | Click the ‘Clear log’ button to clear all access logs and security logs of your Wi-Fi ONU |

■ **Maintenance**

This function is for TR-069 management; it’s for manually provisioning new configurations/data to the remote ACS server.


**Figure 5-5-7 Maintenance**

# 5.6 DIAGNOSIS

## 5.6.1 Line Diagnosis

On this page, you can to view the connection status of your LAN and WLAN interfaces. Click the '**Retesting'** button to refresh the page


**Figure 5-6-1 Line Diagnosis**

## 5.6.2 Ping Test

On this page you can diagnose the Internet connections.

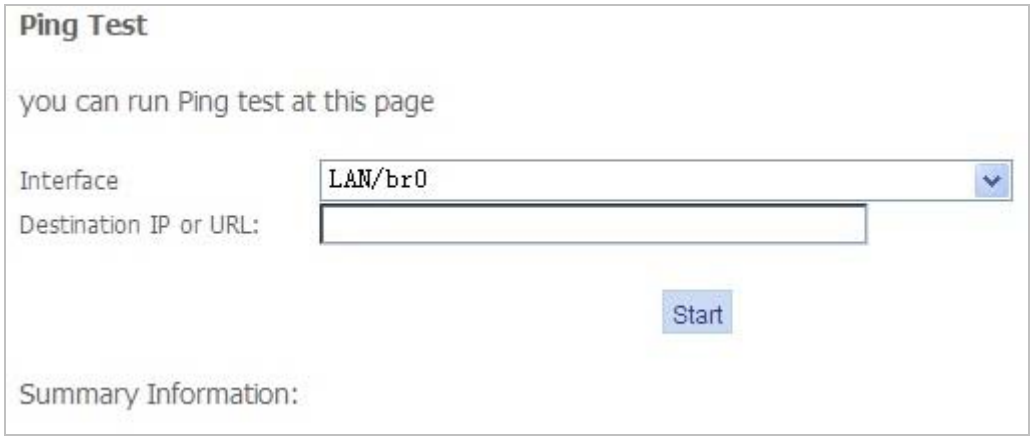



**Figure 5-6-2 Ping Test**

The page includes the following fields:

| Object | Description |
|---|---|
| **Interface** | Choose one of the internet connection to run Ping Tests |
| **Destination IP or** | Enter the IP address or the Host Name that you want to Ping |

| | |
|---|---|
| **URL** | |
| **Start** | Click the 'Start' button to start ping the destination IP or URL |

### 5.6.3 Tracert Diagnosis

On this page you can trace the route table for the destination IP address or Host.

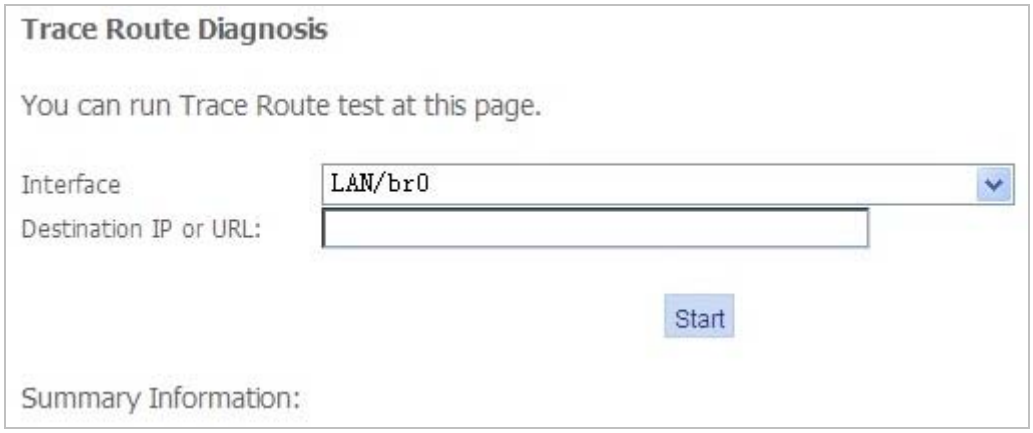



**Figure 5-6-3 Trace Route**

The page includes the following fields:

| Object | Description |
|---|---|
| **Interface** | Choose one of the internet connection to run Trace Route |
| **Destination IP or URL** | Enter the IP address or the Host Name that you want to trace route with |
| **Start** | Click the 'Start' button to start ping the destination IP or URL |

### 5.6.4 Inform Manual

Inform manual is a function for reporting failures or logs to the ACS server. On this page you can diagnose the inform report function of the EPN-402NV.

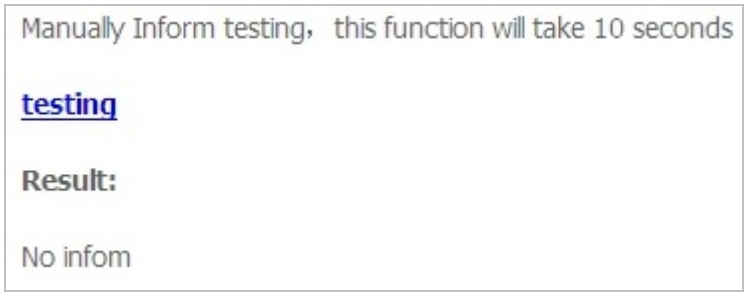



**Figure 5-6-4 Inform Manual**

Click the 'Testing' button to manually send message to a remote TR069 ACS Server.

## 5.7 HELP

You can view the help information of this device on this page.


**Figure 5-7-1 Help**

# Chapter 6. Quick Connection to a Wireless Network

## 6.1 Windows XP (Wireless Zero Configuration)

**Step 1**: Right-click on the **wireless network icon** displayed in the system tray

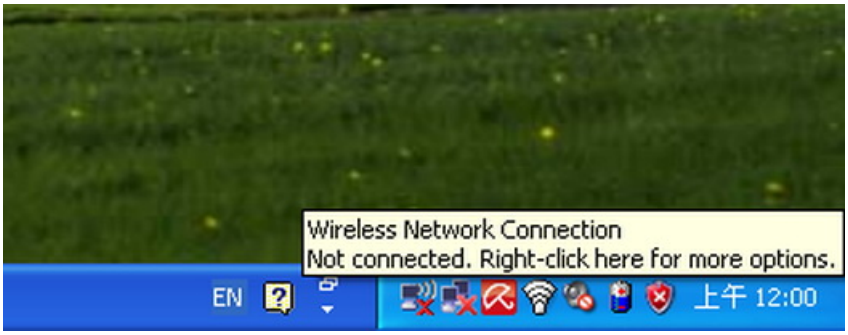



**Figure 6-1**

**Step 2**: Select [**View Available Wireless Networks**]

**Step 3**: Highlight and select the wireless network (SSID) to connect

(1) Select SSID (Take PLANET for example)

(2) Click the [**Connect**] button

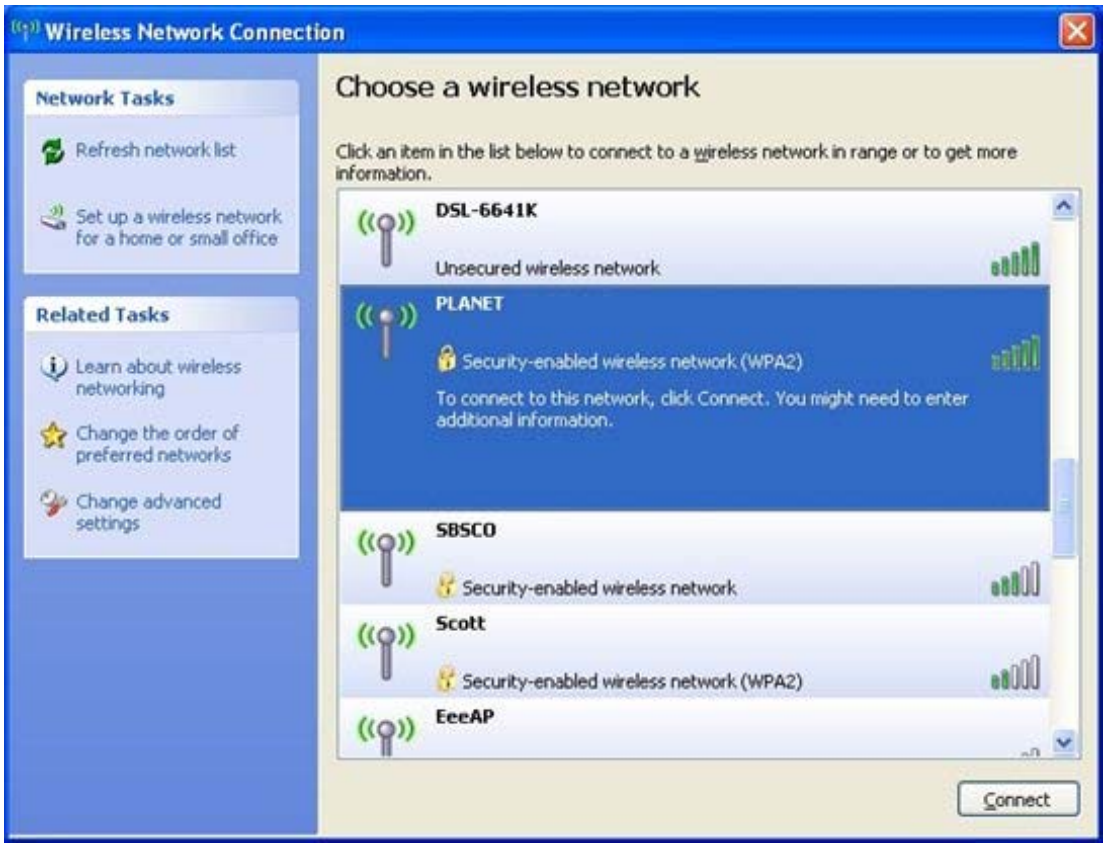



**Figure 6-2 Wireless Network Connection**

**Step 4: Enter the encryption key of the Wi-Fi ONU**

(1) The Wireless Network Connection box will appear

(2) Enter the encryption key that is configured in section 5.7.3

(3) Click the [Connect] button


**Figure 6-3**

**Step 5**: Check if "**Connected**" is displayed

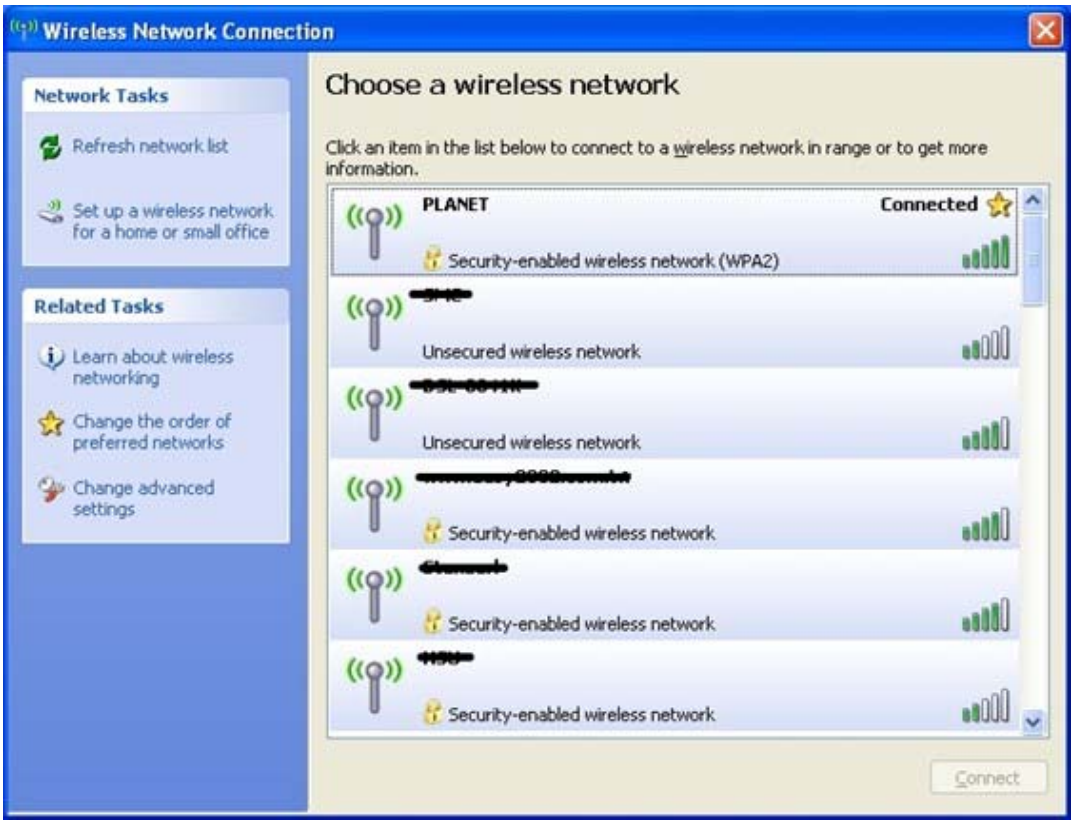



**Figure 6-4**

Note

Some laptops are equipped with a "Wireless ON/OFF" switch for the internal wireless LAN. Make sure the hardware wireless switch is switched to "ON" position.

## 6.2 Windows 7 (WLAN AutoConfig)

WLAN AutoConfig service is built-in in Windows 7 that can be used to detect and connect to wireless network. This built-in wireless network connection tool is similar to wireless zero configuration tool in Windows XP.

**Step 1**: Right-click on the **network icon** displayed in the system tray


**Figure 6-5**

**Step 2**: Highlight and select the wireless network (SSID) to connect

(1) Select SSID (Take default_2.4G for example)

(2) Click the [**Connect**] button


**Figure 6-6**

Note

If you will be connecting to this Wi-Fi ONU in the future, check [**Connect automatically**].

**Step 4**: Enter the **encryption key** of the Wi-Fi ONU

(1) **Connect to a Network** box will appear

(2) Enter the encryption key that is configured in section 5.7.3

(3) Click the [OK] button


**Figure 6-7 Connect to a Network**

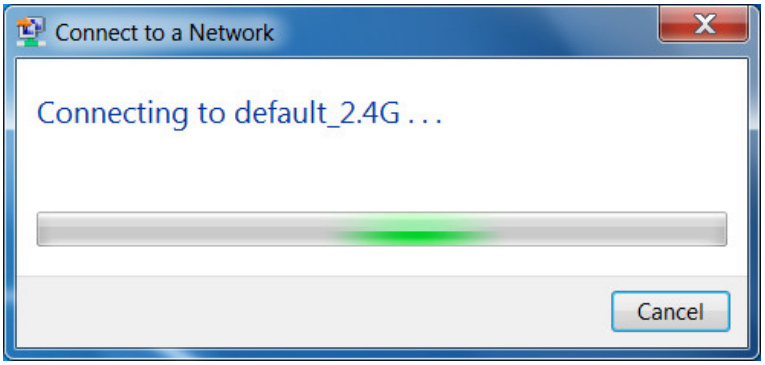



**Figure 6-8 Connecting**

**Step 5**: Check if "**Connected**" is displayed


**Figure 6-9**

## 6.3 Mac OS X 10.x

**Step 1**: Right-click on the **network icon** displayed in the system tray

The AirPort Network Connection menu will appear

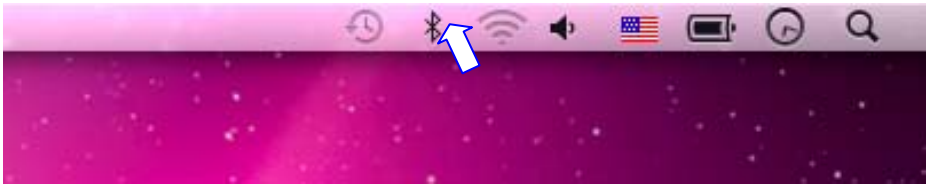


**Figure 6-10**

**Step 2**: Highlight and select the wireless network (SSID) to connect

(1) Select and SSID (Take PLANET for example)

(2) Double-click on the selected SSID


**Figure 6-11**

**Step 4**: Enter the **encryption key** of the Wi-Fi ONU

(1) Enter the encryption key that is configured in section 5.7.3

(2) Click the [OK] button


**Figure 6-12**

Note

If you want to connect this Wi-Fi ONU in the future, check [**Remember this network**].

**Step 5**: Check if the AirPort is connected to the selected wireless network.

If “Yes”, then there will be a “check” symbol in the front of the SSID.


**Figure 6-13**

## 6.4 iPhone / iPod Touch / iPad

**Step 1**: Tap the [**Settings**] icon displayed in the home screen

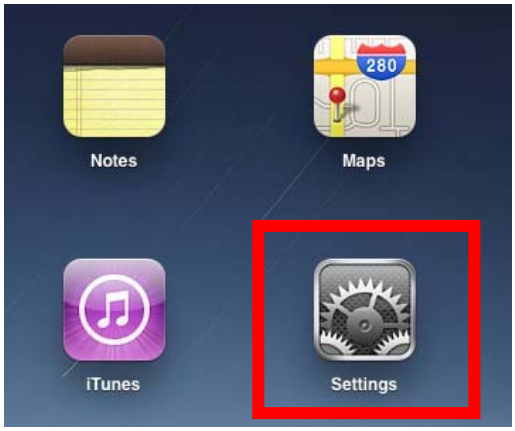



**Figure 6-14**

**Step 2**: Check Wi-Fi setting and select the available wireless network

(1) Tap [**General**] \ [**Network**]

(2) Tap [**Wi-Fi**]

If this is the first time to connect to the Wi-Fi ONU, it should show “Not Connected”.

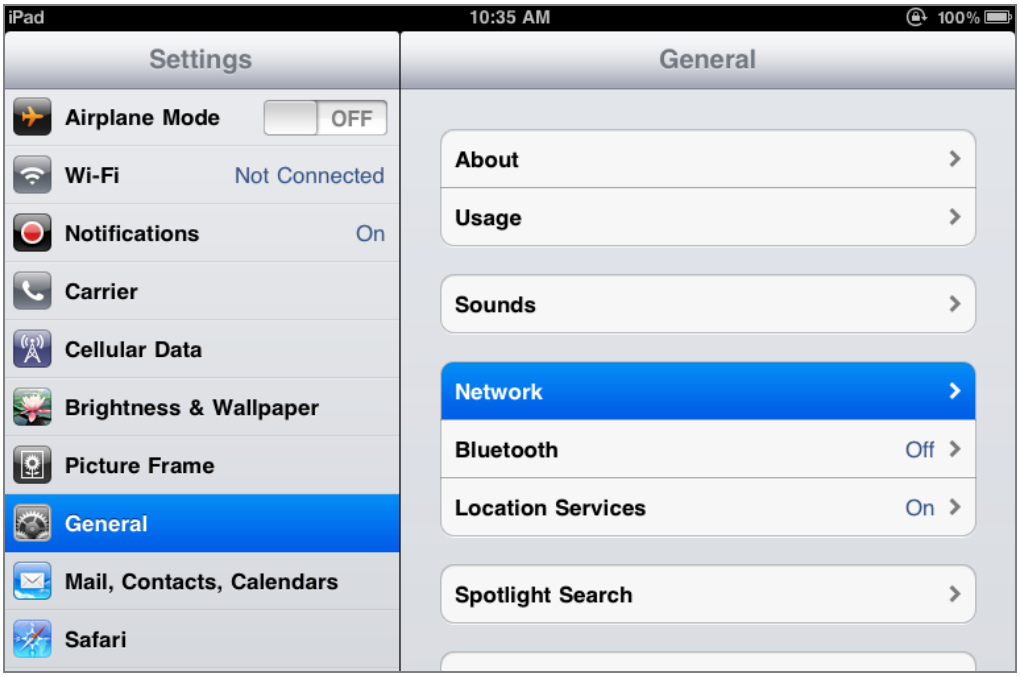



**Figure 6-15**

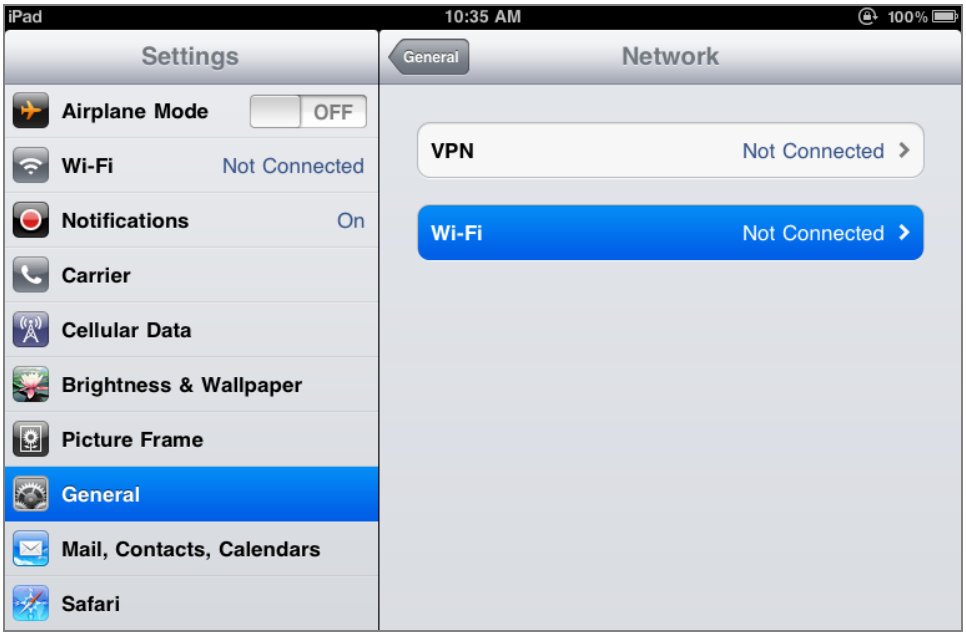



**Figure 6-16**

**Step 3**: Tap the target wireless network (SSID) in "**Choose a Network…**"

(1) Turn on Wi-Fi by tapping "**Wi-Fi**"

(2) Select SSID (Take PLANET for example)


**Figure 6-17**

**Step 4**: Enter the **encryption key** of the Wi-Fi ONU

(1) The password input screen will be displayed

(2) Enter the encryption key that is configured in section 5.7.3

(3) Tap the [**Join**] button


**Figure 6-18**

**Step 5**: Check if the iDevice is connected to the selected wireless network.

If “Yes”, then there will be a “check” symbol in the front of the SSID.


**Figure 6-19**

# Appendix A: Specifications

| | | |
|---|---|---|
| **Product** | | **EPN-402NV**<br>GEPON Wi-Fi ONU |
| **Hardware Specifications** | | |
| **Transmission Speed** | | Downstream: 1.25 Gbps<br>Upstream: 1.25 Gbps |
| **Port** | **PON Port** | 1 x PON Port |
| | **Ethernet Port** | 4 x RJ45 (10/100BASE-TX) |
| | **FXS Port** | 2 x RJ11 Port |
| | **USB Port** | 1 x USB 2.0 Port Type A, 5V 500mA |
| **Optic Wavelength** | | TX:1310mm<br>RX:1480mm |
| **Optical Receive Sensitivity** | | -25 dBm |
| **Dimensions (W x D x H)** | | 190 x 137 x 48 mm |
| **Weight** | | 350g |
| **Power Input** | | 12V DC, 1A |
| **Power Consumption** | | 12W |
| **EMS Utility Specifications** | | |
| **ONU Feature** | | Supports IGMP snooping<br>Supports MLD snooping<br>Supports 802.3ah CTC external OAM<br>Supports DBA algorithm<br>Supports 128-bit triple churning algorithm<br>Supports dying gasp IEEE 802.3ah compliant forward error Correction (FEC)<br>Supports TR-069 |
| **Wireless Interface Specifications** | | |
| **Standard** | | Compliant with IEEE 802.11b/g/n |
| **Frequency Band** | | 2.4~2.4835GHz |
| **Antenna** | | Gain: 3 dBi internal antennas |
| **Extended Frequency** | | DSSS |
| **Modulation Type** | | DBPSK, DQPSK, QPSK, CCK and OFDM (BPSK/QPSK/16-QAM/ 64-QAM) |
| **Data Transmission Rates** | | 802.11n (40MHz):270/243/216/162/108/81/54/27Mbps<br>135/121.5/108/81/54/40.5/27/13.5Mbps (Dynamic)<br>802.11n (20MHz):130/117/104/78/52/39/26/13Mbps<br>65/58.5/52/39/26/19.5/13/6.5Mbps (Dynamic)<br>802.11g:54/48/36/24/18/12/9/6Mbps (Dynamic)<br>802.11b:11/5.5/2/1Mbps (Dynamic) |
| **Channel** | | Europe/ ETSI: 2.412~2.472GHz (13 Channels) |
| **Max. RF Power** | | 16 dBm max. (EIRP) |

| | |
|---|---|
| **Encryption Security** | ■ WEP (64/128-bit) encryption security<br>■ WPA-Personal / WPA2-Personal (TKIP/AES)<br>■ Mixed WPA / WPA2-PSK |
| **Wireless Security** | Provides wireless LAN ACL (Access Control List) filtering |
| | Wireless URL filtering |
| | Supports WPS (Wi-Fi Protected Setup) |
| | Enables/Disables SSID broadcast |
| **Wireless Advanced** | WMM (Wi-Fi multimedia): 802.11e wireless QoS |
| | Provides wireless statistics |
| **Max. Supported Clients** | 128 |
| **Firewall** | NAT firewall with SPI (Stateful Packet Inspection) |
| | Built-in NAT server supporting DMZ |
| | Built-in firewall with IMAC address/ port/ URL filtering |
| | Supports DoS protection |
| **VoIP Protocols and Standard** | |
| **Standard** | SIP/H.248/MGCP<br>T.38 (G.711 fax pass-through) |
| **Voice Codec** | G.711 a/u law, G.712, G.729a code/decode |
| **Voice Standard** | VAD (Voice Activity Detection)<br>CNG (Comfort Noise Generation) |
| **Environment Specifications** | |
| **Temperature** | Operating temperature: -5 ~ 55 degrees C<br>Storage temperature: -30 ~ 60 degrees C |
| **Humidity** | Operating Humidity: 10 ~ 90% non-condensing<br>Storage Humidity: 5 ~ 95% non-condensing |
| **Standards Conformance** | |
| **Standards Compliance** | IEEE 802.3 10BASE-T<br>IEEE 802.3u 100BASE-TX<br>IEEE 802.3x flow control and back pressure<br>IEEE 802.11n |

# Appendix B: Glossary

- **802.11n** - 802.11n builds upon previous 802.11 standards by adding MIMO (multiple-input multiple-output). MIMO uses multiple transmitter and receiver antennas to allow for increased data throughput via spatial multiplexing and increased range by exploiting the spatial diversity, perhaps through coding schemes like Alamouti coding. The Enhanced Wireless Consortium (EWC) [3] was formed to help accelerate the IEEE 802.11n development process and promote a technology specification for interoperability of next-generation wireless local area networking (WLAN) products.
- **802.11b** - The 802.11b standard specifies a wireless networking at 11 Mbps using direct-sequence spread-spectrum (DSSS) technology and operating in the unlicensed radio spectrum at 2.4GHz, and WEP encryption for security. 802.11b networks are also referred to as Wi-Fi networks.
- **802.11g** - specification for wireless networking at 54 Mbps using direct-sequence spread-spectrum (DSSS) technology, using OFDM modulation and operating in the unlicensed radio spectrum at 2.4GHz, and backward compatibility with IEEE 802.11b devices, and WEP encryption for security.
- **DDNS** (**D**ynamic **D**omain **N**ame **S**ystem) **-** The capability of assigning a fixed host and domain name to a dynamic Internet IP Address.
- **DHCP** (**D**ynamic **H**ost **C**onfiguration **P**rotocol) **-** A protocol that automatically configure the TCP/IP parameters for the all the PC(s) that are connected to a DHCP server.
- **DMZ** (**Dem**ilitarized **Z**one) **-** A Demilitarized Zone allows one local host to be exposed to the Internet for a special-purpose service such as Internet gaming or videoconferencing.
- **DNS** (**D**omain **N**ame **S**ystem) **-** An Internet Service that translates the names of websites into IP addresses.
- **Domain Name -** A descriptive name for an address or group of addresses on the Internet.
- **DSL** (**D**igital **S**ubscriber **L**ine) **-** A technology that allows data to be sent or received over existing traditional phone lines.
- **ISP** (**I**nternet **S**ervice **P**rovider) **-** A company that provides access to the Internet.
- **MTU** (**Maximum Transmission Unit**) **-** The size in bytes of the largest packet that can be transmitted.
- **NAT** (**N**etwork **A**ddress **T**ranslation) **-** NAT technology translates IP addresses of a local area network to a different IP address for the Internet.
- **PPPoE** (**P**oint to **P**oint **P**rotocol **o**ver **E**thernet) **-** PPPoE is a protocol for connecting remote hosts to the Internet over an always-on connection by simulating a dial-up connection.
- **SSID -** A **S**ervice **S**et **Id**entification is a thirty-two character (maximum) alphanumeric key identifying a

wireless local area network. For the wireless devices in a network to communicate with each other, all devices must be configured with the same SSID. This is typically the configuration parameter for a wireless PC card. It corresponds to the ESSID in the wireless Access Point and to the wireless network name.

- **WEP** (**W**ired **E**quivalent **P**rivacy) **-** A data privacy mechanism based on a 64-bit or 128-bit or 152-bit shared key algorithm, as described in the IEEE 802.11 standard.
- **Wi-Fi -** A trade name for the 802.11b wireless networking standard, given by the Wireless Ethernet Compatibility Alliance (WECA, see http://www.wi-fi.net), an industry standards group promoting interoperability among 802.11b devices.
- **WLAN** (**W**ireless **L**ocal **A**rea **N**etwork) **-** A group of computers and associated devices communicate with each other wirelessly, which network serving users are limited in a local area.

# EC Declaration of Conformity

| | | | |
|---|---|---|---|
| **English** | Hereby, **PLANET Technology Corporation,** declares that this **802.11ac Wireless Broadband ONU** is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. | **Lietuviškai** | Šiuo **PLANET Technology Corporation,**, skelbia, kad **802.11ac Wireless Broadband ONU** tenkina visus svarbiausius 1999/5/EC direktyvos reikalavimus ir kitas svarbias nuostatas. |
| **Česky** | Společnost **PLANET Technology Corporation,** tímto prohlašuje, že tato **802.11ac Wireless Broadband ONU** splňuje základní požadavky a další příslušná ustanovení směrnice 1999/5/EC. | **Magyar** | A gyártó **PLANET Technology Corporation**, kijelenti, hogy ez a **802.11ac Wireless Broadband ONU** megfelel az 1999/5/EK irányelv alapkövetelményeinek és a kapcsolódó rendelkezéseknek. |
| **Dansk** | **PLANET Technology Corporation,** erklærer herved, at følgende udstyr **802.11ac Wireless Broadband ONU** overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF | **Malti** | Hawnhekk, **PLANET Technology Corporation,** jiddikjara li dan **802.11ac Wireless Broadband ONU** jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC |
| **Deutsch** | Hiermit erklärt **PLANET Technology Corporation,** dass sich dieses Gerät **802.11ac Wireless Broadband ONU** in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten<br>Vorschriften der Richtlinie 1999/5/EG befindet". (BMWi) | **Nederlands** | Hierbij verklaart , **PLANET Technology orporation,** dat **802.11ac Wireless Broadband ONU** in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG |
| **Eestikeeles** | Käesolevaga kinnitab **PLANET Technology Corporation,** et see **802.11ac Wireless Broadband ONU** vastab Euroopa Nõukogu direktiivi 1999/5/EC põhinõuetele ja muudele olulistele tingimustele. | **Polski** | Niniejszym firma **PLANET Technology Corporation,** oświadcza, że **802.11ac Wireless Broadband ONU** spełnia wszystkie istotne wymogi i klauzule zawarte w dokumencie „Directive 1999/5/EC”. |
| **Ελληνικά** | *ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ* , **PLANET Technology Corporation,** *ΔΗΛΩΝΕΙ ΟΤΙ ΑΥΤΟ***802.11ac Wireless Broadband ONU** *ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ*<br>ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ | **Português** | **PLANET Technology Corporation**, declara que este **802.11ac Wireless Broadband ONU** está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE. |
| **Español** | Por medio de la presente, **PLANET Technology Corporation,** declara que **802.11ac Wireless Broadband ONU** cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de<br>la Directiva 1999/5/CE | **Slovensky** | Výrobca **PLANET Technology Corporation,** týmto deklaruje, že táto **802.11ac Wireless Broadband ONU** je v súlade so základnými požiadavkami a ďalšími relevantnými predpismi smernice 1999/5/EC. |
| **Français** | Par la présente, **PLANET Technology Corporation,** déclare que les appareils du **802.11ac Wireless Broadband ONU** sont conformes aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE | **Slovensko** | **PLANET Technology Corporation**, **s tem potrjuje,** da je ta **802.11ac Wireless Broadband ONU** skladen/a z osnovnimi zahtevami in ustreznimi določili Direktive 1999/5/EC. |
| **Italiano** | Con la presente , **PLANET Technology Corporation,** dichiara che questo **802.11ac Wireless Broadband ONU** conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva<br>1999/5/CE. | **Suomi** | **PLANET Technology Corporation,** vakuuttaa täten että **802.11ac Wireless Broadband ONU** tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen. |
| **Latviski** | Ar šo **PLANET Technology Corporation,** apliecina, ka šī **802.11ac Wireless Broadband ONU** atbilst Direktīvas 1999/5/EK pamatprasībām un citiem atbilstošiem noteikumiem. | **Svenska** | Härmed intygar, **PLANET Technology Corporation,** att denna **802.11ac Wireless Broadband ONU** står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG. |